R·I·T

General Information & Undergraduate Programs 1990–91

Rochester Institute of Technology
Rochester, New York

Rochester Institute of Technology
1990-91 Institute Calendar

• FALL QUARTER

September 2	Move-in Day for New Residents
September 2-5	Orientation for New Students
September 5	Open Registration (New and Returning Students)
September 5-8	All Classes Begin
September 13	End of Drop/Add Period
October 26	Last Day to Withdraw with a Grade of "W"
November 14	Last Day Class
November 17	Last Saturday Class
November 16,17, 19,20	FINAL EXAMS
November 20	Last Evening Class
November 21-29	Fall/Winter Break

• WINTER QUARTER

November 30	Open Registration
December 1	Saturday Classes Begin
December 3	Evening Classes Begin
December 3	Day Classes Begin
December 10	End of Drop/Add Period
December 21	Last Day of Classes Before Break
January 3,1991	Classes Resume
February 1	Last Day to Withdraw with a Grade of "W"
February 20	Last Day Class
February 22,23, 25,26	FINAL EXAMS
February 23	Last Saturday Class
February 27	Last Evening Class
February 28-March 7	Winter/Spring Break

• SPRING QUARTER

March 8	Open Registration
March 11	Evening Classes Begin
March 11	Day Classes Begin
March 9	Saturday Classes Begin
March 18	End of Drop/Add Period
May 3	Last Day to Withdraw with a Grade of "W"
May 17	Last Day Class
May 20-23	FINAL EXAMS
May 24	Last Evening Class
May 18	Last Saturday Class
May 25	COMMENCEMENT
May 26-30	Spring/Summer Break

About this bulletin

The RIT Undergraduate Bulletin does not constitute a contract between the Institute and its students on either a collective or individual basis. It represents RIT's best academic, social, and financial planning at the time of publication. Course and curriculum changes, modification of tuition; fees; dormitory, meal, and other charges; plus unforeseen changes in other aspects of RIT life sometimes occur after the bulletin has been printed, but before the changes can be incorporated in a later edition of the same publication. Because of this, Rochester Institute of Technology does not assume a contractural obligation with its students for the contents of this Undergraduate Bulletin.

RIT will admit and hire men and women, veterans, persons with disabilities, and individuals of any race, creed, religion, color, national or ethnic origin, sexual orientation, age, or marital status, in compliance with all appropriate legislation.

General Information and Undergraduate Study 1990-91

Produced by RIT Communications

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For more information concerning undergraduate study at RIT, or for a complete list of courses offered, write or phone:

Rochester Institute of Technology
Office of Admissions
Bausch & Lomb Center
P.O. Box 9887
Rochester, N.Y. 14623-0887
(716)475-6631

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Overview of Rochester Institute of Technology

RIT at a Glance

FOUNDED IN 1829 and emphasizing career education, RIT is a privately endowed, coeducational university comprised of nine colleges.

RIT is chartered by the legislature of the State of New York and accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools. In addition to institutional accreditation, curricula in some of the colleges are accredited by appropriate professional accreditation bodies. Where applicable, specific mention of these is included in the college descriptions.

The campus occupies 1,300 acres in suburban Rochester, the third largest city in New York State.

The RIT student body consists of approximately 8,500 undergraduate students, including nearly 1,100 deaf students who attend RIT through the National Technical Institute for the Deaf (NTID), 1,500 graduate students, and 4,000 part-time students. Enrolled students represent all 50 states and 63 foreign countries.

RIT alumni number more than 60,000 worldwide, including 2,600 deaf graduates.

RIT is the fourth oldest and fifth largest cooperative education institution in the United States, annually placing 3,100 students in co-op positions with approximately 1,300 employers.

More than 600 companies visit RIT annually, conducting over 9,000 on-campus interviews. In addition, approximately 5,000 positions are listed with the Cooperative Education and Placement Office each year.

Three national sororities and 10 national fraternities offer social activities and promote high scholastic and social standards among their members. Student affiliate chapters of a number of national technical associations also are located on the campus.

Athletics, intramurals, fitness: RIT offers a wide variety of activities for students at all levels of ability. Men's hockey, soccer and lacrosse continue to be ranked nationally, and many other teams receive recognition in the Northeast.

Men's Teams—baseball, basketball, cross country, ice hockey, lacrosse, soccer, swimming, tennis, track and wrestling

Women's Teams—ice hockey, basketball, tennis, track, swimming, cross country, soccer, Softball and volleyball

Over 60 percent of RIT students participate in one or more of our 21 intramural programs. Indoor and outdoor facilities include two gymnasiums, ice arena, swimming pool, fitness center, wrestling room, 12 tennis courts, all-weather track, an air-supported structure housing three multi-purpose courts and numerous athletic fields.

ROTC leadership and management classes are an adjunct to the curriculum and offer eligible undergraduates excellent scholarship opportunities. All three ROTC branches are available. (For additional information, see page 37.)

Visits to campus are encouraged and may be arranged in advance by writing or calling (716) 475-6631. Visits to the National Technical Institute for the Deaf may be arranged by calling (716) 475-6318, voice or TDD.

Wallace Memorial Library has, in addition to 300,000 books, the largest microfilm collection and the most extensive collections of video-cassettes, slides, filmstrips, microfiche, motion pictures, Super 8 cartridges, and recordings of any area college library.

Computing services: RIT provides computing services on VAX/VMS and VAX/ULTRIX (UNIX) systems, and various microcomputers to students regardless of their majors. These services are provided at no cost to students. Central computer systems can be accessed via telephone or terminals in six different User Computing Centers. Publications and free seminars are available. Many RIT colleges have additional computing facilities available to students in their programs.

Housing: Many of RIT's full-time students live in RIT-operated residence halls. On-campus fraternities, sororities and special-interest houses are available. Freshmen are guaranteed housing; upper-class students may live in residence halls, on-campus apartments or townhouses.

Specially equipped rooms for deaf students include visual warning systems.

Student activities: Major social events include Homecoming, Parents Weekend, Winter Weekend and Spring Weekend, along with dances, parties, speakers and events sponsored by the College Activities Board, Residence Halls Association, Greek Council and special interest clubs of many kinds.

RIT Today

RIT is a university held in high esteem, attracting outstanding students from across America and around the world.

RIT's reputation for quality comes from a dedication to providing the finest possible career preparation for today's students. This has attracted some of the nation's leading faculty to RIT and has led to the development of academic programs combining outstanding teaching, a strong foundation in the liberal arts and sciences, modern classroom facilities, and work experience gained through the Institute's cooperative education program.

More than 200 different programs attract 12,000 undergraduate and 1,500 graduate students to an astounding array of distinctive academic areas such as microelectronic engineering, imaging science, computer graphics, packaging science, film/video, biotechnology, ultrasound, printing management, international business management, manufacturing management, telecommunications technology, and the programs of the School for American Craftsmen and the National Technical Institute for the Deaf.

As a major comprehensive university, RIT's programs extend beyond science and technology. RIT offers more liberal arts courses and a larger liberal arts faculty than you would find at most liberal arts colleges. With a strong foundation in humanities and social sciences, RIT students not only understand the latest technological developments, they can also address the larger philosophical and ethical issues presented by technology.

For over 75 years, the hallmark of an RIT education has been the practical paid work experience provided through **cooperative education.** RIT was the first university in New York State to begin cooperative education back in 1912. Today the Institute's co-op program is the fourth oldest and fifth largest in the world, providing both work experience and financial resources for RIT students. More than 3,000 junior and senior level co-op students are employed each year with some 1,300 firms coast to coast. The co-op salaries earned by these students total over $14 million.

RIT has provided quality programs for successful careers since 1829, and the Institute has more than 60,000 alumni making an impact around the world. We are confident that RIT is preparing today's graduates to become tomorrow's leaders.

RIT students

Reflecting the diversity of RIT's programs, students come from every state and more than 60 foreign countries. More than one third are **transfer students,** who have enrolled from two-year colleges or other four-year institutions. About one third of the Institute's students are **women,** and **adult** and **part-time students** comprise a significant proportion of the total enrollment.

Veterans, often a little older and usually ready to move directly toward a career goal, find at RIT a serious purpose and a place to make up lost time with minimal adjustment problems.

The more than 1,000 **deaf students** enrolled in RIT's National Technical Institute for the Deaf make a distinct contribution to the educational environment. Deaf and hearing students often share the same dormitories and sometimes the same room. They play on the same teams and attend many of the same classes. Hearing students may participate in programs for deaf students by interpreting, tutoring or taking class notes for them. RIT is proud of its part in this national educational effort for deaf people. (For more information on NTID, see page 148.)

Emphasis on diversity

RIT is proud to be a multicultural place of learning, and students can greatly benefit by living and learning on a campus that so values the diversity of its student body. We are fortunate to have a campus that consists of students from many different backgrounds, cultures, and lifestyles. This diversity offers the community an opportunity to become both personally and professionally enriched by taking advantage of the many formal and/or informal cultural offerings.

RIT's commitment to establishing an environment that encourages appreciation of differences is evidenced in several ways. Courses offered by the College of Liberal Arts include Black Literature, History of Social Discrimination, The Immigrant in American History, and Hispanic American Culture.

There also are many campus events that provide opportunities to learn about different cultures and lifestyles representative of our students, faculty, and staff. Programs are presented by various groups and organizations on campus in a number of ways. RIT also celebrates annual events such as the International Banquet, Black History Month, Deaf Awareness Week, Martin Luther King Celebration, and Hispanic Heritage Week.

Students should take advantage of these many opportunities that RIT provides. The world we will be living in, and the environment we will be working in, will be composed of people from many different backgrounds, lifestyles, and cultures. We should all strive to end ethnic prejudice as there is no room for cultural factionalism in today's world. There also is no room for prejudice against those with alternative lifestyles or those who may be physically disabled.

Graduates will have a lifelong advantage if they leave RIT with an understanding and appreciation of society's rich diversity.

Colleges and Schools

Applied Science and Technology (Computer Science and Information Technology; Engineering Technology; Food, Hotel and Tourism Management; Packaging Science)

Business

Continuing Education

Engineering

Fine and Applied Arts (Art and Design, School for American Craftsmen)

Graphic Arts and Photography (Imaging Science, Printing Management and Sciences, Photographic Arts and Sciences)

Liberal Arts

Science

National Technical Institute for the Deaf

Degrees: RIT offers the associate in arts (AA), associate in science (AS), associate in applied science (AAS), associate in occupational studies (AOS), bachelor of fine arts (BFA), bachelor of science (BS), bachelor of technology (B. Tech.), master of business administration (MBA), master of engineering (ME), master of fine arts (MFA), master of science (MS), master of science for teachers (MST), and the nation's only doctoral program (Ph.D.) in the field of imaging science.

Undergraduate Full-Time Programs	College	Degree and HEGIS*								Page
		Cert.	Dipl.	AOS	AS	AAS	BFA	BS	B.Tech	
Accounting	Business							0502		44
Applied Accounting	NTID		5002				5002			153
Applied Art	NTID	5012	5012			5012				168
Architectural Drafting	NTID		5304							163
Architectural Technology	NTID					5304				164
Biology	Science				5604			0401		135
Biotechnology	Science							0499		136
Business Occupations	NTID	5005								154
Business Technology	NTID									154
Ceramics & Ceramic Sculpture	Fine & Applied Arts					5610	1009			94
Chemistry	Science				5619			1905		137
Civil Technology	NTID					5309				163
Communication, Tech. & Professional	Liberal Arts							0601		126
Communications!										
Biomedical Photographic	Graphic Arts & Photography					5299		1217		101
Computer Science	Applied Science & Technology					5101		0701		11
Computing, Biomedical	Science				**			1217		144
Craft Major, Double	Fine & Applied Arts						1009			93
Criminal Justice	Liberal Arts							2105		120
Data Processing	NTID	5101	5101			5101				156
Design										
Graphic	Fine & Applied Arts					5012	1009			91
Industrial and Interior	Fine & Applied Arts					5012	1009			91
Diag. Med. Sonography (Ultrasound)	Science					5299		1299		147
Dietetics & Nutritional Care, General	Applied Science & Technology					5404		1306		33
Economics	Liberal Arts							2204		125
Educational Interpreting	NTID					5506				
Electromechanical Technology	NTID					5311				165
Engineering										
Computer Engineering	Engineering							0999		80
Electrical Engineering	Engineering							0909		81
Industrial Engineering	Engineering							0913		82
Mechanical Engineering	Engineering							0910		84
Microelectronic Engineering	Engineering							0999		86
Engineering Technology										
Civil Engineering Technology	Applied Science & Technology							0925	0925	14
Computer Engineering Technology	Applied Science & Technology					5399		0925		16
Electrical Engineering Technology	Applied Science & Technology							0925		18
Manufacturing Engineering Technology	Applied Science & Technology							0925		26
Mechanical Engineering Technology	Applied Science & Technology							0925		22
Telecommunications Technology	Applied Science & Technology							0925		20
Film/Video	Graphic Arts & Photography					5008		1010		102
Finance	Business							0504		45
Foodservice Management	Applied Science & Technology					5404		1307		30
Glass	Fine & Applied Arts					5012	1009			94
Histologic Assistant	NTID	5205								158
Hotel and Resort Management	Applied Science & Technology					0508		5010		31
Illustration										
Medical Illustration	Fine & Applied Arts						1299			92
Painting-Illustration	Fine& Applied Arts					5610	1002			91
Printmaking-Illustration	Fine & Applied Arts					5610	1002			91
Imaging Science	Graphic Arts & Photography					5007		1011		108
Imaging & Photographic Technology	Graphic Arts & Photography					5007		1011		103
Industrial Drafting	NTID		5303							166
Industrial Drafting Technology	NTID			5303		5303				166
Information Systems	Business							0599		46
International Business	Business							0513		51

' Higher Education General Information Survey
" Students in these programs receive an AS in General Science (HEGIS #5649) upon successful completion of the first two years.
† See also: Design (Graphic); Film/Video; Imaging & Photographic Technology; Medical Illustration; Packaging Science (Design Option); Photographic Illustration (Professional); Printing; and Printing & Applied Computer Science.

Undergraduate Full-Time Programs	College	Degree and HEGIS*								Pag*
		Cert.	Dipl.	AOS	AS	AAS	BFA	BS	B.T*ch	
Management	Business							0506		48
Manufacturing Management	Business							0506		47
Manufacturing Processes	NTID		5312							167
Marketing	Business							0509		49
Mathematics										
Applied Mathematics	Science				5617			1703		140
Computational Mathematics	Science							1703		141
Medical Laboratory Technology	NTID					5205				158
Medical Record Technology	NTID					5213				159
Medical Technology	Science				**			1223		145
Metalcrafts & Jewelry	Fine & Applied Arts					5012	1009			94
Newspaper Operations Management	Graphic Arts & Photography							0699		113
Nuclear Medicine Technology	Science							1299		146
Office Technologies	NTID		5005			5005				155
Ophthalmic Optical Finishing Technology	NTID			5212						160
Optical Finishing Technology	NTID	5212	5212			5212				160
Packaging Science	Applied Science & Technology							4999		35
Packaging Science (design option)	FineS Applied Arts							4999		92
Painting, Printmaking	Fine & Applied Arts					5610	1002			91
Photo/Media Technologies	NTID	5007	5007			5007				169
Photographic Illustration, Professional	Graphic Arts & Photography					5007	1011			106
Photographic Marketing Management	Business							0509		50
Photographic Processing & Finishing Management	Graphic Arts & Photography					5007		0599		105
Physics	Science				5619			1902		143
Polymer Chemistry	Science							1907		139
Printing	Graphic Arts & Photography					5009		0699		109
Printing & Applied Computer Science	Graphic Arts & Photography							0699		114
Printing Production Technology	NTID	5009	5009	5009		5009				172
Printing Systems	Graphic Arts & Photography							0699		112
Professional and Technical Communication	Liberal Arts							0601		126
Social Work	Liberal Arts							2104		122
Statistics, Applied	Science							1702		142
Travel Management	Applied Science & Technology					0510		5011		32
Weaving & Textile Design	Fine& Applied Arts					5012	1009			94
Woodworking & Furniture Design	Fine & Applied Arts			5317		5012	1009			93

• Higher Education General Information Survey

" Students in these programs receive an AS in General Science (HEGIS 05649) upon successful completion of the first two years.

† See also: Design (Graphic); Film/Video; Imaging A Photographic Technology; Medical Illustration; Packaging Science (Design Option); Photographic Illustration (Professional); Printing; and Printing & Applied Computer Science.

Undergraduate Part-time Programs	College	Degree and HEGIS* Codes						Page
		AS	Cert.	Dipl.	AAS	BS	B.Tech	
Accounting	Continuing Education				5002			57
Accounting	Business					0502		44
†Advanced Communications - Public Relations	Continuing Education		5008					60
Applied Arts & Science[1]	Continuing Education			5699	5699	4999		53
Applied Science								
Mechanical	Continuing Education				5301	0910		68
Mechanical/Industrial	Continuing Education				5301	0913		67
Basic & Advanced Technical Communication	Continuing Education		5008					61
Building Technology	Continuing Education			317				73
Business Administration	Continuing Education				5001			57
Computer Science	Applied Science & Technology	5101						70
Computer Service Technology	Applied Science & Technology			5105				76
Computer Systems	Applied Science & Technology				5101			66
Criminal Justice	Liberal Arts					2204		120
Deaf Studies	Continuing Education		5506					62
Economics	Liberal Arts					2204		125
Emergency Management	Continuing Education							54
Engineering Science	Continuing Education				5609"			69
Engineering Technology								
Electrical Engineering Technology	Applied Science & Technology					0925		18
Manufacturing Engineering Technology	Applied Science & Technology					0925		26
Mechanical Engineering Technology	Applied Science & Technology					0925		22
Telecommunications Technology - Management	Applied Science & Technology					0925		21
Finance	Business				0504			45
Fine and Applied Arts	Continuing Education			5012				63
General Education	Continuing Education				5699			59
General Management	Continuing Education				5004			55
Graphic Arts	Continuing Education				5012	1002		65
Industrial Technology								
Building	Applied Science & Technology				5317			73
Electrical	Applied Science & Technology				5310			71
Electromechanical	Applied Science & Technology				5311			72
Mechanical	Applied Science & Technology				5315			74
Instrument Making & Experimental Work	Continuing Education			5312				75
Logistics & Transportation Management	Continuing Education				5004			57
Machine Shop	Continuing Education			5303				75
Management	Business					0506		48
Management Development (also certificate, 5004)	Continuing Education			5004				56
Manufacturing Management	Business					0506		47
Manufacturing Technology	Applied Science & Technology				5399			74
Marketing	Continuing Education				5004			57
Marketing	Business					0506		49
Personnel Administration	Continuing Education				5004			57
Photography	Continuing Education			5007				63
Printing	Continuing Education			5009				63
Production Management	Continuing Education				5004			57
Professional Photography	Continuing Education				5007			64
Public Relations								
Professional Writing	Continuing Education		5008					60
Graphic Communications	Continuing Education		5008					60
Public Relations & Technical Communications Services	Continuing Education		5008					61
Real Estate/Insurance+	Continuing Education							57
Social Work	Liberal Arts					2104		122
Tool & Die Making	Continuing Education			5312				75

'Higher Education General Information Survey
"AS degree
+Courses offered forNYS licensing
tState Education Dept. approval pending
'Students can also participate on a full time basis

College of Applied Science and Technology

Wiley R. McKinzie, Dean

Organized in 1972, the College of Applied Science and Technology incorporates the School of Engineering Technology; the School of Computer Science and Information Technology; the School of Food, Hotel and Tourism Management; and the Department of Packaging Science. The college has programs at the associate, baccalaureate, and master's degree levels. CAST also incorporates the Department of Military Science and the Department of Aerospace Science, ROTC (see page 37).

The School of Engineering Technology accepts freshmen and transfer students with appropriate associate degrees. With its excellent laboratories, strong tradition of cooperative education, and experienced faculty, the school offers quality programs emphasizing the application of existing technology to engineering problems in manufacturing, power, electronics, telecommunications, construction, energy, and environmental concerns.

The School of Computer Science and Information Technology is comprised of two departments: the Department of Computer Science and the Department of Information Technology.

The Department of Computer Science was established in 1971. It has become one of the most highly regarded undergraduate schools of computer science in the nation. Its CSAB-accredited bachelor of science program consists of a two-year foundations component covering programming, algorithmic design, data structures, program design, computer organization, and file organization. An advanced topics component includes computer science theory, programming language concepts, operating systems, and data communications; and a concentration component in one of the areas of software engineering, systems software, networking and distributed systems, computer information systems, digital systems design, computer science theory, artificial intelligence, and computer graphics. The program also includes a full year of co-op. The undergraduate curriculum is supported by dedicated computer facilities, which include numerous Sun workstations driving seven special purpose laboratories: first year, professional programming, computer graphics, operating systems, software engineering, computer architecture, and computer networking. All computer systems run in the UNIX environment and are connected with Ethernet. The faculty are computer science professionals and dedicated teachers with advanced degrees in computer science, as well as years of experience in the computer industry. The computer science program is open to both freshman and transfer students.

The Department of Information Technology offers computing courses for students not majoring in computer science as well as graduate programs in software development and management, instructional technology, and interactive media design.

The School of Food, Hotel and Tourism Management became part of the College of Applied Science and Technology in 1982, but it has roots in the early history of RIT. Ultra modern food and travel laboratories and state-of-the-art computer facilities offer students a wide variety of program choices. Cooperative education, which alternates periods of study and employment, is required of all students and provides the possibility of assignments at locations throughout the world. Those graduates who earn a BS degree with a major in dietetics (Plan IV Traditional Option) are qualified to apply for American Dietetic Association internships.

The Department of Packaging Science, one of only a handful of baccalaureate degree packaging programs in the nation, draws heavily upon courses offered in other schools and colleges of the Institute. With a core of experientially based packaging courses, the broadly developed curriculum is representative of the areas of knowledge that are basic to the packaging industry. Two quarters of cooperative education experience are required in this department.

Resources

The experiential nature of all of the programs in the College of Applied Science and Technology requires excellent facilities and equipment. The Institute continually updates and adds equipment to maintain laboratories that contain state-of-the-art equipment. The engineering technology programs share facilities with the College of Engineering with additional laboratories in CAD/CAM systems, robotics, controls, and soils. A CAD laboratory based on Intergraph hardware supports a number of courses. The extensive computer facilities mentioned previously are totally dedicated to academic support of Undergraduate Computer Science and its joint programs. The packaging science laboratories have some of the most advanced and sophisticated packaging testing equipment in the country. The laboratories in the School of Food, Hotel and Tourism Management rival those in the industry and are coordinated by computer systems.

Acceptance of the associate degree

With the exception of the computer engineering technology and the telecommunications technology programs, the School of Engineering Technology gives holders of an appropriate associate degree from a community, junior, or technical college (or other similar two-year institutions) full credit for those curricula leading to the bachelor's degree.

Engineering technology students may receive the engineering technology bachelor's degree in three years of additional study in the cooperative educational program.

The Department of Packaging Science and the Department of Computer Science admit students into upper-division years and accept the associate degree at full value if the associate degree is obtained in a packaging science program or a computer science program, respectively.

Please see the Food, Hotel and Tourism Management section for details about its transfer policies.

Faculty
Members of the faculty in CAST are highly regarded teachers who have had considerable experience in their respective industrial fields and/or teaching in two-year and four-year colleges, and have completed graduate programs in the various areas of their specialties. All are committed to rigor and academic excellence. While teaching is their primary concern, they serve as active industrial consultants and researchers to maintain current knowledge in their respective fields. The faculty are committed to student growth and development.

Program planning
Each student in CAST is considered individually when his or her program is planned. The diversity of subject background from the two-year colleges necessitates an almost tailor-made pattern of courses and knowledge to assure that associate degrees retain the integrity they deserve, and guaranteeing, as far as possible, that previously studied material will not be repeated.

Admission at a Glance

General information on RIT's admission requirements, procedures and services is included in detail on pages 176-177 of this bulletin.

College of Applied Science and Technology Programs
The College of Applied Science and Technology prepares students for a world of rapidly expanding technological applications and for a world rapidly becoming service driven. The programs reflect RIT's goal of offering students relevant, leading-edge, career-oriented programs that lead to rewarding employment.

The college includes the School of Engineering Technology, the School of Computer Science and Information Technology, the Department of Packaging Science, and the School of Food, Hotel and Tourism Management.

In addition to the programs described in this section, the college also offers the following:

School of Computer Science and Information Technology—AS, Computer Science; AAS, Computer Systems. Contact Eydie Lawson at 475-2995 for more information.

School of Engineering Technology—AAS, Industrial Technology (Electrical, Building Technology, Mechanical, Electromechanical); AAS, Manufacturing Technology; Diploma, Computer Service Technology; Certificate, Computer Aided Design; Certificate, Engineering Graphics. Contact Jim Scudder, 475-5190, for further information.

Computer Science: The **CSAB**-accredited undergraduate computer science program educates students for positions requiring a strong background in computing theory and practice. Graduates are prepared to enter graduate school or to pursue careers as system software specialists, software engineers, research programmers, systems programmers, applications specialists or computer systems analysts. Degree granted: **BS**—5 year with co-op.

Packaging Science: Three program options—technical, management, or printing—prepare students for initial employment in the technical and engineering aspects of package development and production, structured design, product development, sales, customer technical service, purchasing, or marketing of the company's products. Degree granted: BS—4 year.

Civil Engineering Technology: A program providing broad-based knowledge that leads graduates to employment opportunities in various branches of the civil industry. The program enables the student to pursue career interests through the selection of technical electives in structures, water resource management, environmental controls, construction management, and heavy construction. Degree granted: BS—5 year with co-op.

Computer Engineering Technology: A program that integrates the skills of digital electronics design with the programming skills of computer science. The courses emphasize current technology in computers and graduates are prepared for employment in designing, manufacturing and servicing computer systems. Transfer into the program with advanced standing is available for those with associate degrees in appropriate fields. Degrees granted: AAS—2 year; BS—5 year with co-op.

Electrical Engineering Technology: The first two years of the program provide basic courses in electricity, electronics, programming, physics and technical calculus. The upper division of the program provides further mastery in analog and digital electronics, transformed circuits, control systems, and applied differential equations. Elective options in electronic communications, digital computer design, microelectronics and electric power systems are available in the last two years of the program. Transfer into the program with junior standing is available for AAS degree holders from programs in electrical or electronic engineering technology. Degree granted: BS—5 year with co-op.

Telecommunications Technology: A program which is designed to place graduates in the rapidly growing field of telecommunications. Options are available in technology and in management. The first two years of both options are identical, emphasizing an introduction to telecommunications and to electrical technology, with foundations in mathematics, physics, computer programming, and the liberal arts.

The Technical Option emphasizes courses specific to telecommunications hardware and software in the last three years. Several technical elective areas in electronic communications and other electrical engineering technology areas are available. The Management Option has six courses in business, plus several hardware and software telecommunications courses. Both options have courses that discuss current regulatory policies.

Transfer into the program with advanced standing is available for those with associate degrees in appropriate fields. Degree granted: BS—5 year with co-op.

Mechanical Engineering Technology: The mechanical engineering technology program is designed to prepare individuals to work in all the traditional mechanical areas including machine design; thermal analysis; mechanical testing; product design; utilities operations; manufacturing; and heating, ventilating and air conditioning, as well as sales and service of mechanical equipment of all types. The program is broad in scope and graduates are able to select jobs in a diverse number of industries. Degree granted: BS—5 year with co-op.

Freshman Admission Requirements

Transfer Admission with Junior Standing

Program!	Required High School Subjects*	Desirable Elective Subjects	Two-Year College Programs
Computer Science	Elem. Algebra Inter. Algebra Plane Geometry Trigonometry Physics or Chemistry	Additional mathematics and science	Computer science
Packaging Science	Elem. Algebra Inter. Algebra 1 year any science Additionally, for the Technical option, Plane Geometry; Trigonometry	Additional mathematics and science	Packaging science, business administration, engineering technology, science, or equivalent
Computer Engineering Technology	Elem. Algebra Inter. Algebra Plane Geometry Trigonometry Physics or Chemistry	Additional mathematics and science	Computer technology, electronics technology, computer science
Civil Engineering Technology	Elem. Algebra Inter. Algebra Plane Geometry Trigonometry Physics or Chemistry	Additional mathematics and science	Civil, construction, environmental, architectural, transportation and surveying technology, engineering science or equivalent
Electrical Engineering Technology	Elem. Algebra Inter. Algebra Plane Geometry Trigonometry Physics or Chemistry	Additional and science	Electrical technology, electronics technology, engineering science, or equivalent
Mechanical Engineering Technology	Elem. Algebra Inter. Algebra Plane Geometry Trigonometry Physics or Chemistry	Additional mathematics and science	Mechanical technology, drafting and design technology, air conditioning technology, electromechanical technology, or equivalent; engineering science
Manufacturing Engineering Technology	Elem. Algebra Inter. Algebra Plane Geometry Trigonometry Physics or Chemistry	Additional mathematics and science	Manufacturing technology, mechanical technology, electromechanical technology, drafting & design technology, robotics technology or equivalent; engineering science
Telecommunications Technology	Elem. Algebra Inter. Algebra Plane Geometry Trigonometry Physics or Chemistry	Additional mathematics and science	Telecommunications technology, electrical technology, electronic technology, engineering science, or equivalent
Food Management, Hotel and Resort Management, Travel Management	Elem. Algebra Inter. Algebra 1 year chemistry	Additional mathematics and science	Foodservice management, culinary arts, hospitality management, hotel-motel management, travel and tourism management
General Dietetics & Nutritional Care a) Plan IV b) Coordinated Program (C.P.)	Elem Algebra Inter. Algebra 1 year chemistry	Biology; additional mathematics	Dietetics or equivalent

tAll options include electives in social science, literature and humanities.
'Four years of English are required in all programs, except where state requirements differ.

Manufacturing Engineering Technology: A program designed to provide the skills necessary for applying both today's and tomorrow's manufacturing technologies. Major emphasis is placed on computer-integrated manufacturing. Courses in the program prepare graduates for employment in such fields as manufacturing, computer-aided design and manufacturing, robotics, and quality control. Students are admitted as freshmen as well as at the junior level. Degree granted: BS—5 year with co-op.

Food, Hotel & Tourism Management: Students choose their majors from four career programs: foodservice management, hotel and resort management, travel-tourism management, and general dietetics and nutritional care. The curriculum includes course work in the student's major as well as studies in business, liberal arts and sciences. This balanced approach gives the student a broad professional education complemented by laboratory, experiential project, and industry experience. Industry professionals regularly offer their expertise in all of the program courses.

The foodservice management program prepares graduates for a wide choice of management careers in the $200 billion foodservice industry: restaurants, hotels, clubs, contract services, health care, educational and other institutions. The balanced academic program, lab practice, and practical work experience through cooper ative education provides graduates with a depth of exposure that prompts a demand for RIT graduates by food and beverage operators.

The hotel and resort program enables students to build their managerial skills through a balanced program concentrating on basic hospitality principles, operations, business and financial management, liberal arts, cooperative education, hands-on class projects, laboratories, and school activities.

The travel-tourism management program addresses the full range of topics associated with the dynamic and expanding travel and tourism industry.

Graduates of the fully approved and accredited, General Dietetics and Nutritional Care Program can, with their base of knowledge about nutrition, practice in many settings from the acute care hospital to wellness centers. The program combines clinical, business and liberal arts courses, enabling graduates to meet today's industry demand for managerial skills. Two options are offered: traditional with co-op, and coordinated (C.P.) that meets the eligibility requirements for the National Registration Examination for Dietitians. Degree granted: BS in Dietetics.

During the fall of 1990, the school will develop a fifth major. The food marketing and distribution major will be added. This new major will use some of the existing courses and additionally will provide areas of expertise to the student, to include food packaging and distribution and marketing food products. Call for additional information about this program.

Each separate discipline above uses a capstone series of coursework specifically aimed at addressing the service economy, human resources, training, and leadership and executive development.

*Upper-division program only

School of Computer Science and Information Technology

William J. Stratton, Director, School of Computer Science and Information Technology
John A. Biles, Chairperson, Department of Computer Science
Guy Johnson, Chairperson, Department of Information Technology

The School of Computer Science and Information Technology offers programs leading to the bachelor's and master's degrees. At the undergraduate level, the nationally accredited bachelor of science degree in computer science is offered to both high school and two-year college graduates, as first-year and upper-division students respectively. The curriculum is designed to meet the staffing demands of industry, government and education. In light of this, both theoretical foundations and applied aspects of computer science and computer technology are emphasized. Laboratory facilities provide the opportunity for hands-on experience, and students are encouraged to use these resources for experimentation. Graduates of the Computer Science program are fully prepared for employment in computer industries and computer applications departments, or for further study at the graduate level.

Supplementing the computing provided by Information Systems and Computing as listed in the Student Services section of this catalog, the School of Computer Science and Information Technology provides extensive facilities for students and faculty. The facilities dedicated exclusively to the support of Undergraduate Computer Science include:

- **First-Year Laboratory** is devoted to the support of first-year students. Thirty SUN 3/50 workstations and three file servers provide an edge for training students in the discipline of programming.

- **Professional Programming Laboratory** is equipped with 40 SUN 3/50 and 3/80 workstations and five file servers. After completing the freshman sequence in the First-Year Laboratory, the Pro-Lab is the main computing resource for the duration of the program.
- **Computer Graphics Laboratory** provides a state of the art environment for the study of computer graphic techniques using eight SUN 3/60 color workstations and a file server.
- **Networking and Distributed Systems Laboratory** focuses on the study of data communications and networking strategies utilizing seven SUN 2/120 workstations and a file server as networking tools.
- **Digital Logic Laboratory** provides a hands-on opportunity for students to appreciate and understand the computer equipment they work with throughout the program. This lab is designed for non-Electrical Engineering students.

Undergraduate Computer Science has focused on the use of the UNIX operating system because of its applicability to software development. All of these facilities support the UNIX operating system and are connected by a high-speed Ethernet network. Through this network, students also have access to other off-campus networks, such as NYSERNET, USENET, and BITNET. There are also 77 dial-in modem connections, over 20 printers, and Apple Macintosh microcomputers available for student use.

Separate facilities and laboratories are available for school administrative operations and the students in the Graduate Computer Science and Information Technology programs. Those facilities include the following computer systems: two AT&T 3B2/522, one AT&T 3B2/600, four AT&T 3B2/400, 20 AT&T 3B1, eleven AT&T 8386, 50 Apple Macintosh systems, three Masscomp super micros, and a 64-processor INMOS Transputer parallel processing workstation.

Yr.	COMPUTER SCIENCE PROGRAM, BS DEGREE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	ICSP-241 Programming I-Algorithmic Structures	4		
	ICSP-242 Programming II-Data Structures		4	
	ICSP-305 Assembly Language Programming			4
	SMAM-251,252,253 Calculus	4	4	4
	SPSP-311,312 University Physics or SCHG-211,212 Chemical Principles		3-4	3-4
	SPSP-375,376 University Physics Lab or SCHG-205,206 Chemistry Lab		1	1
	GLLC-220 English Composition	4		
	* Liberal Arts	4	4	4
	‡ Physical Education Electives	0	0	0
2	ICSP 243-Programming III-Design and Implementation	4		
	ICSS-325 Data Organization and Management		4	
	ICSS-315 Digital Computer Organization			4
	Professional Computer Science Elective [1]			4
	SPSP-313 University Physics III or SCHG-213 Organic Chemistry	3-4		
	SPSP-377 University Physics Lab III or SCHG-207 Organic Chemistry Lab	1		
	SMAM-265,266 Foundations of Discrete Mathematics I, II	4	4	
	SMAM-351 Probability			4
	* Liberal Arts	4	4	4
	Free Elective		4	
	‡ Physical Education Electives	0	0	0
3	ICIC-444 Technical Writing for Computer Scientists		2	
	ICSS-380 Introduction to Computer Science Theory		4	
	ICSS-440 Operating Systems		4	
	ICSS-420 Data Communication Systems		4	
	ICSP-450 Programming Language Concepts		4	
4	Computer Science Concentration [2]		8-12	
5	Computer Science Electives [3]		12-16	
	Non-CS Concentration [4]		16	
	* Liberal Arts		26	
	Science Electives		8	
	Free Elective [5]		4	
	Cooperative Education (4 quarters)			

[11The professional computer science elective in the second year must be chosen from the following courses:
ICSP-306 Systems Programming Fundamentals
ICSP-307 Business Applications Programming
ICSS-312 Introduction to Software Engineering
ICSP-319 Scientific Applications Programming

PJThe computer science concentration consists of one of the following course sequences:
Systems Software
ICSS-520 Computer Architecture
ICSS-540 Operating Systems Laboratory
ICSS-580 Language Processors
Networking and Distributed Systems
ICSS-540 Operating Systems Laboratory
ICSS-541 Introduction to Computer Networks
ICSS-542 Distributed Systems Laboratory
Digital Systems Design
ICSS-400 Logic Design
ICSS-520 Computer Architecture
ICSS-545 Computer Architecture Laboratory
Computer Science Theory
ICSS-4 70 Finite State Machines
ICSS-480 Formal Languages
ICSS-515 Analysis of Algorithms
Software Engineering
ICSS-510 Software Specification and Design
ICSS-511 Software Testing and Quality Assurance
ICSS-555 Software Engineering Project Laboratory
Computer Information Systems
iCSS-435 Systems Specification, Design and Implementation
ICSS-485 Database Concepts
ICSP-486 Programming Systems Workshop
Computer Graphics
ICSS-S70 Introduction to Computer Graphics
ICSS-571 Computer Graphics Laboratory
Artificial Intelligence
ICSS-455 Artificial Intelligence
ICSS-456 Expert Systems

PIComputer science courses may be taken as computer science eiectives except as noted in the Course Description Catalog.

[4]A non-CS concentration consists of a set of coherent courses giving the student significant expertise in an area other than computer science. Typical concentrations include mathematics, engineering technology, and business

[5]Any course open to computer science majors may be taken as a free elective.

See page 116 for Liberal Arts requirements.

tSee page 200 for policy on Physical Education.

Computer Science Department

John A. **Biles,** Chairperson

The Bachelor of Science program, which is fully accredited by the Computer Science Accreditation Board (CSAB), attracts students who are interested in both the mathematical theory and technical applications of computer science. Most employers look for students who not only are good computer scientists, but also understand the tools and techniques of mathematics, science and industry. The BS program, then, is for the mathematically adept student who wishes to become a computing professional with knowledge of relevant applications areas. The program also will be attractive to students transferring to RIT with an associate degree in computer science backed up by significant course work in mathematics and science.

Computer science covers a wide spectrum of the field of computing. A computer scientist can specialize in areas such as data communications and networking, software engineering, digital systems design and computer architecture, systems software, programming languages, computing theory, computer graphics, artificial intelligence and information systems. It is important to note that programming is an important tool, but is only a part of the vast field of computer science.

An undergraduate computer science student is required to take a core of computer science courses, which provide a solid foundation for advanced work. Building on this base, students can explore a variety of specializations in their junior and senior years, choosing one of eight concentration sequences. In addition, students have the opportunity to develop a broad appreciation of computer applications and the effects of computers on society via computer science eiectives, liberal arts courses, and a non-computer science concentration in a second discipline.

The program of study in computer science is divided into five major areas:

1. Computer science: required and elective courses in the areas of program development, computer organization, graphics, data communications, networking, artificial intelligence, systems analysis, software engineering, and systems software.
2. Mathematics and science: courses covering calculus, physics or chemistry, probability, and discrete mathematics.
3. Liberal arts: courses in language and literature, humanities, and social sciences.
4. Non-computer science concentration: a coherent set of courses in a discipline other than computer science. Most programs in the Institute can form the basis for a non-computer science concentration.
5. Free eiectives: courses chosen by the student based on his or her personal preferences.

All students in Undergraduate Computer Science are required to obtain credit for one year (four quarters) of cooperative education prior to graduation. To help ensure that the goals of integrated academic and experiential education are attained, students must attend classes at RIT for at least one quarter after their final co-op block.

Extended Day Program

The BS program may be taken on a part-time basis during the evening hours by those who are employed full-time and desire to receive a baccalaureate degree. The typical evening student requires approximately 25 quarters to complete all the course requirements. Students with a strong associate degree in Computer Science can complete the upper-division course requirements in 13 quarters. The Computer Information Systems computer science concentration is the only one supported in the evening program.

School of Engineering Technology

W. **David Baker,** Director

Engineering technology is a relatively new field in higher education, and RIT was a pioneer in the development of such programs. Originally conceived as associate degree level educational programs, engineering technology curricula were designed to prepare people to work with engineers and scientists as technicians. This educational role is presently being carried out primarily in two-year community colleges and technical institutes.

More recendy, RIT again was a pioneer in the development of baccalaureate programs in engineering technology. The bachelor degree in engineering technology is designed to meet the growing need for engineering technologists at the baccalaureate level by business and industry.

Five-year programs

The School of Engineering Technology offers five-year cooperative education programs leading to the bachelor of science (BS) degree in:

1. Civil Engineering Technology
2. Computer Engineering Technology
3. Electrical Engineering Technology
4. Mechanical Engineering Technology
5. Manufacturing Engineering Technology
6. Telecommunications Technology

The upper division of these programs is designed specifically to accept graduates of associate degree programs in similar engineering technology fields, and provide a continuation of study in the student's area of specialization. Each program area consists of a carefully integrated program with professional studies, liberal education, mathematics, and on-the-job experience. Through the selection of technical eiectives, students can build and tailor their program based on previous knowledge and co-op experience to launch a career that best meets their needs and aspirations.

Students in the computer engineering technology program have the option of receiving an associate in applied science (AAS) degree after two years of study.

Accreditation
With the exception of the new program in Telecommunications Technology, all programs of study leading to the bachelor degree are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC/ABET). The School of Engineering Technology is a member institution of the American Society for Engineering Education and the Council of Engineering Technology in New York State.

Careers
The bachelor degree graduate—an engineering technologist—is a distinct type of professional whose main concern and interest is with existing operation, maintenance, and management of products and processes. As such, the graduate qualifies for positions to fulfill a role within the broad engineering requirements of business, industry and government. Graduates are finding increasing acceptance in positions formerly filled by engineers in such fields as sales engineering, manufacturing engineering, field service engineering, process engineering and product engineering. At the present time, the New York State Board for Engineering and Land Surveying requires the bachelor degree in engineering technology graduate to achieve additional experience prior to becoming eligible for the New York State Professional Engineer examination. Requirements differ in other states.

The associate degree graduate—an engineering technician—works closely with engineers and technologists and is prepared for positions requiring skills in fabricating and producing equipment as well as maintaining and operating apparatus and systems.

Cooperative education plan
An integral and significant part of each School of Engineering Technology program in engineering technology is on-the-job experience through the cooperative education plan. This involves alternate periods of academic study and related industrial employment.

The co-op plan provides opportunity for individual students to learn and become familiar with direct application of techniques, skills, and the latest developments in their field. Students are encouraged to explore and test the wide range of opportunities available. Such things as the specific type of work, the size of the company, the geographic location, and familiarization with the industrial community and environment can and do affect an individual's decision on the direction a future career might take. Only co-op can provide a suitable trial ground.

Obviously, co-op can also provide a significant income during the work periods which helps defray a major portion of one's educational expenses.

In the School of Engineering Technology each student is assisted in finding work related to specific career goals, however, as is the case in any employment situation, the major impetus must originate with the individual student. In some of the programs the junior class is divided into two sections with one half of the class on a co-op job, and the other half with their academic work. Detailed schedules are provided in the description of the individual programs on the following pages.

Admission requirements
Freshmen Students: Admission to five-year programs is open to high school graduates who have completed elementary and intermediate algebra, plane geometry, trigonometry, and physics or chemistry. Emphasis is placed on math and science skills.

Transfer Students: Admission to the upper division of the five-year programs is open to persons holding an associate degree in appropriate engineering technology fields, or an acceptable equivalent. Students should have earned a minimum 2.3 grade point average. Please refer to individual department requirements for a more complete definition of an acceptable degree.

Program requirements
In addition to the required technical courses of each program, a minimum of 38 quarter credit hours of liberal arts and 36 quarter credit hours of mathematics/sciences is required for the bachelor degree. For transfer students, the quantity of credits to be completed at RIT is the specified minimums minus the amount of credits of liberal arts and mathematics/sciences transferred from the two-year college.

Graduation requirements
The minimum academic requirements in the School of Engineering Technology are:
AAS degree—The degree of associate in applied science is awarded upon earning a minimum grade point average of 2.0 in the departmentally approved program.
BS degree—The bachelor of science degree is granted if the student has (1) earned a minimum grade point average of 2.0 in the departmentally approved program and (2) completed the required number of cooperative education blocks for the program.

Evening programs
The School of Engineering Technology offers the following upper-division (junior-senior) programs during the evening hours for part-time students:

1. Electrical Engineering Technology
2. Manufacturing Engineering Technology
3. Mechanical Engineering Technology
4. Telecommunications Technology—Management

The evening programs make it possible for students with full-time jobs during the day to receive a TAC/ABET-accredited degree on a part-time basis.

With the exception of the cooperative education and physical education requirements, the evening program requirements and graduation requirements are the same as the full-time day program. Additional part-time program information is provided in the description of the individual programs on the following pages. Persons wishing further information on part-time studies in the evening should contact the School of Engineering Technology part-time studies office at (716) 475-5190.

Civil Engineering Technology Department

Kevin M. Foley, Chairperson

Civil Engineering Technology, baccalaureate program

Background
The civil engineering profession requires the services of many individuals with a wide range of backgrounds and interests: technicians, technologists, and engineers.

The technologist translates the innovative concepts of the engineer into functioning systems and structures, using the language of codes, working drawings, and specifications.

Through electives, students have a choice of following any one of five elective paths. This, coupled with a broad based civil engineering core curriculum, provides for a good entry-level foundation in the industry, plus the ability to meet specific student interest. The program has provided graduates with extensive employment opportunities.

The program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC/ABET) and is operated as a cooperative education program.

Admission requirements
Freshmen: Admission to the five-year program is open to high school graduates with three years of mathematics (through trigonometry) and either chemistry or physics. Emphasis is placed on math and science skills.
Transfer: The admission of transfer students at the third-year level is open to all students who have already received an appropriate associate degree. An appropriate associate degree should include:

- Technical Math (2 semesters of college-level math with an introduction to calculus)
- Drafting
- Technical Physics (2 semesters)
- Soils Mechanics
- Plane Surveying
- Route Surveying
- Statics (Mechanics)
- Strength of Materials
- Methods and Materials of Construction

Students lacking these courses will still be admitted and may be required to take the missing courses concurrently within the program or in addition to the program requirements.

Normally, an associate in science degree is acceptable from an engineering transfer program with students taking courses they lack concurrently in the program. Typically, these students graduate in the same six academic quarters as an engineering technology transfer student.

Cooperative education plan
Work experience gained while completing alternating work and study quarters is especially valuable. A typical co-op job at an engineering consulting firm might include assisting engineers in design drafting, feasibility and preliminary report writing; inspecting, surveying, or investigating in the field. Other co-op students work in water and wastewater treatment plants, checking control panels, operating systems, pumps and other equipment. Students working in the construction field typically work a wide range of duties from craft supervision to assisting project superintendents, doing change orders, estimating, drafting, and surveying.

The scope of work accomplished varies with the interests of each student and increases in complexity with each succeeding job. Construction companies, facility departments of large corporations, engineering consultants, testing agencies, and all branches of government employ our students. Some students work all their co-op quarters with the same firm, while others choose from various work experiences. All are expected to use their education on the job and to bring back innovative, new, and unusually successful technologies to share with classmates.

Graduates
Past graduates with their bachelor degree in civil engineering technology are employed by consulting engineers, construction companies, industries, and by federal, state, and local government agencies. They are scattered from coast to coast and from New York to Texas. Their tides range from project superintendent, manager, or structural designer to plant operator, inspector, field party chief, and environmental officer. Also, several graduates have successfully completed master's degrees at other universities and have also registered as professional engineers in several states.

Technical electives
It is anticipated that a student will have at least two electives from one of the sequences shown. Other electives may be chosen from within that sequence, from another sequence, or from the other electives shown.

Water Resources

ITEC-482 Hydrology	4 cr.
ITEC-485 Hydraulic Structures	4 cr.
ITEC-480 Groundwater Hydraulics	4 cr.

Environmental Controls

ITEC-510 Design of Water Treatment Facilities	2 cr.
ITEC-514 Land Planning	4 cr.
ITEC-520 Design of Wastewater Treatment Facilities	4 cr.
ITEC-525 Hazardous Waste	4 cr.
ITEC-522 Principles of Water and Wastewater Treatment II	4 cr.
ITEC-556 Wastewater Treatment Plant Operation & Control	4 cr.

Construction Management

ITEC-500 Labor Relations	2 cr.
ITEC-509 Cost Estimating	2 cr.
ITEC-560 Construction Project Management I	4 cr.
ITEC-561 Construction Project Management II	4 cr.
ITEC-544 Contracts and Specifications	2 cr.

Structures

ITEC-470 Timber Design	4 cr.
ITEC-518 Masonry Design	2 cr.
ITEC-516 Reinforced Concrete Design	4 cr.
ITEC-552 Steel Design	4 cr.

Building and Heavy Construction

ITEC-460 Construction Equipment	4 cr.
ITEC-550 Construction Practices	2 cr.
ITEC-505 Construction Safety	4 cr.
ITEC-535 Pavement Design	4 cr.
ITEC-444 Mechanical Equipment	2 cr.

Other Electives

ITEF-436 Engineering Economics	4 cr.
SMAM-309 Elementary Statistics	4 cr.
ITEM-440 Applied Thermodynamics	4 cr.
ITEM-405 Applied Dynamics	4 cr.

With departmental approval, technical electives may be selected from existing courses in other RIT colleges.

Also, independent study projects may be pursued for credit in cases where students demonstrate unusual ability and obtain sponsorship of a faculty advisor.

Students are encouraged to utilize the first-class computer facilities and to work with professors on additional applications of computer graphics. The RIT College of Continuing Education offers evening courses, and all of the day college courses are open if schedules can be arranged and the students have the capacity to handle additional credits.

Civil Engineering Technology cooperative education plan

Year	Fall	Winter	Spring	Summer
1 and2	RIT	RIT	RIT	Vacation
3	RIT	RIT	Work	Work
4	RIT	Work	RIT	Work
5	Work	RIT	RIT	

Yr.	CIVIL ENGINEERING TECHNOLOGY, B.S. DEGREE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
	SMAM-204 College Algebra & Trigonometry	4			
	ITEC-210 Engineering Graphics	4			
	[TEC-330 Construction Materials	4			
	ITEC-230 Computer Applications	4			
	SMAM-228 Analytical Geometry		4		
	SPSP-211 College Physics I		3		
	SPSP-271 College Physics Lab I		1		
1	GLLC-220 English Composition		4		
	ITEF-260 CAD-Introduction		4		
	SMAT-420 Calculus for Technologies I			4	
	SPSP-212 College Physics II			3	
	SPSP-272 College Physics Lab II			1	
	ITEC-220 Civil Engineering Graphics			4	
	"Liberal Arts (Core)			4	
	‡ Physical Education	0	0	0	
	SPSP-213 College Physics III	3			
	SPSP-273 College Physics Lab III	1			
	ITEC-320 Surveying I	4			
	GLLC-403 Effective Technical Communication	4			
	ITEM-302 Introduction to Statics	4			
	ITEC-360 Elementary Soils		4		
2	ITEC-422 Elements of Building Construction		4		
	II tM-3U3 strength ot Matenals		4		
	ITEC-340 Route Surveying			4	
	ITEC-380 Elementary Structures			4	
	"•General Ed. Elective (Math or Sci.)			4	
	Liberal Arts (Core)		4	4	
	Physical Education	0	0	0	
1 2	Or completion of an appropriate associate degree or equivalent				

	"SMAT-421 Calculus for Technologists II	4			
	ITEC-099 Introduction to CET	0			
	ITEC-420 Hydraulics (or Technical Elective)	3			
	ITEC-421 Hydraulics Lab (or Technical Elective)	1			
	-GLLC-403 orTechnical Elective	4			
3	ICSA-205 Computer Techniques	4			
	‡ Physical Education Elective				
	"SMAT-422 Solution of Engineering Problems		4		
	ITEC-404 Applied Mechanics of Materials		4		
	ITEC-513 Computer Techniques in CET		2		
	SCHG-271 Basic Chemistry		3		
	SCHG-275 Basic Chemistry Lab		1		
	•Liberal Arts (Core)		4		
	ITES-099 Co-op Preparation		0		
	ITEC-432 Water & Wastewater Transport Systems	2			
	ITEC-490 Structural Analysis	4			
	SCHG-272 Chemistry of Water & Wastewater	3			
	SCHG-276 Chemistry of Water & Wastewater Lab	1			
	Technical Elective	4			
4	•Liberal Arts (Core)	4			
	ITEC-438 Principles of Treatment of Water & Sewage			4	
	ITEC-495 Structural Design			4	
	11EC-52 / Soil Mecnanics & foundations			3	
	ITEC-528 Soil Mechanics & Foundations Lab			1	
	ITEC-546 Professional Principles & Practices			1	
	"Liberal Arts (Concentration)			4	
	ITEC-530 Transportation Engineering		4		
	Technical Elective		8		
	Technical Elective		2		
5	ITEE-414 Basic Electrical Principles			4	
	-General Elective (Math or Sci.)			2-4	
	-General Ed Elective (Liberal Arts)			4	
	"Liberal Arts (Concentration)		4	4	
	'Liberal Arts (Senior Seminar)			2	

"See page 116 for Liberal Arts requirements.
tSee page200 for policy on Physical Education.
"Refer to footnote, Electrical Eng. Tech. chart, p. 18
""All students are required to have 90 quarters of Gen. Ed.

Yr.	CIVIL ENGINEERING TECHNOLOGY, B. TECH DEGREE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
	SMAM-204 College Algebra & Trigonometry	4			
	ITEC-210 Engineering Graphics	4			
	ITEC-330 Construction Materials	4			
	ITEC-230 Computer Applications	4			
	SMAM-228 Analytical Geometry		4		
	SPSP-211 College Physics I		3		
	SPSP-271 College Physics Lab I		1		
1	GLLC-220 English Composition		4		
	ITEF-260 CAD-Introduction		4		
	SMAT-420 Calculus for Technologies I			4	
	SPSP-212 College Physics II			3	
	SPSP-272 College Physics Lab II			1	
	ITEC-220 Civil Engineering Graphics			4	
	'Liberal Arts (Core)			4	
	‡ Physical Education	0	0	0	
	SPSP-213 College Physics III	3			
	SPSP-273 College Physics Lab III	1			
	ITEC-320 Surveying I	4			
	ITEC-428 Technical Communications	4			
	ITEM-302 Introduction to Statics	4			
	ITEC-360 Elementary Soils		4		
2	ITEC-422 Elements of Building Construction		4		
	ITEM-303 Strength of Materials		4		
	ITEC-340 Route Surveying			4	
	ITEC-380 Elementary Structures			4	
	Technical Elective			4	
	Liberal Arts (Core)		4	4	
	Physical Education	0	0	0	
1 2	Or completion of an appropriate associate degree or equivalent				
	"SMAT-421 Calculus for Technologists II	4			
	ITEC-099 Introduction to CET	0			
	ITEC-420 Hydraulics (or Technical Elective)	3			
	ITEC-421 Hydraulics Lab (or Technical Elective)	1			
	Technical Elective	4			
3	ICSA-205 Computer Techniques	4			
	‡ Physical Education Elective				
	"SMAT-422 Solution of Engineering Problems		4		
	ITEC-404 Applied Mechanics of Materials		4		
	ITEC-513ComputerTechniquesinCET		2		
	SCHG-271 Basic Chemistry		3		
	SCHG-275 Basic Chemistry Lab		1		
	'Liberal Arts (Core)		4		
	ITES-099 Co-op Preparation		0		
	ITEC-432 Water & Wastewater Transport Systems	2			
	ITEC-490 Structural Analysis	4			
	SCHG-272 Chemistry of Water & Wastewater	3			
	SCHG-276 Chemistry of Water & Wastewater Lab	1			
	Technical Elective	4			
4	'Liberal Arts (Core)	4			
	ITEC-438 Principles of Treatment of Water & Sewage			4	
	ITEC-495 Structural Design			4	
	ITEC-527 Soil Mechanics & Foundations			3	
	ITEC-528 Soil Mechanics & Foundations Lab			1	
	ITEC-546 Professional Principles & Practices			1	
	'Liberal Arts (Concentration)			4	
	ITEC-530 Transportation Engineering		4		
	Technical Elective		8		
	Technical Elective		2		
5	ITEE-414 Basic Electrical Principles			4	
	Technical Elective			2-4	
	Free Elective			4	
	'Liberal Arts (Concentration)		4	4	
	'Liberal Arts (Senior Seminar)			2	

"See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.
"Refer to footnote, Electrical Eng. Tech. chart, p. 18
'"All students are required to have 90 quarters of Gen. Ed.

Civil Engineering Technology cooperative education plan

Year	Fall	Winter	Spring	Summer
1 and 2	RIT	RIT	RIT	Vacation
3	RIT	RIT	Work	Work
4	RIT	Work	RIT	Work
5	Work	RIT	RIT	-

Computer Engineering Technology Department

Thomas J. Dingman, Chairperson

Computer Engineering Technology, AAS and BS programs

There is an increasing need for graduates possessing both computer programming skills and a sound knowledge of computer (digital) electronic hardware. This is true for both technicians with an AAS degree and for technologists with the bachelor of science degree.

Based on a foundation in physics and applied mathematics, the computer engineering technology program is designed to develop the hardware and software skills necessary for design and development of systems involving computers. The upper division of the program also includes a required co-op work/study component, giving the student valid work experience before graduation.

Students completing the first two years of the program will be eligible to receive the AAS degree and enter the employment field as a computer technician.

Computer Aided Design plays a significant role in the curriculum. The students will learn to work in a design automation environment on computer workstations, using design tools running state-of-the-art software. The skills developed both in system operation and design creativity will enhance their preparation for both co-op and permanent job opportunities.

Electives are available in the upper division and may be taken from computer science or electrical engineering technology courses. Other courses are available on approval by an advisor.

The program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC/ABET).

Admission requirements

Freshmen are admitted by normal RIT procedures with an emphasis given to mathematics and science skills.

Transfer admission is open to graduates of closely allied associate degree programs. Transfer students from these closely allied programs may normally expect to complete the requirements for the BS degree in three years which

includes seven academic quarters and four quarters of cooperative employment experience. Recognizing that no single program of study can effectively integrate all AAS transfer students into the curriculum, each qualified transfer student will be evaluated on a course-by-course evaluation and will be given a specific program of study that best meets his or her career goals, provides a meaningful cooperative work experience, and permits the student to fulfill the degree requirements in a reasonable period of time.

Cooperative education plan
Students in the five-year program attend classes during the Fall, Winter, and Spring quarters of their first and second years and begin their cooperative education plan during the third year. Students transferring with an associate degree in a similar program begin their cooperative education plan during their first year of the program. The charts illustrate the cooperative education plan for the five-year program.

Technical electives
A wide variety of technical electives can be taken from existing courses in Computer Science and Electrical Engineer ing Technology. Examples of these are:

A. ICSP-450 Programming Language Concepts
   ICSS-580 Language Processors
B. ICSP-306 Systems Programming Fundamentals
   ICSS-540 Operating Systems Lab
C. ICSS-541 Introduction to Computer Networks
   ICSS-545 Computer Architecture II
D. ITEE-520 Electrostatic and Magnetic Fields
   ITEE-534 Analog Communications
   ITEE-535 Telecommunication Systems
E. ITEE-560 Microelectronics I
   ITEE-561 Microelectronics II

Other special electives might be:
ITEE-524 Microwave Systems
ITEE-547 Digital Processing of Signals
ITEE-554 Electronic Optic Devices
ITEE-555 Transmission Lines and Antennas
ICSS-570 Introduction to Computer Graphics

Yr.	COMPUTER ENGINEERING TECHNOLOGY, B.S. DEGREE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	SMAM-204 College Algebra and Trigonometry	4			
	SMAT-420 Calculus for Technologists I		4		
	SMAT-421 Calculus for Technologists II			4	
	ICSP-241 Programming I		4		
	ICSP-242 Programming II			4	
	ITEP-201 DC Circuits	4			
	ITEP-202 AC Circuits		4		
	ITEP-205 Drafting and Fabrication	4			
	ITEP-301 Digital Fundamentals			4	
		4	4	4	
	‡ Physical Education	0	0	0	
2	SPSP-211 College Physics I	3			
	SPSP-212 College Physics II		3		
	SPSP-213 College Physics III			3	
	SPSP-271,272,273 College Physics Lab	1	1	1	
	ICSP-305 Assembly Language Programming	4			
	ICSP-309 'C' Programming			1	
	GLLC-403 Effective Technical Communications (BS) or Liberal Arts (AAS)			4	
	ITEP-303 Microcomputers		4		
	ITEP-310 Electronics I	4			
	ITEP-311 Electronics II		4		
	ITEP-312 Electronics III			4	
	ITEP-320 Principles of Electronic Design Automation			4	
	ITES-099 Co-op Preparation			0	
	" Liberal Arts (Core)	4	4		
	‡ Physical Education	0	0	0	
3	SMAT-422 Solutions of Engineering Problems	4			
	ICSP-243 Programming III	4			
	ITEP-538 Digital Systems Design 1	4			
	SMAT-423 Linear Math for Technologists			4	
	ICSS-325 Data Organization and Management			4	
	ITEP-403 Advanced Circuit Theory			4	
	"Liberal Arts	4		4	
4	SMAM-205 Mathematics for Computing 1		4		
	ICSS-440 Operating Systems		4		
	ITEP-539 Digital Systems Design II		4		
	SMAM-206 Mathematics for Computing II				4
	ITEP-405 Control Theory				4
	ITEP-429 Advanced Electronics				4
	" Liberal Arts		4		4
5	SMAM-207 Mathematics for Computing III		4		
	ICSS-420 Data Communications		4		
	ITEP-571 Topics in Computer Engineering Technology		4		
	Technical Elective		4		
	SPSP-300 Semiconductor Device Physics			4	
	ICSS-520 Computer Architecture			4	
	ITEP-540 Digital Systems Design III			4	
	* Liberal Arts (Senior Seminar)			2	

•*See page 116 for Liberal Arts requirements.*
fSee page *200 for policy on Physical Education.*

Computer Engineering Technology cooperative education plan (five-year program)

Year	Fall	Winter	Spring	Summer
land 2	RIT	RIT	RIT	Vacation
3	RIT	Work	RIT	Work
4	Work	RIT	Work	RIT
5	Work	RIT	RIT	-

Computer Engineering Technology cooperative education schedule (sample schedule for transfer student with third-year status)

Year	Fall	Winter	Spring	Summer
3	RIT	RIT	Work	RIT
4	Work	RIT	Work	RIT
5	RIT	Work	RIT	-

Electrical Engineering Technology Department

Thomas Young, Chairperson

Electrical Engineering Technology, baccalaureate program

This relatively new professional program is designed to meet the growing needs for technologists in a rapidly changing society.

The bachelor of science program in electrical engineering technology is a five-year baccalaureate program including over a year of cooperative work experience for full-time students. The program also accepts transfer students into the upper division from appropriate electrical or electronic engineering technology associate degree programs with full junior standing. The upper division feature of the program provides a viable option for students who have completed their associate degree and desire to continue their education in technology.

The bachelor of science degree in electrical engineering technology is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC/ABET).

A typical program for the bachelor of science curriculum is shown in the chart. The first two years of the program provide basic courses in electricity, analog and digital electronics, physics, technical calculus and liberal arts. The third and fourth years of the program expand on basic courses with upper-level courses in applied differ ential equations, liberal arts, transformed circuits, control systems, analog and digital electronics, and mechanical engineering technology. The progam is completed by the student choosing a group of options in science, free, and technical electives. Technical electives sequences are available in electric power systems, electronic communications, digital computer design and microelectronics. Several electives also are available from other technical disciplines, and the student's academic advisor will help the student determine the best elective choices for him or her.

Students begin their cooperative work experience in the third year of the program, and are required to complete five quarters of cooperative work experience. A cooperative education counselor is assigned to each student.

Yr.	ELECTRICAL ENGINEERING TECHNOLOGY, B.S. DEGREE	Qtr. Credit Hours			
	Lower Division	FALL	WTR.	SPG.	SMR.
	SMAM-204 College Algebra & Trigonometry	4			
	GLLC-220 English Composition	4			
	ITEE-201 DC Circuits	4			
	ITEE-207 First Year Orientation	1			
	ITEE-205 Drafting & Fabrication	4			
	SMAT-420 Calculus for Technologists I		4		
1	ITEE-202 AC Circuits		4		
	ICSA-208 Introduction to Programming		4		
	SMAT-421 Calculus for Technologists II			4	
	ITEE-203 Electronic Devices			4	
	ITEE-231 Digital Fundamentals			4	
	Liberal Arts (Core)		4	4	
	‡ Physical Education	0	0	0	
	SPSP-211 College Physics I	3			
	SPSP-271 College Physics Labi	1			
	ITEE-361 Applied Electronics I	4			
	SMAT-422 Solution of Engineering Problems	4			
	Liberal Arts (Core)	4		4	
	SPSP-212 College Physics II		3		
2	SPSP-272 College Physics Lab II		1		
	ITEE-353 Introduction to Microprocessors		4		
	ITEE-362 Applied Electronics II		4		
	ITEE-337 Machines & Transformers		4		
	SPSP-213 College Physics III			3	
	SPSP-273 College Physics Lab III			1	
	ITEE-363 Applied Electronics for Communication			4	
	ITEE-401 Transformed Circuits I			4	
	‡ Physical Education	0	0	0	
1 2	Or completion of an appropriate associate degree or equivalent				

		FALL	WTR.	SMR.
	"SMAT-428 Linear Math for Eng. Tech	4		
	ITEE-424 Logic & Digital Devices	4		
	ITES-099 Co-op Preparation	0		
	Programming Elective	4		
3	SMAM-309 Statistics		4	
	ITEE-402 Transformed Circuits II		4	
	ITEE-542 Microprocessors		4	
	'Liberal Arts (Core)	4		
	GLLC-403 Effective Technical Communications		4	
		FALL/ WTR.		SPRV SMR.
	ITEE-440 Discrete Amplifier Design	5		
	ITEM-408 Introduction to Strength Design of Materials	4		
	General Education Elective	4		4
4	ITEE-441 Integrated Circuit Amplifiers			5
	Technical Elective			4
	"Liberal Arts (Concentration)	4		4
				SPR.
	ITEE-404 Control Systems I	4		
	ITEF-436 Engineering Economics			4
	'Liberal Arts (Senior Seminar)	2		
5	•Liberal Arts (Concentration)			4
	Technical Elective	4		4
	General Education Elective	4		
	Free Elective	4		

"The *program shown is that which would be taken by those who* start *at RIT as freshmen. Each transfer student will be given a program tailored to their particular needs upon acceptance. Graduates will have to meet a minimum of 36 quarter hours of mathematics and science (including credits transferred) and include mathematics SMAT422 or equivalent.*

'See page 116 for Liberal Arts requirements.

tSee page 200 for policy on Physical Education.

Electrical Engineering Technology cooperative education plan

Year		Fall	Winter	Spring	Summer
land 2		RIT	RIT	RIT	Vacation
3	A	RIT	RIT	Work	Work
	B	RIT	Work	Work	RIT
4	A	RIT	Work	Work	RIT
	B	Work	RIT	RIT	Work
5	A	RIT	Work	RIT	–
	B	Work	RIT	RIT	.

Admission requirements
Freshmen are admitted by normal RIT procedures with an emphasis given to mathematics and science skills.

Transfer admission is open to graduates of two-year associate degree electrical or electronic engineering technology programs. Students currently enrolled in engineering science associate degree programs also may apply and be assigned to a slightly different series of courses. Students from associate degree programs that are closely related to electrical technology and that have appropriate circuits and electronics course levels are also accepted, but may be required to complete some lower-level courses before starting the third year of the program.

Elective sequences

Computer Design
ITEE-538 Digital Computer Design I
ITEE-539 Digital Computer Design II
ITEE-543 Peripherals and Interfacing
ITEE-565 16-Bit Microprocessors

Power Systems
ITEE-550 Power Systems I
ITEE-551 Protective Relaying
ITEE-552 Power Systems II

Electronic Communications
ITEE-534 Analog Communications
ITEE-535 Telecommunications Systems
ITEE-524 Microwave Systems
ITEE-555 Transmission Lines and Antennas
ITEE-547 Digital Processing of Signals

Microelectronics
ITEE-560 Microelectronics I
ITEE-561 Microelectronics II

Other Eiectives:
ITEE-554 Electronic Optic Devices
ITEE-536 Control Systems II
ITEE-580 Senior Project
ITEF-424 Statistical Quality Control
ITEF-485 Robots in Manufacturing
ITEF-437 Value Analysis

Evening program
The upper-division portion of this program may be taken on a part-time basis during the evening hours by those who are employed full-time and desire to receive an ABET-accredited baccalaureate degree. The typical evening student requires approximately 13 quarters to complete the upper-division course requirements. In the early quarters the fundamentals of mathematics, circuit theory and power concepts are emphasized to provide the background for later courses in control systems and microprocessors.

ELECTRICAL ENGINEERING TECHNOLOGY, B.S. EVENING PROGRAM

Year	Quarter	Courses	
1	Fall	SMAT-421	Calculus for Technologists II*
		ITEE-337	Machines and Transformers
		ITEE-337	Lab (Lower Division Makeup)
	Winter	SMAT-422	Solutions of Engineering Problems
		GLLC-403	Effective Technical Communications
	Spring	ITEE-437	Computer Programming Techniques
		ITEE-424	Logic and Digital Devices
		ITEE-424	Lab
2	Fall	ITEE-542	Microprocessors
		ITEE-542	Lab
			Liberal Arts (core)
	Winter	ITEE-401	Transformed Circuits I
		ITEE-401	Lab
		SMAT-423	Linear Math for Technologists
	Spring	ITEE-402	Transformed Circuits II
			Liberal Arts (core)
3	Fall	ITEE-440	Amplifiers I
		ITEE-440	Lab
			Liberal Arts (concentration)
	Winter	ITEE-441	Amplifiers II
		ITEE-441	Lab
		SMAM-309	Statistics
	Spring	ITEE-404	Control Systems I
		ITEE-404	Lab
			Liberal Arts (concentration)
4	Fall	ITEM-408	Intro, to Strength of Materials
			Technical Elective
	Winter		Technical Elective
			Liberal Arts (Concentration)
	Spring	ITEF-436	Engineering Economics
			General Education Elective
5	Fall		Math/Science Elective
			Senior Seminar

This sequence is based on students who have had the equivalent ofSMAT-420as apart of their associate degree. If a student has not had this course, the recommended sequence for the first year for these courses is: *Fail SMAT-420, Winter SMAT-421, Summer SMAT-422.*

Technical eiectives that are available and appropriate for the electrical engineering technology program include:

Course
ITEE-524 Microwave System
ITEE-534 Analog Communications
ITEE-535 Telecommunication Systems
ITEE-536 Control Systems II
ITEE-538 Digital Computer Design I
ITEE-539 Digital Computer Design II
ITEE-543 Peripherals and Interfacing
ITEE-550 Power Systems I
ITEE-551 Protective Relaying
ITEE-554 Electronic Optic Devices
ITEE-555 Transmission Lines and Antennas
ITEE-560 Microelectronics I
ITEE-561 Microelectronics II
ITEE-565 16-Bit Microprocessors

Note—some eiectives are offered only on an alternating year basis. Please check with an advisor while planning your program technical elective content.

1980-91 EVENING COURSE OFFERINGS - ELECTRICAL ENGINEERING TECHNOLOGY				
Course Number/Name	**Fall**	**Winter**	**Spring**	**Summer**
0609271 70 T Tetecom Fund			TR 8:00-9:50	
0609 337 70 R 81 82 Mach& Trans (4or)	T8:00-10:20 R 6:00-7:50 R 8:00-9:50			
0609 363 70 App.Elec. for Comm.		TBA		
0609 401 70 R Trans. Cir. I (4cr)		TR 5:30-7:50		
0609 402 40 D/N R 81 82 Trans. Cir. II (3ci}			TR 5:30-7:50 T 6:00-7:50 T 8:00-9:50	
0609 404 70 R 81 82 Control Sys. I (4cr)			MW 8:00-9:50 R 6:00-7:50 R 8:00-9:50	
0609 411 70 S 81 82 Elec. Prin. Des. I (4cr)		MW 6:30-7:50 R 6:00-7:50 R 8:00-9:50		
0609 412 70 D/N S 81 82 Elec. Prin. Des. II (4cr)			MW 6:30-7:50 R 6:00-7:50 TBA	
0609 413 70 S 81 82 Appl. Micropro (4cr)	NOTOFFERED 1990-1991			
0609 424 70 R 80 81 Log Digital Dev (4cr)			TR 8:00-9:20 M 6:00-7:50 M 8:00-9:50	
0609 437 70 R Comp Prog Tech. (4cr)			TR 6:00-7:50	
0609 440 70 R 81 82 Linear Amp Des (5cr)	MW 8:00-9:50 R 6:00-7:50 R 8:00-9:50			
0609 441 70 R 81 82 Operational Amps (5cr)		MW 6:00-7:50 R 6:00-7:50 R 8:00-9:50		
0609 472 70 T Telecom Concepts (4cr)		TR6:00-7:50		
0609 520 70 E Elect. Mag. Fields (4cr)			TR 6:00-7:50	
0609 534 70 E 81 Anal Comm. Sys. (4cr)		TR 6:30-7:50 M 6:00-7:50		
0609 535 70 E Telecomm Sys (4cr)			TR 6:30-7:50 M 6:00-7:50	
0609 538 70 E 81 82 Dig. Com. Design I (4cr)	TR 8:00-9:20 M 5:00-7:50 M 8:Co-9:50			
0609 539 70 E 81 Dig. Com. Design II (4cr)		TR 8:00-9:20 M 6:00-7:50		
0609 542 70 R 81 82 Microprocessors (4cr)	TR 6:00-7:50 M 5:00-7:50 M 8:00-9:50			
0609 543 70 E 81 82 Peri. & Inter (4cr)			MW 8:00-9:20 R 6:00-7:50	
0609 550 70 D/N E Power Sys. I (4cr)		MW 5:30-7:50		
0609 551 70 E Protective Relay (4cr)	TR 5:30-7:50			
0609 554 70 E 81 82 Elec. Opt. Devices (4cr)			TR 8:00-9:20 M 6:00-7:50 M 8:00-9:50	
0609 560 70 E Micro. Elect. I (4cr)	TR 5:30-7:50			
0609 561 70 D/N E Micro. Elect. II (4cr)	NOTOFFERED 1990-1991			
0609 565 70 E 81 16 BIT Micro (4cr)	TR 6:30-7:50 M 8:00-9.50			

Telecommunications Technology, BS program

This new program is designed to meet the ever increasing need of the telecommunications industry for professionals trained with state-of-the-art principles, applications, equipment, and current regulatory policies. Telephone companies, equipment manufacturers, and telecommunications users all need a cadre of those capable of utilizing equipment to its fullest, both from a technical and from a management perspective. This bachelor of science program in Telecommunications Technology is a five-year program, including over a year of cooperative work experience for full-time students.

Two options are available to fulfill the needs of specific employers. The Technical Option is designed for the person whose interests lie in the applications of equipment, while the Management Option is designed for the individual who wants to move into the management of telecommunications resources. The two options differ at the junior and senior level by eight courses, allowing the students to choose after they have been introduced to the fundamentals of telecommunications, electronics, mathematics, science and the liberal arts.

The Technical Option emphasizes the applications and equipment used in specific job sites. Technical electives are available from the electronic communications and other areas of electrical engineering technology.

The Management Option emphasizes the management of resources of an overall telecommunications installation. Business courses in accounting and management are included.

Transfer is available for students with associate degrees i:i telecommunications technology, electrical or electronics technology and other related areas.

Students begin their cooperative work experience in the third year of the program, and are required to complete five quarters of cooperative work experience. A cooperative education counselor is assigned to each student.

Admission requirements
Freshmen are admitted by normal RIT procedures with an emphasis given to mathematics and science skills.

Transfer admission is open to graduates of two-year associate degree programs by a course-by-course evaluation. Students from closely related programs, such as telecommunications technology or electrical/electronics technology, can normally expect to graduate in three years, which includes seven academic quarters and four quarters of cooperative employment. Graduates of other, less related, programs are also welcome to apply, but may expect to take longer to complete the program.

Elective Sequences:

Electronic Communications:
ITEE-534 Analog Communications
ITEE-520 Electronic & Magnetic Fields
ITEE-524 Microwave Systems
ITEE-555 Transmission Lines and Antennas
ITEE-547 Digital Processing of Signals
ITEE-554 Electronic Optic Devices

Power Systems:
ITEE-550 Power Systems I
ITEE-552 Power Systems II
ITEE-551 Protective Relaying

Computer Design:
ITEE-542 Microprocessors
ITEE-538 Digital Computer Design I
ITEE-539 Digital Computer Design II
ITEE-543 Peripherals and Interfacing
ITEE-565 16-bit Microprocessors

Microelectronics:
ITEE-560 Microelectronics I
ITEE-561 Microelectronics II

Evening program:
The upper division of this program may be taken evenings, beginning in the Fall of 1990. A special schedule is available through the department office.

Also, courses have been identified that can be taken for the equivalent of the lower division of this program. Please contact the department for an appointment with an advisor to discuss this option.

Yr.	TELECOMMUNICATIONS TECHNOLOGY	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SMAM-204 College Algebra & Trigonometry	4		
	GLLC-220 English Composition	4		
	ITEE-201 DC Circuits	4		
	ITEE-209 First Year Orientation	1		
	ITEE-205 Drafting & Fabrication	4		
	SMAT-420 Calculus for Technologists I		4	
	ITEE-202 AC Circuits		4	
	ICSA-208 Introduction to Programming		4	
	SMAT-421 Calculus for Technologists II			4
	ITEE-203 Electronic Devices			4
	ITEE-271 Telecommunication Fundamentals			4
	Liberal Arts (Core)		4	4
	‡ Physical Education	0	0	0
2	SPSP-211 College Physics I	3		
	SPSP-271 College Physics Lab I	1		
	ICSA-210 Program Design and Validation	4		
	SMAM-309 Elementary Statistics	4		
	Liberal Arts (Core)	4	4	
	SPSP-212 College Physics II		3	
	SPSP-272 College Physics Lab II		1	
	ICSA-411 Data Commun. & Comp-. Networks		4	
	GSSE-301 Principles of Economics I		4	
	SPSP-213 College Physics III			3
	SPSP-273 College Physics Lab III			1
	GLLC-403 Effective Technical Communications			4
	ICSA-410 Computer Concepts & Software Sys			4
	ITEE-231 Digital Fundamentals			4
	‡ Physical Education	0	0	0

TECHNICAL OPTION
Upper Division

		FALL	WTR.	SPG.	SMR.
3	SMAM-205 Intro, to Math for Computing I	4		C	C
	SMAT-422 Solution to Engineering Problems	4		0	0
	ITEP-302 Linear Electronics	4		0	0
	ITEE-363 Appl. Electronics for Com	4		p	p
	ITES-099 Co-op Preparation	0			
	ITEE-353 Intro, to Microprocessors		4		
	ITEE-472 Telecommunication Concepts		4		
	ITEE-474 Telephone Systems		4		
	SMAM-206 Intro, to Math for Computing II		4		
4	ITEE-473 Transmission Systems	4	C		C
	ITEE-476 Digital Communications	4	0		0
	Liberal Arts (Core)	4	0		0
	Technical Elective	4	p	4	p
	ITEE-477 Data Communication Technology			4	
	ITEE-475 Switching Technologies			4	
	Liberal Arts (Core)	4		4	
5	ITEE-571 Network Engineering	C	4		
	Liberal Arts (Senior Seminar)	0	2		
	Liberal Arts (Concentration)	0	4	4	
	ITEE-572 Network Management	p	4		
	Math/Science Elective		4		
	ITEE-574 Network Planning & Design			4	
	ITEM-436 Engineering Economics			4	
	Technical Elective			4	

Telecommunications Technology cooperative education plan

Year	Fall	Winter	Spring	Summer
land 2	RIT	RIT	RIT	Vacation
3	RIT	RIT	Work	Work
4	RIT	Work	RIT	Work
5	Work	RIT	RIT	

MANAGEMENT OPTION
Upper Division

		FALL	WTR.	SPG.	SMR.
	BBUA-301 Financial Accounting	4		C	C
	* SMAT-422 Solution to Engineering Problems	4		0	0
	ITEP-302 Linear Electronics	4		0	0
	ITEE-363 Applied Electronics for Communications	4		p	P
3	ITES-099 Co-op Preparation	0			
	BBUA-302 Managerial Accounting		4		
	ITEE-472 Telecommunication Concepts		4		
	ITEE-474 Telephone Systems		4		
	""General Education Elective		4		
	BBUB-430 Organizational Behavior	4			
	ITEE-473 Transmission Systems	4			
	ICSA-483 Applied Database Management	4			
4	"Liberal Arts (Core)	4	C		
	Math/Science Elective		0	4	C
	ITEE-475 Switching Technologies		0	4	0
	GSEE-302 Principles of Economics II		P	4	0
	BBUB-431 Cost Accounting			4	P
	ITEE-571 Network Engineering	C	4		
	Liberal Arts (Senior Seminar}	0	2		
	ITEE-572 Network Management	O	4		
5	Liberal Arts (Concentration)	P	8	4	
	ITEE-574 Network Planning & Design			4	
	BBUB-441 Corporate Finance			4	
	BBUF-455 Human Resource Management			4	

This program Is that which would be taken by those who start at RIT as Freshmen. Each transfer student will be given a program tailored to his or her particular needs upon acceptance. Graduates will have to meet a minimum of 36 quarter hours of mathematics ml science (including credits transferred) and include mathematics SMAT422or equivalent.

"See Liberal Arts requirements p. 116.

"General Education Elective. This course must be taken from the College of Liberal Arts. It is recommended that It be used as a first course in a foreign language, to allow students to take their concentration In a foreign language.

tSee policy on Physical Education p. 200.

1090-91 EVENING COURSE OFFERINGS-TELECOMMUNICATIONS TECHNOLOGY-MANAGEMENT

Year	Quarter	Course	
1	Fall	SMAT-421	Calculus for Technologists II
		ICSA-411	Data Comm. & Comp. Networks
	Winter	GLLC-403	Effective Technical Communications
		ITEE-472	Telecommunications Concepts
	Spring	SMAT-422	Solutions of Engineering Problems
		ITEE-271	Telecom. Fundamentals
2	Fall	ICSA-410	Computer Concepts & Software Sys.
		ITEE-473	Transmission Systems
	Winter	ICSA-483	Applied Database Management
		ITEE-474	Telephone Systems
	Spring	GSEE-302	Principles of Economics II
			Liberal Arts (core)
3	Fall		TBA
			Liberal Arts (concentration)
	Winter		TBA
		SMAM-309	Statistics
	Spring	BBUB-430	Organizational Behavior
			Liberal Arts (concentration)
4	Fall	BBUB-431	Corporate Finance
		ITEE-475	Switching Technologies
	Winter	ITEE-571	Network Engineering
			Liberal Arts (concentration)
	Spring	ITEE-574	Network Planning & Design
		BBUB-441	Corporate Finance
S	Fall		Math/Science Elective
		BBUB-455	Human Resource Management
	Winter	ITEE-572	Network Management
			Senior Seminar

NOTE: Only the first yeer of this schedule Is firm. The remainder Is subject to change as the program evolves.

Mechanical Engineering Technology Department

Ronald F. Amberger, P.E. Chairperson

Mechanical Engineering Technology, baccalaureate program

The demand for technology graduates to support the wide ranging activities of the mechanical engineering industries is ever on the increase due to discoveries, inventions, and the new needs which arise from the desire to do things in a more creative and efficient manner. The central theme of all industry is to successfully design and produce a functional, reliable and profitable product or service. This task can only be accomplished by individuals who are familiar with concepts, the body of knowledge, and a set of learned skills which apply to their specific field.

The Mechanical Engineering Technology Program develops in students the ability to conceive the design problem and to derive solutions through the application of familiar concepts in innovative ways, so that they can make a vital contribution to the objective of technological enterprise in their subsequent career.

The program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC/ABET) and is operated on the cooperative education plan.

Objectives of the program

The objectives of this program are to prepare the student to occupy professional positions in mechanical design, manufacturing test engineering, field service engineering, technical sales, and plant operations upon graduation. The program emphasizes the development of a design methodology, and this is reinforced through the use of project-oriented assignments which challenge the student to develop his or her design abilities.

Curriculum

In the early quarters, students develop their skills in the fundamentals of mechanics, mathematics, materials technology and computer-aided design.

In later quarters, courses focus both on mechanical design and applied thermofluid engineering. Individuals may specialize by taking electives in such areas as machine design, air conditioning, thermal power, instruments and controls and manufacturing.

A substantial measure of laboratory work is required, including the preparation of quality reports. Use of the computer is emphasized throughout the curriculum.

Admission requirements

Freshmen are admitted by normal RIT procedures with an emphasis given to mathematics and science skills. Trans**fer** students enter this program at the third-year level having received an appropriate associate degree in mechanical technology, design-drafting technology, air conditioning technology, engineering science or an acceptable equivalent. It is expected that these associate degree programs will have provided the student with background in the following:

- Mathematics through Introductory Calculus
- Physics
- Mechanical Drafting
- Computer Drafting
- Manufacturing Processes
- Statics and Elementary Strength of Materials
- Machine Design Elements
- Computer Programming

Elective Sequences

Mechanical Engineering Technology

Elective sequences are available in mechanical design and energy systems. Other custom sequences may be created with department approval.

Energy Systems Sequence

ITEM-542 HVAC Systems Engineering
ITEM-546 Advanced HVAC Systems
ITEM-580 Power Plant Design
ITEM-543, 544 Energy Management I & II

Mechanical Design

ITEM-406 Dynamics of Machinery
ITEM-451 Vibration and Noise
ITEM-512 Computer Aided Mechanical Design

Evening program

The lower-division portion of this program may be taken on a part-time basis by completing a mechanical engineering technology associates degree (AAS) in the RIT College of Continuing Education (Mechanical Technology, CTIM). After completion of the AAS degree, students must apply for admission to the upper-division program in the School of Engineering Technology. Admission is guaranteed to those who complete the AAS degree requirements in the College of Continuing Education. Those who obtain their AAS degrees at other institutions are considered transfer students and are admitted

Yr.	MECHANICAL ENGINEERING TECHNOLOGY, B.S. DEGREE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	SMAM-204 College Algebra & Trigonometry	4			
	"GLLC-220 English Composition	4			
	ITEC-210 Intro. Graphics	4			
	ITEF-220 Manufacturing Processes I	4			
	SMAM-228 Analytic Geometry		4		
	SPSP-211 College Physics I		3		
	SPSP-271 College Physics Lab I		1		
	ITEM-220 Mechanical Design Drafting		4		
	ITEM-2111ntroduction to Materials Technology		3		
	ITEM-304 Materials Testing		1		
	SMAT-420 Calculus for Technologist I			4	
	SPSP-212 College Physics II			3	
	SPSP-272 College Physics Lab II			1	
	ITEF-260 Introduction to CAD			4	
	ITEM-302 Introduction to Statics			4	
	‡ Physical Education	0	0	0	
2	SMAT-421 Calculus for Technologist II	4			
	SPSP-213 College Physics III	3			
	SPSP-273 College Physics Lab III	1			
	ITEM-212 Metrology	2			
	ITEM-303 Strength of Materials	4			
	SMAT-422 Solutions to Engineering Problems		4		
	ITEC-230 Computer Application		4		
	ITEM-308 Kinematics		4		
	SMAM-309 Statistics			4	
	ITEM-432 Computers in MET			2	
	General Ed. Elective			4	
	"Liberal Arts (Core)		4	4	
	ITEM-099 Careers in MET			0	
	‡ Physical Education	0	0	0	
1 2	On completion of an appropriate associate degree or equivalent				

		FALL	WTR J SMR.	
3	ITEM-404 Applied Mechanics of Materials	4		
	SCHG-271 Basic Chemistry	3		
	SCHG-275 Basic Chemistry Lab	1		
	GLLC-403 Effective Technical Communication	*A*		
			4	
	SCHG-273 (Chemistry)		3	
	SCHG-277 (Chemistry Lab)		1	
	ITEM-407 MET Lab I		2	
	"Liberal Arts (Core)	4	4	
	"Liberal Arts (Concentration)		4	
		FALL/ WTR.		SPRJ SMR.
4	ITEM-416 Materials Technology	4		
	ITEM-440 Applied Thermodynamics	4		
	ITEM-411 Electrical Principles for Design I	4		
	ITEM-409 MET Laboratory II	2		
	"Liberal Arts (Concentration)	4		
	ITEM-460 Applied Fluid Mechanics			4
	ITEM-506 Machine Design I			4
	ITEM-406 Dynamics of Machinery			4
	ITEE-XXX Electrical Technology Elective			4
	E	FALL/ WTR.		SPR.
5	ITEM-465 Thermofluids Laboratory	3		
	ITEM-508 Machine Design II	4		
	Technical Elective	4		8
		4		
	ITEM-442 Heat Transfer			4
	"Liberal Arts (Senior Seminar)			2

Graduates will have to meet a minimum of 36 quarter credits of mathematics and science (including credits transferred), and include mathematics SMAT-422or equivalent. Rearrangement of the above schedule will be allowed to meet the math/science requirements.

'Seepage 116 for Liberal Arts requirements.

fSee page 200 for policy on Physical Education.

at the upper-division level. The typical evening student requires approximately 13 quarters to complete the upper-division course requirements.

A typical sequence of courses for a part-time student might be as shown at right.

Technical eiectives that are available and appropriate for the Mechanical Engineering Technology program are the same as those listed with the full-time program.

Students also may elect certain courses from the manufacturing engineering technology and electrical engineering technology programs with approvals.

Note—some eiectives are offered only on an alternating year basis. Please check with an advisor when planning your program technical elective content.

Mechanical Engineering Technology cooperative education plan

Year		Fall	Winter	Spring	Summer
land 2		RIT	RIT	RIT	Vacation
3	A	RIT	RIT	Work	Work
	B	RIT	Work	Work	RIT
4	A	RIT	Work	Work	RIT
	B	Work	RIT	RIT	Work
5	A	RIT	Work	RIT	-
	B	Work	RIT	RIT	-

MECHANICAL ENGINEERING TECHNOLOGY, B.S. EVENING PROGRAM

Year	Quarter	Courses
1	Fall	SMAT-420 Calculus for Technologists 1
		Liberal Arts (core)
	Winter	SMAT-421 Calculus for Technologists II
		GLCC-403 Effective Technical Communications
	Spring	SMAT-422 Solutions of Engineering Problems
		ITEM-404 Applied Mechanics of Materials
2	Fall	ITEM-405 Applied Dynamics
		SCHG-271 Fundamentals of Chemistry
		SCHG-275 Basic Chemistry Lab
	Winter	SCHG-273 Basic Chemistry II
		SCHG-277 Basic Chemistry Lab II
		ITEM-407 Mechanical Engineering Technology Lab I
		ITEM-432 Computers in MET
	Spring	ITEM-416 Materials Technology
		ITEM-409 Mechanical Engineering Technology Lab II
3	Fall	Liberal Arts (core)
		General Education Elective
	Winter	ITEM-411 Electrical Principles for Design 1
		ITEE-411 Lab
		Liberal Arts (concentration)
	Spring	ITEE-4XX Electrical Technical Elective
		Liberal Arts (concentration)
4	Fall	ITEM-440 Applied Thermodynamics
		Liberal Arts (concentration)
	winter	ITEM-460 Applied Fluid Mechanics
		SMAM-309 Elementary Statistics
	Spring	ITEM-465 Thermofluid Laboratory
		Technical Elective
5	Fall	ITEM-506 Machine Design I
		Senior Seminar
	Winter	ITEM-508 Machine Design II

1900-91 EVENING COURSE OFFERINGS - MECHANICAL ENGINEERING TECHNOLOGY

Course Number/Name		Fall	Winter	Spring
0610 404 70 Appl. Mech.. Mat.	R (4c0		TR 8-10:20	
0610 405 70 Appl. Dynamics	R (4cr)	TR 5:30-7:50		
0610 406 70 D/N Dyn. of Machinery	E (4cr)	MW 5:30-7:50		
0610 407 81 82 MET Lab I	R *{2a)*		T7:30-10:20 R 7:30-10:20	
0610 409 70 Int. Stren. of Mat.	R (4cr)	TR 8-10:20		
0610 409 81 82 MET Lab II	R <2cr)			T7:30-10:20 R 7:30-10:20
0610 414 70 Mat. Tech. I	R (3a1		TR 6-7:20	
0610 415 70 Mat. Tech. II	 <2cr<			TR6-7:20
0610 432 70 Comp. in MET	R <3cr)			TR 8-9:50
0610 440 70 Appl. Thermo	R (4cr)	MW 8-9:50		
0610 442 70 D/N Heat Transfer	E (4cr)		MW 8-10:20	
0610 451 70 D/N Vibration & Noise	R (4cr)			TR6-7:50
0610 460 70 Appl. Fluid Mech	R <4c0		MW 8-9:50	
0610 465 81 82 Thermo. Lab	R (3cr)			M 6-9:50 R 6-9:50
0610 506 70 Machine Design I	R (4 cr)	MW 8-10:20		
0610 508 70 Machine Design II	R (4c»		MW 8-10:20	
0610 512 70 Com. Integ. Mech. Des.	R (4cr)			TR6-7:50
0610 515 70 Plastics pre.	R (4a)		MW 6-7:50	
0610 521 70 Log. Con. Sys.	E (4cr)			TR 5:30-7:50
0610 530 70 D/N Instrumentation	E (4cr)		MW 5:30-7:50	
0610 542 01 HVAC Sys. Eng.	E (4cr)	NOTOFFERED	1989-1990	

NOTE: S-Service course (not to be taken for credit by MET students)
R-Required course, E-Elective course, D/N-Combined day/evening section

1990-91 EVENINQ COURSE OFFERINOS - ENOINEERINQ TECHNOLOGY

Course Number/Name		Fall	Winter	Spring	Summer
0502 403 71 Effective Tech. Comm.	O.R.S (4cr)		TR 8:00-9:50		
0609 411 70 81 82 Elect. Princ. Des. I	R,S (4cr)		MW 8:00-9:20 R 6:00-7:50 R 8:00-9:50		
0609 412 70 81 82 Elect. Princ. Des. II	S (4cr)			MW 8:00-9:20 R 6:00-7:50 R 8:00-9:50	
0609 413 70 81 Appl. MicroPro.	S (4cr)	NOTOFFERED	1990-1991		
0609 408 70 Int. Stren of Mat	0 (4cr)	TR 8:00-10:20			
0617 424 70 Stat. dual. Cont.I	S (4ct)		MW 8:00-9:50		
0617 436 70 Eng. Econ.	Q.S (4cr)			MW 8:00-9:50	
1011 271 70 Basic Chemistry	Q.R (3cr)	TR 8:00-9:20			
1011 275 81 Chemistry Labi	R (1cr)	M 6:00-8:50			
1011 273 70 Basic Chemistry II	R.S		TR 8:00-9:20		
1011 277 81 Chemistry Lab II	R.S		M 6:00-8:50		
1016 309 70 EJem. Stats	O.R.S (4cr)		MW 8:00-9:50		
1019 420 70 CaJc. Tech. I	O.R.S (4a)	TR 6:00-7:50	TR 6:00-7:50		
1019 421 70 Calc.Tech.II	O.R.S (4cr)	TR 6:00-7:50	TR 6:00-7:50	TR 6:00-7:50	
1019 422 70 Sol. Eng. Prob.	Q.R.S (4cr)		TR 6:00-7:50	TR 6:00-7:50	
1019 423 70 Linear Math-Tech.	O		TR 8:00-9:50		

NOTE: The Q,R, S, refer to required courses (Q-Elec. Eng. Tech., R-Mech. Eng. Tech., S-Manf. Eng. Tech.)

Manufacturing Engineering Technology Department

V. **Raju,** Chairperson

Manufacturing Engineering Technology, baccalaureate program

Leaders in the manufacturing engineering profession estimate that the present shortage of qualified manufacturing engineers and technologists is between 50,000 and 100,000 people—and this need is increasing. They also estimate that between 20,000 and 30,000 new jobs are created in manufacturing engineering every year. The two principal factors generating this demand are industrial productivity and technological innovations. The rate of increase of productivity in American industry is lagging behind most industrial nations.

Realizing that competitive positions in world and domestic markets are tied to the productivity of manufacturing units, there is considerable effort by industrial organizations to improve their productivity. This nationwide effort is causing organizational and planning changes in many corporations which now recognize the manufacturing unit as the key to profits; for example, many corporations have placed manufacturing engineers in charge of new product design functions in an effort to insure product *manufacturability.*

These efforts to improve productivity have led to the rapid introduction of new processes, equipment, and increased levels of automation. This has created a demand for personnel well-versed in the new manufacturing technologies: computer-aided design, computer numerical control, microprocessor controls, robotics, computer aided manufacturing, flexible manufacturing systems, and computer integrated manufacturing.

The manufacturing engineering technology program is designed to meet the demands of the industry. The program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC/ABET) and is operated on the cooperative education plan.

Yr.	MANUFACTURING ENGINEERING TECHNOLOGY, B.S. DEGREE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	SMAM-204 College Algebra & Trigonometry	4			
	GLLC-220 English Composition	4			
	ITEC-210 Intro, to Graphics	4			
	ITEF-220 Manufacturing Proc. I	4			
	tPhysical Education	0			
	SMAM-228 Analytic Geometry		4		
	SPSP-211 College Physics I		3		
	SPSP-271 College Physics Lab I		1		
	ITEM-220 Mechanical Design Drafting		4		
	ITEM-2111ntroduction to Materials Technology		4		
	tPhysical Education		0		
	SMAT-420 Calculus for Technologists I			4	
	SPSP-212 College Physics II			3	
	SPSP-272 College Physics Lab II			1	
	ITEF-260 Introduction to CAD			4	
	ITEM-302 Introduction to Statics			4	
	IPhysical Education		0		
2	SMAT-421CalculusforTech.il	4			
	SPSP-213 College Physics III	3			
	SPSP-273 College Physics Lab III	1			
	ITEM-303 Strength of Materials	4			
	ITEM-212 Metrology	2			
	"Liberal Arts (Core)	4			
	tPhysical Education	0			
	SMAT-422 Solutions of Eng. Prob		4		
	ITEC-230 Computer Applications		4		
	ITEM-304 Materials Testing		1		
	ITEM-320 Fluid Power		4		
	"Liberal Arts (Core)		4		
	Physical Education		0		
	SMAM-309 Statistics			4	
	ITEF-403 Machine Elemnts			3	
	"Liberal Arts (Core)			4	
	General Education			4	
1 2	Completion of an appropriate associate degree or equivalent				
3	GLLC-403 Effective Communication	4			
	ITEF-460 Computer Aided Design	4			
	ITEE-411 Elect. Principles I	4			
	ITEF-420 Manufacturing Proc. II	4			
	ITEF-471 Computer Numerical Cont		3		
	ITEE-413 Applied Microprocessors		4		
	•Liberal Arts (Core)		4		
	"Liberal Arts (Core)		4		
	ITEF-410 Computers in Manufactur		3		
4	ITEF-470 Contls for Mfg. Automatn	3			
	ITEF-425 Stat. Qual.Cont.il	3			
	SCHG-271 Basic Chemistry	3			
	SCHG-275 Basic Chemistry Lab	1			
	"Liberal Arts (Concentration)	4			
	ITEF-472 Tool Engineering			3	
	ITEF-485 Robots in Manufacturing		4		
	ITEF-437 Value Analysis			4	
	"Liberal Arts (Concentration)			4	
	Technical Elective			4	
5	ITEF-475 Computer Aided Manufact		4		
	Technical Elective		4		
	Technical Elective		3		
	SCHG-273 Chemistry		3		
	SCHG-277 Chemistry Lab		1		
	ITEF-436 Engineering Economics			4	
	ITEF-510 Process Design			4	
	Technical Elective			4	
	"Liberal Arts			4	
	GLAI-501 Senior Seminar			2	

'Seepage 116 for Liberal Arts requirements.

"Transfer students will take SMAT-420 or 421 depending on an evaluation of their mathematics background. Graduates will have to meet a minimum of 36 quarter credits of mathematics and science (including credits transferred), and include mathematics SMAT-422or equivalent. Rearrangement of the above schedule will be allowed to meet the math/science requirements.

}See page 200 for policy on Physical Education.

Objectives of the program

The primary objective of the manufacturing engineering technology program is to prepare individuals for professional employment in the manufacture ing field. This program is designed to provide the academic skills necessary for applying both today's and tomorrow's manufacturing technologies. These academic skills are enhanced by a full co-op program in manufacturing industries. Throughout the academic program, a large measure of hands-on laboratory experiences related to manufacturing technology is provided.

Curriculum

The manufacturing engineering technology curriculum has been designed with the aid and consultation of professionals in the field. The major emphasis of the program is on computer-integrated manufacturing. Subject matters covered include traditional and non-traditional manufacturing processes, fundamentals of electronics and microprocessors, computer-aided design, computer numerical control, robotics, group technology, computer-aided process planning, material requirements planning, flexible manufacturing systems, quality control, engineering economics, value analysis and plastics.

Admission requirements

Freshmen are admitted by normal RIT procedures with an emphasis given to mathematics find science skills. Those who transfer from two-year colleges should have an AAS degree or equivalent in one of the following majors: manufacturing technology, mechanical technology, management engineering technology, engineering science, electrical technology, computer technology, quality control technology, design and drafting technology, electromechanical technology. Students with other backgrounds may have to take additional courses to meet the entrance requirements. The chart shows the sequence of courses in the program for students entering as freshmen and those entering as juniors.

Manufacturing Engineering Technology cooperative education plan

Year	Fall	Winter	Spring	Summer
land 2	RIT	RIT	RIT	Vaction
3	RIT	RIT	Work	Work
4	RIT	Work	RIT	Work
5	Work	RIT	RIT	–

MANUFACTURING ENGINEERING TECHNOLOGY, B.S., EVENING PROGRAM

Y«ar	Quarter	Courses
1	Fall	SMAT-420 Calculus for Technologists I
		ITEF-420 Manufacturing Processes
	Winter	SMAT-421 Calculus for Technologists II
		GLLC-403 Effective Technical Communications
	Spring	SMAT-422 Solutions of Engineering Problems
		ITEF-460 Computer Aided Design
2	Fall	ITEF-403 Machine Elements
		Liberal Arts (core)
	Winter	ITEF-471 Computer Numerical Control
		ITEE-411 Electrical Principles for Design I
		ITEE-411 Lab
	Spring	ITEE-413 Microprocessors
		ITEE413Lab
		ITEF-410 Computers in Mfg. Eng. Tech (Not offered 1990)
3	Fall	SCHG-271 Chemistry
		SCHG-275 Chemistry Lab
		ITEF-470 Controls for Mfg. Automation (Not offered 1990)
	Winter	SCHG-273 Chemistry II
		SCHG-277 Chemistry Lab
		SMAM-309 Statistics
	Spring	ITEF-425 Statistical Quality Control II
		Liberal Arts (core)
4	Fall	ITEF-485 Robots in Manufacturing
		Technical Elective
	Winter	General Studies elective
		Liberal Arts (concentration)
	Spring	ITEF-436 Engineering Economics
		ITEF-475 Computer Aided Manufacturing
5	Fall	Liberal Arts (concentration)
		ITEF-510 Process Design
	Winter	ITEF-472 Tool Engineering
		Liberal Arts (concentration)
	Spring	Senior Seminar
		ITEF-437 Value Analysis ,

Technical electives
Manufacturing Engineering Technology

ITEF-372 CAD Applications to Tool Design
ITEF-385 Introduction to CAM
ITEF-502 Non-traditional Manufacturing Processes
ITEF-450 Plastics Processing
ITEF-491 Production Control
ITEF-405 Materials in Manufacturing
ITEF-526 Quality Systems
ITEF-481 Work Simplification and Measurement
ITEF-530 Special Topics in Computer Integrated Manufacturing
ITEF-599 Independent Study

With departmental approval, technical electives may be selected from existing courses in other RIT colleges.

Evening program

The upper division of this program may be taken on a part-time basis during the evening hours by those who are employed full time and desire to receive an ABET-accredited baccalaureate degree. The lowei^division portion of this program may be satisfied by completing the appropriate AAS program in the College of Continuing Education. The actual upper-division program will depend upon the courses taken for the AAS program. The typical evening student requires approximately 13 quarters to complete the upper-division course requirements. In the early quarters, the fundamentals of mathematics, electronics and processes are emphasized to provide the background for later courses in computer integrated manufacturing and technical electives. Students also may elect certain courses from other programs.

Note—some technical electives are offered only on an alternating year basis. Please check with an advisor when planning your program technical elective content.

1W0-91 **EVENING COURSE OFFERINGS - MANUFACTURING ENGINEERING TECHNOLOGY**

Court* Number/Nam*	Fall	Winter	Spring	Summer
0617 403 70 (also 01) R Machine Elements (3c»)	TR 5:30-7:00			
0617 405 70 D/N R Mat7Manuf. (4cr)		TR 6:00-8:00		
0617 420 70 R 81 Manuf. Proc (4cr)	MW 6:00-8:00 M 8:00-10:00			
0617 424 70 S Stat. Qual. Cont. I (3cr)		MW 6:00-8:00		
0617 425 70 R Stat. Qual. Cont. II (3cr)			TR 5:30-7:00	
0617 436 70 R Eng. Econ. (4cr)			TR6:00-8:00	
0617 437 70 E Value Anal. (3cr)			MW 5:30-7:00	
0617 460 70 D/N R CAD (4cr)			MW 5:30-8:00	
0617 471 70 D/N R Comp. Num. Cont. (3cr)		MW 6:00-8:00		
0617 472 70 D/N R Tool Engineering (4cr)		TR 6:00-8:00		
0617 475 70 R 81 CAM (4cr)			TR 5:30-8:00	
0617 485 70 (also 01) R Robots In Manuf (4cr)	TR 8:00-10:30			
0617 491 70 E Prod. Cont. <4cr)	MW 5:00-7:00			
0617 502 70 E Non-Trad. Ml. Proc. (3cr)		MW 8:00-10:30		
0617 510 70 E Proc. Design (4cr)	MW 8:00-10:00			

NOTE: S-Service course (not be be taken for credit by Manf. ET students)
R-Requlred course, E-Elective course
D/N-Comblned Day/Evening Section

School of Food, Hotel and Tourism Management

(99 Years of Service to Hospitality Education)

Francis M. Domoy, Director

RIT's School of Food, Hotel and Tourism Management offers four programs leading to BS and MS degrees in hospitality-tourism management: food-service management; hotel and resort management; travel and tourism management; general dietetics and nutritional care.

The school prepares students for a wide variety of career choices that include, but are not limited to, restaurants, health-care facilities, or travel consulting. A career in the hospitality industries has become highly specialized in today's business world and RIT graduates are in demand.

The four school programs provide a broadly based view of hospitality, tourism and client care through a common core of courses. This approach promotes an understanding of the inter relationships among the food, lodging and travel components and allows students to retain the flexibility to switch majors or jobs if their career goals change.

These diverse and specialized fields require a common set of abilities: creative problem solving; technical knowledge; leadership and excellence. The school's first priority is to equip students with these skills and qualities.

Now in its 99th year, RIT's School of Food, Hotel and Tourism Management is one of the nation's leading hospitality-tourism management programs and has been recognized for its outstanding programs by *Forbes, Travel Weekly, Nation's Restaurant News,* and *Corporate Travel* magazines.

The curriculum is designed to be fully integrated whereby competencies acquired in earlier courses are further developed in more advanced courses. Students may take electives that contribute to building a strong concept of the total industry by studying accounting, marketing, finance, economics, computer science, business management, behavioral science, nutrition, food preparation, food and beverage service principles, hotel operations, travel and other topics.

The goal of the school is to offer students a rigorous, challenging and interdisciplinary program of study in order to develop their talents. It provides them with the opportunity to develop their full potential in a managerial environment. Small classes promote a dynamic learning interaction among faculty, students and industry professionals.

Objectives
It is the mission of the school to prepare students to excel in their chosen profession by developing:

1. Theoretical and technical knowledge essential to successful attainment of professional, executive level management.
2. The ability to apply knowledge and original thinking to solving management problems.
3. The skills and techniques of leadership.
4. An awareness and desire for a lifetime of learning.
5. An intellectual spirit for constructive thought and action in building a good life and effective citizenship.

Cooperative education
The School of Food, Hotel and Tourism Management requires each student to combine 1,600 hours of practical co-op experience with classroom theory in order to graduate.

Cooperative education (co-op) is one of the many ways students are introduced to hands-on learning and employment in the hospitality and tourism industries. Co-op is usually taken during summer quarters after the freshman and sophomore years, and during any academic quarter in the junior and senior years, except the senior-year, final quarter when students are required to be in residence on campus. Co-op is planned, monitored and evaluated by the student, the co-op counselor, the faculty advisor, and the employing firm.

Many students find that their career goals take shape and become refined as they progress through co-op experiences. In general, co-op provides students with the opportunity to apply the theory of classroom instruction to an actual work setting.

Faculty
Faculty members in the School of Food, Hotel and Tourism Management are outstanding in their academic credentials and for their work in industry. They serve in professional and trade associations at the national level, guest-speak frequently, and consult in the fields of their expertise: tourism, marketing, hospitality operations, nutrition and health care, to name a few.

Advising
Students are assigned to faculty members on an individual basis throughout their academic years. In addition students have access to the school's administrative staff for assistance with registration, records, scheduling and for referral to other RIT support services.

Advisory Council
National industry leaders comprise the National Advisory Board, contributing professional and technical expertise to the school's four undergraduate programs and strengthening the development of the School.

Transfer students
Students who have earned an associate degree in a business program prior to enrollment at RIT may normally expect to complete the BS degree in two years, which includes six academic quarters and two required quarters of cooperative education. The school recognizes as fully as possible the past academic accomplishments of each student.

Facilities
State-of-the-art equipment and laboratories are available to all students in the School of Food, Hotel and Tourism Management to enhance their educational experiences. Henry's, a full-service, licensed restaurant, provides an excellent training environment for students who manage special luncheons and dinners with the help of computer ized beverage and point-of-sale systems. The food lab is commercially equipped for developing, testing and evaluating new food products and testing equipment.

Information management is a critical element in hospitality, travel and tourism. The school is fortunate to have for instruction the American Airlines SABRE computerized-reservation and accounting systems in the live mode. The AT&T Computer laboratory and the training studio allow students to prepare for the technology they will encounter on the job.

Programs of study in foodservice management

The foodservice industry employs more people than any other industry in the nation, and will continue to do so as the public demands more services. Foodservice offers an array of work places located far and wide: restaurants from full-service to cafeteria; fast-food and special chain operations; hotel fine dining and catering; clubs; contract ser vices for manufacturing; business firms; recreation and sports centers; education, health and life care institutions; retail stores; governmental agencies; and food vending.

Students in foodservice management experience a sampling of these foodservice sectors during cooperative education. By graduation students will accumulate more than 1,600 hours of work experience, more than any other four-year hospitality management program in the country. It is because of this depth of exposure that RIT students are in demand by food and bever age operations.

The program is designed to prepare students for management by lab experience in Henry's, the school's full-service, licensed restaurant. They rotate through all of the kitchen, dining room and bar positions in the Restaurant Operations, Restaurant Management, and Beverage Operations courses.

Students learn basic principles and procedures of nutrition; sanitation; menu planning and merchandising; product development; equipment design; food production; presentation and service; purchasing; cost control; and the management of Henry's. The program requires severed management topic courses including accounting, computer science, data analysis, leadership and executive development, per sonnel and labor management, and organization behavior. These professional and business courses are balanced by a strong component of liberal arts and science.

The first student chapter chartered by a state restaurant association is available to foodservice management students. The New York State Restaurant Association's goad is to foster inter change of ideas between industry and students and professional growth in organizational and social skills. Students with junior standing are encouraged to attend the National Restaurant Association Show in Chicago each year.

Yr.	FOODSERVICE MANAGEMENT	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	ISMF-222 Intro, to Foodservice Management	4			
	ISMH-200 Hotel Operations	4			
	ISMF-220 Career Seminar	2			
	ISMD-213 Nutrition Science	4			
	GLLC-220 English Composition	4			
	ISMT-205 Intro, to Tourism		4		
	ISMF-215 Principles of Quality Food Production		5		
	SMAM-225 Algebra for Management Sciences		4		
	GLLL-332 Uterature		4		
	ISMF-224 Decision Making in Foodservice Mgt			4	
	ISMF-314 Sanitation and Safety			2	
	SMAM-319 Data Analysis			4	
	ICSA-200 Survey of Computer Science			4	
	Liberal Arts			4	
	Physical Education	0	0	0	
	ISMF-499 Cooperative Education	0	0	0	Co-op
2	BBUA-301 Financial Accounting	4			
	SXXX-289 Contemporary Science Elective	4			
	ISMH-210 Hotel Marketing and Sales		4		
	ISMF-330 Quantity Food Production		4		
	ISMF-321 Menu Planning and Merchandising		2		
	BBUA-302 Managerial Accounting		4		
	ISMT-206 Travel Distribution Systems			4	
	ISMF-331 Restaurant Operations			6	
	GSSE-210 Introduction to Economics			4	
	Liberal Arts	8	4	4	
	Physical Education	0	0	0	
	ISMF-499 Cooperative Education				Co-op
3	ISMF-424 Food and Labor Cost Control	4			
	ISMF-340 Beverage Operations	2			
	ISMF-416 Product Development	6			
	ISMF Electives	4	4		
	BBUM-463 Principles of Marketing		4		
	BBUB-430 Organizational Behavior		4		
	ISMH-480 Personnel and Labor Management			4	
	ISMF/ISMH/ISMT Elective			4	
	BBUF-441 Corporate Finance			4	
	Liberal Arts		4	4	
	ISMF-499 Cooperative Education				Co-op
4	ISMF-430 Restaurant Management	6			
	ISMH-470 Leadership and Executive Development	4			
	ISMF/ISMH/ISMT Elective	2			
	Liberal Arts (Senior Seminar)			2	
	Liberal Arts	4		12	
	ISMF-499 Cooperative Education		Co-op		

Yr.	HOTEL AND RESORT MANAGEMENT	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	ISMF-200 Hotel Operations	4			
	ISMF-222 Introduction to Foodservice Management	4			
	ISMF-220 Career Seminar	2			
	GLLC-220 English Composition	4			
	ISMT-205 Introduction to Tourism		4		
	ISMF-210Hotel Marketing and Sales		4		
	SMAM-225 Algebra tor Management Science		4		
	Gill -33? literature		4		
	ISMT-?06 Travel Distribution Systems			4	
	ISMF-??4 Decision Making in Foodservices Management . . .			4	
	ICSA-?00 Survey of Computer Science			4	
	•Liberal Arts	4		4	
	‡ Physical Education	0	0	0	
	ISMF-499 Cooperative Education				Co-op
2	ISMH-310 Resort Development and Management	4			
	SMAM-319 Data Analysis	4			
	Contemporary Science Elective	4			
	ISMH-315 Hotel Engineering and Maintenance		4		
	BBUA-301 Financial Accounting		4		
	ISMF-330 Quantity Food Production		4		
	ISMF-355 Financial Management for Hotel Industry			4	
	BBUA-302 Managerial Accounting			4	
	GSSE-210 Introduction to Economics			4	
	•Liberal Arts	4	4	4	
	‡ Physical Education	0	0	0	
	ISMF-499 Cooperative Education				Co-op
3	BBUM-462 Principles of Marketing	4			
	ISMF-424 Food and Labor Cost Control	4			
	ISMH-460 Seminar in Resort and Hotel Development	2			
	ISMF-330 Restaurant Operations	6			
	ISMF-340 Beverage Operations		2		
	ISMF-430 Organizational Behavior		4		
	"Liberal Arts		8	8	
	ISMH/ISMH/ISMT Electives		4	4	
	ISMH-480 Personnel and Labor Management			4	
	ISMF-499 Cooperative Education				Co-op
4	ISMH-470 Leadership and Executive Development	4			
	BBUF-441 Corporate Finance	4			
	ISMF/ISMH/ISMT Electives	4		4	
	Free Electives			8	
	•Liberal Arts (Senior Seminar)			2	
	'Liberal Arts	4		4	
	ISMF-499 Cooperative Education		Co-op		

*Seepage *116 for Liberal Arts requirements.*
tSee page 200 for policy on Physical Education.

Hotel and resort management

Hotel and resort management is a professionally oriented curriculum for students interested in careers involving the management and operations of hotel, resort, leisure time and related enterprises. A composite of discipline areas allows students to understand the physical characteristics of the properties as well as to gain the business expertise necessary to manage and market them.

The program is designed to build student skills with a balanced academic program of the basic principles of hotel and restaurant operations, tourism, resort development and management, business and financial management, and liberal arts, together with paid work experience (co-op) in four quarters, hands-on class projects, laboratories and school activities. Specialized courses include data analysis, hotel engineering and maintenance, hotel marketing and sales, personnel and labor management, leadership and executive development, and negotiation and conflict management. Industry professionals regularly offer their expertise in all of the program courses.

Students develop communication skills through participation in the student chapter of the Hotel Sales & Marketing International Association (HSMAI). In 1988 RIT HSMAI students hosted the national student chapter convention—an intensive learning experience. Students with senior standing are encouraged to attend the International Hotel/Motel and Restaurant Show in New York City in November.

Travel and Tourism management
The dynamic growth of modern travel and tourism has created many technical problems for the traveling public and with them the need to consult highly qualified experts to plan, arrange and coordinate travel. Today, more than ever before, travelers are faced with many alternatives for transportation, accommodations and other travel ser vices, and are increasingly relying upon the travel professional to help guide them wisely and honestly. Travel agencies and travel counselors have an important impact on tourist economics and on foodservice, lodging, transportation and leisure time enterprises that supply services to tourists. Managers of tourist businesses and destination marketing organizations such as visitor and convention bureaus also assist the public in meeting their travel and tourism needs. In addition, tour operators and meeting managers provide the public with tourism opportunities and arrange trips, conferences, and seminars.

Travel and tourism management combines a study of specialized courses in travel management with a sound general education. In addition to the specialty courses, students are provided a broad-based curricular approach with courses in accounting, management principles, marketing, business law, foreign languages, and the computer sciences. The program is structured to provide students with a balance of hands-on experience and management theory. This is necessary to further their understanding of why the travel industry operates as it does in its business environment. This career education orientation provides both the four-year and transfer student with a balance of theoretical classroom-based instruction with the experiential opportunities that are furnished by cooper ative education.

Equipped with this program of academic study and work experience, students in travel and tourism management prepare for careers in corporate travel, consulting and professional meeting management, as well as management and marketing positions with state tourism agencies, visitor and convention bureaus, and group tour companies. Employment opportunities are also excellent with airline companies, hotels, resorts, retail travel agencies and other leisure time businesses.

Yr.	TRAVEL MANAGEMENT	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	ISMT-210 Introduction to AA SABRE	4			
	ISMH-200 Hotel Operations	4			
	ISMF-220 Career Seminar	2			
	GLLC-220 English Composition	4			
	'Liberal Arts	4	4		
	ISMT-205 Introduction to Tourism		4		
	GLLL-332 Literature		4		
	SMAM-225 Algebra for Management Science		4		
	GSSE-210 Introduction to Economics			4	
	ISMT-206 Travel Distribution Systems			4	
	ICSA-200 Survey of Computer Science			4	
	SMAM-319 Data Analysis			4	
	‡ Physical Education	0	0	0	
	ISMF-499 Cooperative Education				Co-op
2	ISMH-310 Resort Development & Management	4			
	ISMF-222 Introduction to Food Service Management	4			
	ISMT-312 Travel Reservation Procedures	2			
	ISMT-314 Salesmanship Techniques in Tvl		2		
	BBUA-301 Financial Accounting		4		
	ISMH-210 Hotel Marketing & Sales Mgt		4		
	BBUA-302 Managerial Accounting			4	
	ISMF-224 Decision Making in Food Sci. Mgt			4	
	SXXX-289 Contemporary Science Elective			4	
	"Liberal Arts	4	4	4	
	‡ Physical Education	0	0	0	
	ISMF-499 Cooperative Education				Co-op
3	BBUM-463 Principles of Marketing	4			
	ISMH-480 Personnel & Labor Mgt. in Hospitality	4			
	ISMT-438 Tourism Planning & Development	4			
	ISMT-420 Corporate Travel Planning		4		
	BBUB-430 Organizational Behavior		4		
	ISMF/ISMH/ISMT Electives		4	8	
	ISMT-413 Marketing Tourism Destinations			4	
	"Liberal Arts	4	4	4	
	ISMF-499 Cooperative Education				Co-op
4	BBUF-441 Corporate Finance	4			
	"Liberal Arts (Senior Seminar)	2			
	Free Electives	4			
	ISMF/ISMH/ISMT Electives	6		8	
	ISMH-470 Leadership & Executive Development			4	
	"Liberal Arts			4	12
	ISMF-499 Cooperative Education		Co-op		

•Seepage 116 for Liberal Arts requirements.
iSee page 200 for policy on Physical Education.

American Airlines SABRE Systems
Available to the students in the School of Food, Hotel and Tourism Management in live mode are the automated reservation and accounting systems designed by American Airlines to allow corporate travel planners and meeting managers to serve the client faster, while handling the complex details of their business more efficiently. The reservation system, SABRE, enables travel professionals to give their clients immediate confirmation for flights operated by airlines worldwide.

With SABRE the students are seated at SABRE reservation sets that use video screens and typewriter-like keyboards and are linked directly to American's worldwide travel information system. This provides access to accommodations at hotels—domestic and international, major car rental firms, and to wholesale tour operators who design tours to vacation destinations such as Hawaii, the Caribbean, Mexico, Canada and the U.S. mainland.

SABRE provides the student with a view of a world wide market distribution system. The system also performs fare quotations, currency conversions, and, with the aid of the Telenet printers, prepares a printed ticket, a comprehensive invoice and a passenger itinerary.

Students are also versed in the use of SABRE's special file designed for the frequent business traveler. Known as STARS (Special Travelers Account Record System), the file contains not only addresses and telephone numbers, but individual preferences in flight

times, aircraft, seating, menus, etc. It will also automatically "remember" the traveler's customary requests with regard to hotel reservations, car rentals, and billing procedures.

Beginning the winter quarter of 1990, the school will provide a Sabre certification course for part-time students. Refer to the part-time enrollment catalog for details.

The School of Food, Hotel and Tourism Management's utilization of the American Airline's SABRE System truly represents a whole new dimension in hospitality and tourism education.

General dietetics and nutritional care
Today's public is becoming increasingly interested in nutrition requirements for good health and long life. People are concerned about balanced menus away from home and about special diet menu selection availability for persons with serious ailments. Physical fitness centers seek educated advice about meal planning.

Dietitians are involved with people of all ages, cultures and economic means. They enjoy people and learn to understand them as individuals, thereby helping to solve their food needs. Dietitians are health professionals who apply the science and art of human nutrition.

The general dietetics and nutritional care program offers a challenging curriculum that prepares students for diverse career opportunities. From their base of knowledge about nutrition, registered dietitians practice in many settings. Possible career paths may be developed in private practice; community nutrition and public health; wellness and fitness programs for sports; education and corporations; clinical dietetics or food management in hospitals and long-term care facilities; research for clinical, education or food manufacturing operations; nutrition education; restaurant consulting; and writing for publications.

Dietetics program options
Today industry and institutions are looking for dietitians with strong management skills. Two options in the general dietetics and nutritional care program are offered: Traditional Plan IV dietetics and the Coordinated Program (C.P.) in general dietetics. These options combine clinical and business courses so that students become prepared for either arena.

All RIT dietetics students are enrolled in the traditional program in general dietetics during the first two years. Upon completion of the necessary pre-professional (first and

Yr.	GENERAL DIETETIC' & NUTRITIONAL CARE PLAN IV	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
	ISMD-213 Nutrition Science	4			
	ISMF-222 Intro, to Food Service Management	4			
	"SCHG-201,221 Survey of General Chemistry (plus lab)	4			
	GLLC-220 English Composition	4			
	ISMF-215 Principles of Quality Food Production		5		
	GSSE-210 Introduction to Economics		4		
	"SCHG-202,222 Survey of Organic Chemistry (plus lab)		4		
	GLLL-332 Literature		4		
1	ISMF-224 Decision Making in Food Service Management			4	
	ICSA-200 Survey of Computer Science			4	
	"SCHG-203 Biochemistry I			4	
	Liberal Arts			4	
	ISMF-314 Sanitation & Safety			2	
	Physical Education	0	0	0	
	"SBIG-210 Microbiology	4			
	"SCHG-204 Biochemistry II	4			
	SMAM-225 Algebra for Management Science	4			
	ISMF-321 Menu Planning and Merchandising		2		
	SMAM-319 Data Analysis		4		
2	SBIG-211,212 Human Biology I, II, plus lab		4	4	
	BBUQ-301 Financial Accounting			4	
	Liberal Arts	4	8	8	
	ISMF-499 Cooperative Education				Co-op
	Physical Education	0	0	0	
	ISMF-424 Food & Labor Cost Control	4			
	ISMF-416 Product Development	6			
	BBUB-430 Organizational Behavior	4			
3	ISMF-330 Quantity Foods		4		
	ISMF-512 Design and Layout of Food Operations	2			
	ISMD-554 Nutrition in Life Cycle		5		
	Liberal Arts	4	8		
	ISMF-499 Cooperative Education			Co-op	Co-op
	ISMD-525 Advanced Nutrition/Diet Therapy I	4-5			
	'Liberal Arts (Senior Seminar)		2		
	ISMH-470 Leadership and Executive Development	4			
	Liberal Arts	8	4	4	
4	ISMF Eiectives	2-4	4	4	
	ISMH-480 Personnel & Labor Management		4		
	"ISMD-526 Advanced Nutrition/Diet Therapy II		4-5		
	ICIC-519 Educational Methods			4	
	"ISMD-550 Community Nutrition			8	

'Changes in the dietetics program are subject to approval by the American Dietetics Association.
"These courses offered ONLY in the quarters listed on the schedule.
'Seepage 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Yr.	GENERAL DIETETICS (CP)	Quarter Credit Hours			
		FALL	WTR.	SPG.	SMR.
	ISMD-402 Dietetic Environment	4			
	ISMF-416 Product Development	6			
	BBUB-430 Organizational Behavior	4			
	'Liberal Arts	4	8		
	ISMD-512 Design and Layout of Food Operations	2			
3	ISMF-330 Quantity Foods		4		
	ISMD-554 Nutrition in Life Cycle		4		
	ICIC-519 Educational Methods			4	
	ISMF-424 Food and Labor Cost Control			4	
	ISMD-551 Food Systems Management II (Clinical Course)			8	
	ISMD-560 Clinical Dietetics I	4			
	ISMD-561 Clinical Dietetics II	4			
		4		4 •	
4	Liberal Arts (Senior Seminar)			2	
	ISMD-562 Clinical Dietetics III		4		
	ISMD-563 Clinical Dietetics IV		8		
	ISMH-480 Personnel & Labor Management		4		
	ISMD-550 Community Nutrition			8	

"Changes in the dietetics program are subject to approval by the American Dietetics Association.
•See page 116 for Liberal Arts requirements.

second year) courses, students may apply for admission into the coordinated dietetics program. Applications for the Coordinated Program must be submitted by February 15 to be considered for admission into the professional phase the following September.

The dietetics program combines courses in physical, biological and social sciences; nutrition in health and disease; food principles; management, accounting and finance; and a required component of liberal arts.

Traditional Plan IV dietetics: The program in Traditional Plan IV dietetics leading to a BS degree meets the education requirements of the American Dietetic Association. Four-year students must complete three quarters of approved cooperative work experience. To become credentialed as a registered dietitian (RD), students also will need to complete an approved supervised practice and pass the National Registration Examination of the American Dietetic Association.

Coordinated program option: This option combines the undergraduate curriculum and planned supervised practice to meet the academic and performance requirements established by the American Dietetic Association, for eligibility as a Registered Dietitian, (ADA).

This option also is planned to integrate formal teaching and over 900 hours of planned, supervised practice in hospitals, long-term care facilities, school and corporate food services and community health agencies. Academic and supervised practice phases are taught together to reinforce each other. Learning experience involves team teaching by RIT faculty and clinical instructors, each contributing their expertise in the profession.

Co-op is not required of students in C.P. because the supervised practice hours planned for the junior and senior years establish eligibility for students to take the National Registration Examination for dietitians upon graduation.

Completion of this option leads to a bachelor of science degree plus eligibility to take the national examination to become a registered dietitian (RD).

Transfer credit

Two-year transfer program for food-service management, hotel and resort management, and travel-tourism management. Students who have earned an appropriate associate degree or its equivalent prior to enrollment at RIT may normally expect to complete the requirements for the BS degree in two years which includes six academic quarters and cooperative education.

Transfer students must complete a minimum of 102 quarter credit hours with an earned minimum grade point average of 2.0 and two quarters of approved cooperative education assignments.

Transfer students with less than two years of college or from other educational backgrounds can be accommodated. The amount of transfer credit will be determined by an evaluation of the individual's transcript.

In every instance, it is the policy of the college to recognize as fully as possible the past academic accomplishments of each student.

Two-year transfer program for coordinated dietetics. RIT makes every effort to facilitate transfer credit. Due to specific areas of study required by the American Dietetic Association and RIT, transfer students applying for admission to the professional phase of C.P. in dietetics must meet course prerequisites listed in the pre-professional phase.

The following areas of study must be completed:

- Food and Nutrition Principles
- General and Organic Chemistry
- Biochemistry I
- Physiology
- Management Courses: Mathematics, Accounting and Statistics
- Economics
- TOTAL of 24 credit hours of Liberal Arts (including Introduction to Sociology)

Applicants are required to have a minimum grade point average of 2.5 from two years of basic professional courses before they are considered for admission in the coordinated program.

Students who are not accepted in the coordinated program may be admitted to the traditional program in general dietetics. Due to the special professional requirements of the American Dietetic Association, the amount of transferable credit and estimated time to complete work for the BS degree must be determined by evaluation of each individual's transcript.

Course descriptions

For a complete outline of courses offered at RIT, please request the Course Description Catalog from the Admissions Office.

Department of Packaging Science

David L. Olsson, Director

Packaging Science, baccalaureate program

The Packaging Science program, leading to the bachelor of science degree, is broadly interdisciplinary providing educational opportunities for men and women seeking careers in the multi-faceted packaging industry.

Graduates are prepared for initial employment in such areas as package engineering, development, sales, purchasing, structural design, production, research, and marketing.

Packaging is a multi-billion dollar industry exhibiting dynamic growth and providing employment for many thousands of men and women with wide-ranging skills and expertise.

Since the end of World War II the development of a package for a given product has become increasingly complex, involving input from many areas of business and from people with diverse backgrounds. This has resulted in the need for specially trained professionals able to work with concepts, individuals, materials, and machines. Qualified persons in this area are in demand and find themselves in a rapidly changing, challenging career. The RIT program trains people for this exciting profession.

The degree program in packaging science was developed because of a close and well-established relationship between the packaging industry and Rochester Institute of Technology over many years.

Packaging has become increasingly related to total marketing concepts; it has even greater dependence upon new developments in materials and processes. Therefore, the industry requires management personnel with strong backgrounds in business, engineering, science and the creative dimension.

Characteristics of the program

The program has these characteristics:

1. It is career oriented—the graduate is ready to enter direcdy into a position of responsibility.

2. It is interdisciplinary—the student becomes familiar with the many facets of packaging through courses in several RIT colleges.

3. It is flexible—the program offers three options, management, technical, and printing, with ample opportunity for electives according to interest.

Yr.	BS DEGREE IN PACKAGING SCIENCE - TECHNICAL OPTION	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	IPKG-201 Principles of Packaging	3		
	IPKG-301 Engineering Design Graphics		3	
	IPGK-311 Packaging Materials I			3
	SMAM-204 Modern Algebra	4		
	SMAM-214,215 Introduction to Calculus		3	3
	SGHG-208,209 College Chemistry	4		4
	GLCC-501 Effective Speaking			4
	"Liberal Arts (Foundation)	4	8	4
	Education	0	0	0
2	IPKG-312 Packaging Materials II	3		
	IPKG-313 Methods of Evaluation	3		
	IPGK-321 Rigid Containers		4	
	IPKG-322 Flexible Containers			4
	IPKG-341 Computer Applications			4
	SMAM-319 Data Analysis			4
	SCHO-231,232 Organic Chemistry	3	3	
	SCHO-235,236 Organic Chemistry Lab	1	1	
	"Liberal Arts (Foundation)	4	4	4
		4	4	
	tPhysical Education	0	0	0
3	IPKG-401 Career Seminar		1	
	IPKG-420 Technical Communication		3	
	IPKG-431 Packaging Production Systems	4		
	IPKG-432 Packaging for Distribution		4	
	IPKG-433 Packaging for Marketing			4
	IPKG-485 Shock and Vibration			4
	SPSP-211,212,213 College Physics	3	3	3
	SPSP-271,272,273 College Physics Lab	1	1	1
	SPSP-341 Foundations of Scientific Thinking	2		
	PPRT-200 Introduction to Printing	3		
	"Liberal Arts (Concentration)	4	4	4
4	IPKG-462 Packaging Regulations		3	
	Professional (Packaging) Electives	4	4	4
	BBUM-463 Principles of Marketing		4	
	BBUB-430 Organizational Behavior			4
	"Liberal Arts (Electives and Senior Seminar)	6	4	4
		6		3

"Seepage 116 for Liberal Arts requirements.
fSee page 200 for policy on Physical Education.

4. It is representative of industry needs—the content developed with the assistance of the Rochester Area Packaging Association, consultants from the packaging industry, and educational specialists.

5. It is adaptable to a modified cooperative plan, used widely in other RIT programs. Two quarters of co-op work experience are required. This can be scheduled at the student's convenience, following development of appropriate skills.

Admission requirements

The four-year BS degree program considers for admission high school graduates who meet the following requirements: English, 4 years; mathematics, elementary algebra and either plane geometry or intermediate algebra; science, one year. Candidates are evaluated in relation to career objectives, designated option, and other indications of potential success in the program.

Upper division (transfer)
Transferring into the program with advanced standing is particularly advantageous, since RIT has had many years of experience in assimilating graduates of two-year colleges into its programs and moving them from this point in their education directly into a chosen career field. Some candidates now in four-year colleges will find in the packaging science program a career opportunity with outstanding potential. Associate degree holders (AA, AS, AAS) have courses arranged to meet the requirements of the program and to correct deficiencies resulting from work taken at other institutions not offering the courses required for graduation. With a selective choice of electives by students in the two-year colleges, it is possible to complete the packaging science curriculum in two additional years at RIT.

Principal field of study
For students matriculated in the interdisciplinary Packaging Science program, the principal field of study is defined to be all courses in the Packaging Science Department as well as the required courses in the College of Science for the technical option, the required courses in the colleges of Business and Science for the management option, and the required courses in the Colleges of Science and Graphic Arts and Photography in the printing option. Matriculated students not maintaining a 2.0 cumulative grade point average in their principal field of study are subject to academic probation or suspension according to Institute policy.

Yr.	BS DEGREE IN PACKAGING SCIENCE - MANAGEMENT OPTION	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	IPKG-201 Principles of Packaging	3		
	IPKG-301 Engineering Design Graphics		3	
	IPKG-311 Packaging Materials I			3
	IPKG-341 Computer Applications			4
	SPSP-211,271 Collge Physics/Lab	4		
	SMAM-225 Algebra for Management Science		4	
	SMAM-226 Calculus for Management Science			4
	GSSE-301,302 Principles of Economics I, II	4	4	
	"Liberal Arts (Foundation)	4	4	4
	tPhysical Education	0	0	0
2	IPKG-312 Packaging Materials II	3		
	IPKG-313 Methods of Evaluation	3		
	IPGK-321 Rigid Containers		4	
	IPKG-322 Flexible Containers			4
	SCHG-201,221 Survey of General Chemistry/Lab		4	
	SCHG-202,222 Survey of Organic Chemistry/Lab	4		
	SPSP-341 Foundations of Scientific Thinking		2	
	SMAM-309 Elementary Statistics			4
	PPRT-200 Introduction to Printing	3		
	BBUA-301 Financial Accounting		4	
	"Liberal Arts (Foundation)	4	4	8
	tPhysIcal Education	0	0	0
3	IPKG-401 Career Seminar		1	
	IPKG-420 Technical Communication	3		
	IPKG-431 Packaging Production Systems	4		
	IPKG-432 Packaging for Distribution		4	
	IPKG-433 Packaging for Marketing			4
	IPKG-485 Shock and Vibration			3
	BBUB-430 Organizational Behavior			4
	BBUM-463 Principles of Marketing	4		
	GLLC-501 Effective Speaking		4	
	"Liberal Arts (Concentration)	4	4	4
	Free Elective		4	
4	IPKG-462 Packaging Regulations		3	
	Professional (Packaging) Electives	4	4	4
	"Liberal Arts (Electives and Senior Seminar)	6	4	4
	Management Electives	4		4
	Free Electives	4	4	4

'Seepage 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Yr.	BS DEGREE IN PACKAGING SCIENCE - PRINTING OPTION	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	IPKG-201 Principles of Packaging	3		
	IPKG-301 Engineering Design Graphics		3	
	IPGK-311 Packaging Materials I			3
	IPKG-312 Packaging Materials II			3
	SMAM-225 Algebra for Management Science	4		
	SMAM-226 Calculus for Management Science		4	
	SMAM-309 Elementary Statistics			4
	SPSP-211,271 College Physics/Lab	4		
	SPSP-341 Foundations of Scientific Thinking			2
	"Liberal Arts (Foundation)	4	8	4
	tPhysical Education	0	0	0
2	IPKG-313 Methods of Evaluation	3		
	IPGK-321 Rigid Containers		4	
	IPKG-322 Flexible Containers			4
	IPKG-341 Computer Applications	4		
	IPKG-420 Technical Communication		3	
	SCHG-201,221 Survey of General Chemistry/Lab	4		
	SCHG-202,222 Survey of Organic Chemistry/Lab		4	
	PPRT-200 Introduction to Printing	3		
	PPRT-213 Principles of Copy Preparation		3	
	PPRT-239 Gravure Process			3
	PPRT-342 Properties of Paper			3
	"Liberal Arts (Foundation)	4	4	4
	tPhysical Education	0	0	0
3	IPKG-401 Career Seminar		1	
	IPKG-431 Packaging Production Systems	4		
	IPKG-432 Packaging for Distributionn		4	
	IPKG-433 Packaging for Marketing			4
	IPKG-462 Packaging Regulations		3	
	IPKG-485 Principles of Shock and Vibration			3
	PPRT-240 Lithographic Process	3		
	PPRT-328 Flexographic Process			3
	BBUM-430 Organizational Behavior	4		
	GSSE-301,302 Principles of Economics I, II		4	4
	"Liberal Arts (Concentration)	4	4	4
4	Professional (Packaging) Electives	4	4	4
	GLLC-501 Effective Speaking	4		
	PPRT-372 Image Capture and Conversion			3
	"Liberal Arts (Electives and Senior Seminar)	4	6	4
	Free Electives	4	6	4

•Seepage *116forUbenl Arts requirements.*
tSee page 200 for policy on Physical Education.

Department of Military Science and Reserve Officers' Training Corps (ROTC)

LTC Frederick F. Lash, Professor of Military Science

Overview
RIT offers full-time students from all degree fields the opportunity to enroll in our program. Participation in the program includes classroom instruction, laboratory practicums, physical training, and some weekend field training exercises. RIT students who join the Reserve Officers' Training Corps become cadets in a dynamic and challenging aspect of life at RIT. The title of cadet carries with it the potential for many rewards and responsibilities as members of the college community.

Annual social events include a formal dinner in the Fall Quarter and a Spring Quarter Military Ball. Army cadets also assist in the fall student orientation, demonstrations of military training throughout the academic year, special events geared towards fostering community relations and fund raising for worthy charities. Army ROTC extracurricular activities include adventure training, pistol team, rappelling, cross-country skiing, rafting exercises, survival training, and numerous field events throughout the year.

The Department of Military Science and Army ROTC offers a unique educational experience. A student is exposed to a curriculum that cannot be obtained through any other source. Modern weapon systems, military tactics and leadership experiences are just a part of the total program. Through this program a college graduate acquires the knowledge and skills to lead the men and women of today's modern Army.

The program is divided into two parts: The Basic Course (Freshman/ Sophomore years) and the Advanced Course (Junior/Senior years).

Financial benefits
A subsistence allowance of $100 per month is provided, tax free, directly to each contracted ROTC cadet throughout the school year. This, plus pay for Advanced Camp attendance, amounts to over $2,500 for the last two years of college.

RIT offers room scholarships and tuition supplement to cadets who are recipients of 4 year, 3 ½ year, and 3 year ROTC scholarships received through the Four-year Scholarship Program. In order to receive RIT's room scholarship and tuition supplement, students must file a Financial Aid Form by March 1. Contact the Financial Aid Office for further information.

Scholarship opportunities
Our program offers each student the opportunity to compete for two- and three-year scholarships during the freshman and sophomore years. These scholarships are awarded based on academic strength and leadership potential. Both enrolled cadets and non-enrolled students may apply for this program.

Cooperative education (Co-op)
Engineering and science students enrolled in ROTC also are eligible to apply for co-op positions through the Department of the Army Scientific and Engineering Co-op Program at a wide variety of installations around the country. The ROTC curriculum is very compatible with RIT's co-op program.

Basic course
The Basic Course is available throughout the freshman and sophomore years. During this period, non-scholarship students have absolutely no military service obligation. The curriculum is flexible and is designed to develop self-confidence, to test responsibility and to develop leadership abilities. Freshmen and sophomores participate approximately two hours per week. A student may sample ROTC at any time within his or her first two years. Cadets enrolled in military science study basic military organization, tactics and history. This complete military experience qualifies a cadet for enrollment in the Advanced Course, scholarships, airborne training, summer employment, air assault training, and many other opportunities to gain valuable on-the-job experiences.

Summer camp program
A two-year program is offered to all qualified students with two academic years remaining who did not previously participate in the Basic Course. Students in this program attend a six-week Basic Summer Camp between their sophomore and junior years. Upon successful completion of the basic camp, the student may be enrolled in the Advanced Course for the last two years. It should be noted that two-year scholarships are available on a competitive basis during the Basic Camp. Interested students should begin processing applications for this program early in the Winter Quarter of their sophomore year.

Advanced course
The Advanced Course is conducted during the last two years (three years if you co-op) of college and includes attendance at the ROTC Advanced Camp, normally between your junior and senior years. Military Science Department classes during the Advanced Course serve as a prelude to subsequent instruction at specific Army Service Schools. Advanced Course ROTC cadets perform in leadership positions with a cadet company and may participate in and/or lead various training activities.

The program includes an annual trip to Fort Drum, N.Y. Usually scheduled during April, this exercise is conducted in preparation for the Advanced Camp. The Advanced Camp at Fort Bragg, N.C. trains and evaluates thousands of cadets annually from all schools on the Eastern Seaboard of the United States. The six-week Advanced Camp gives each participant an opportunity to plan, organize and lead one's peers through a vigorous and challenging training program. Attendees are paid travel expenses and a salary for this intellectually and physically rewarding experience.

Yr.	DEPARTMENT OF MILITARY SCIENCE FOUR-YEAR PROGRAM	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1 MS I	•MMSM-201 Introduction to Military Science	2		
	tMMSM-202 Applied Military Dynamics		2	
	tMMSM-203 Military Heritage			2
2 MS II	•MMSM-301 Military Geography	2		
	"MMSM-302 Psychology and Leadership		2	
	'MMSM-303 The Military and American Society			2
3 MS III	•MMSM-401 Military Tactics	3		
	•MMSM-402 Military Communications		3	
	•MMSM-403 Military Operations			3
4 MS IV	•MMSM-501 Combined Arms Operations	3		
	"MMSM-502 Military Administration and Logistic Management		3	
	'MMSM-503 Military Ethos			3
	MMSM-510 Senior Seminar			2

** A Leadership Lab, which is conducted on a weekly basis for one hour, is an integral part of each course offered throughout the year. Class 1, Lab 1 = Credit 2, orClass2, Lab 1 = Credit 3.*
‡ Completion meets physical education requirements.

Yr.	DEPARTMENT OF MILITARY SCIENCE TWO-YEAR PROGRAM BASIC CAMP/ADV. PLACEMENT/SUMMER COMPRESSION	Qtr. Credit Hours		
		FALL	WTR.	SPG.
3 MS III	•MMSM-401 Military Tactics	3		
	•MMSM-402 Military Communications		3	
	•MMSM-403 Military Operations			3
4 MS IV	•MMSM-501 Combined Arms Operations	3		
	•MMSM-502 Military Administration and Logistic Management		3	
	•MMSM-503 Military Ethos			3
	MMSM-510 Senior Seminar	2		

** A Leadership Lab, which is conducted on a weekly basis for one hour, is an integral part of each course offered throughout the year. Class 1, Lab 1 = Credit 2, orClass2, Lab 1 = Credit 3.*

After Advanced Camp, selected cadets have the opportunity to participate in the Cadet Troop Leader Training Program for an additional two or three weeks in Active Army units in leadership positions throughout the U.S. and overseas.

Airborne (parachute), Air Assault (helicopter) and Ranger Training also are available on a competitive basis to cadets in the upper division of ROTC. RIT cadets may earn their badges as parachutists, air assaultists, or rangers and become fully qualified to be assigned duties in these activites after commissioning.

Professional Military Education
In addition to the Military Science curriculum and the Fort Bragg Advanced Camp, each cadet must complete a course in the following designated fields of study.

1. Written Communication
2. Military History
3. Human Behavior
4. Computer Literacy
5. Math Reasoning
6. Foreign Language (scholarship cadets only)

After graduation
Today's ROTC graduates are working in commissioned officer positions that range from commanding units overseas to serving in National Guard and Army Reserve units throughout the United States.

Graduate school opportunities
Commissioned officers may have an opportunity to pursue graduate work in their chosen discipline. Normally the cost of a graduate degree or attendance at a professional school is at the individual's expense. Certain specialties may be paid for by the U.S. Army.

Technological enrichment program
Students who plan to pursue graduate studies in high-technology areas can compete for a full graduate school scholarship through the Army in their senior year of college.

For additional information
For additional information about broadening your career options through Army ROTC, visit or call the Department of Military Science on the third floor of the George Eastman Building (475-2881 or -2882).

AFROTC—Air Force Reserve Officer Training Corps, Department of Aerospace Studies

Col. William (Bill) Savage
Professor of Aerospace Studies

Background
Air Force Reserve Officer Training Corps (AFROTC) opened at RIT in September 1985. Since 1947 AFROTC has afforded graduating college students an appointment as commissioned officers in the United States Air Force. There are three methods to obtain a commission as an officer in the Air Force: through the Air Force Academy, the Air Force Officer Training School, and our Air Force ROTC program. Participation in the ROTC program allows college students a firsthand view of the Air Force while attending the college of their choice. Activities are extremely varied and enriching, encompassing classroom instruction, leadership experiences, visits to Air Force bases, summer field training, flight instruction for those qualified, physical fitness, and more.

Characteristics
The Department of Aerospace Studies at RIT has designed an approach to its curriculum totally compatible with the normal four-year curriculum in some RIT colleges, and additionally, compatible with the five-year cooperative education program in existence at a larger number of colleges within the Institute. RIT and the Department of Aerospace Studies believe the program will develop very well-rounded individuals fully prepared to enter into their chosen career fields and to become future leaders in our society.

Four-year program
This program has three distinct parts: the General Military Course (GMC), the Professional Officer Course (POC), and the Summer Field Training.

Cadets normally enter the four-year program directly from high school. The GMC is taken by freshman and sophomore students. Cadets entering this curriculum incur no military commitment. Air Doctrine, Air Force Mission Structure, Organization, the Nature of Conflict, Air Power Development, National Security, the Evolution of Air Power and more are studied. Successful completion of the GMC requirements and the four-week field training exercise qualifies a student to apply for entry into the POC.

The POC is the advanced Aerospace Studies curriculum and is conducted during the junior and senior year at RIT. The curriculum prepares cadets for entry into the Air Force as commissioned second lieutenants. Fundamentals of leadership and management, ethics, staffing, planning, coordinating, the need for national security, policy direction and implementation, and actual leadership case studies are examined.

Additionally, in both GMC and POC curriculum, several instructional blocks on written and oral communicative skills are taught.

Every cadet must complete a Summer Field Training encampment, normally between the sophomore and junior year. In the four-year program, the summer exercise is four weeks in duration. The curriculum and activities at summer field training educate and evaluate a student's leadership potential and qualify the cadet for entry into the POC. The training program includes leadership evaluation exercises, orientation, survival training, officer training, confidence courses, aircraft and aircrew orientation, physical training and more.

Leadership and management experience is gained in the Air Force ROTC curriculum through a series of Leadership Laboratories. The labs are conducted in the Fall, Winter and Spring quarters throughout a cadet's four- or five-year college curriculum. The lab is managed by the cadet corps staff with a detachment officer overseeing all activities. Practical command and staff leadership experience, drill and ceremonies, customs and courtesies and career decision making are all part of the Leadership Laboratory experience.

The four-year program is very comprehensive. Spirited and well-rounded Air Force officers are the result.

Two-year program
This program is specifically designed to allow college students to join the cadet corps with as little as two years remaining at college. The General Military Course (GMC) material and leadership laboratories are obviously not taught, but instead cadets receive all GMC curriculum and laboratory experience in an extended six-week summer field training exercise, usually conducted between their sophomore and junior years. Successful completion of the summer camp qualifies cadets for entry into the Professional Officer Course, referenced above in the four-year program. Cadets then complete their remaining AFROTC requirements as members of the Professional Officer Corps.

Other programs
Several other programs and activities are afforded cadets in both the two- and four-year Air Force ROTC programs. They are offered to highly competitive cadets to further develop the officer "whole person" concept. These programs include: airborne training with the U.S. Army, flight instruction, Advanced Training Program (an on-the-job training program at selected Air Force bases), base visitations, a Light Aircraft Orientation Program, and Arnold Air Society.

Physical education graduation requirements
Physical education graduation requirements can be satisfied by completion of the Department of Aerospace Studies Leadership Laboratories. Students must be enrolled in Air Force ROTC (the two- or four-year program) to enroll in the leadership laboratories.

Qualifications and selection procedure
To become a member of the Air Force ROTC team requires many different and varied qualifications. Some are very simply met, others are more complex, involving Air Force Officer Qualifying Testing, physicals, interviews and selection boards. Please contact the Air Force ROTC office for complete details and learn how you may qualify. The phone number is (716) 475-5196.

Scholarships
Air Force ROTC also offers a variety of scholarships to qualified students in many academic disciplines. Four-year, three and one-half year, three-year, two and one-half year, and two-year scholarships are available in technical, non-technical, pilot, navigator and missile career fields. The needs of the Air Force dictate which scholarships will be offered on a yearly basis. Competition is very keen. Applications for a four-year scholarship for a high school student must be completed very early in the senior year of high school. Any student awarded a scholarship is entitled to numerous benefits. Most scholarships pay the majority of tuition and textbook expenses. Also, contract cadets receive $100 per month non-taxable allowance during the school year.

Air Force ROTC specialized programs
The Air Force ROTC program also has several specialized career programs, pre-health being the most widely known. In addition a number of graduate study programs are available. Certain specialties may be paid in full; the requirements are extremely varied and contact with the Air Force ROTC detachment at RIT is imperative.

Financial assistance
Every scholarship cadet and all POC cadets receive a $100 monthly allowance. RIT offers room scholarships and tuition supplement to cadets who are recipients of 4 year, 3 ½ year and 3 year ROTC scholarships received through the Four-year Scholarship Program. In order to receive RIT's room scholarship and tuition supplement, students must file a Financial Aid Form by March 1. Contact the Financial Aid Office for further information. In addition, during field training, transportation is paid, room and board provided and salary of $ 16 per day is provided. Other student loan programs are available to cadets from both the Air Force and RIT.

Yr.	AFROTC - DEPARTMENT OF AEROSPACE STUDIES	Qtr. Credit Hours		
		FALL	WTR.	SPG.
	IMAF-210,211,212 Air Force Today I, II, III	1	1	1
	IMAF-201,202,203 Leadership Lab I	1	1	1
2	GLAA-201,202,203 Hist, of Air Power I, II, III	1		1
	IMAF-301,302,303 Leadership Lab II	1	1	1
3	BBUB-310,311 Air Force Ldr. & Mgmt. I, II	5		5
	IMAF-401,402,403 Leadership Lab III	1	1	1
4	GSSM-401,402 Nat'l Security Forces I, II	5		4
	IMAF-404,405,406 Leadership Lab IV	1	1	1
5	IMAF-501,502,503 Leadership Lab V	1	1	1

•NOTE:
1. *This is a typical flow. Certain degree programs may desire the Air Force Junior- and Senior-Level courses to be taken in any one combination listed below. Years3and5, Years4andS, or as printed in years 3 and 4.*
2. *While students are enrolled at RIT but not taking Air Force Junior- or Senior-Level courses, they must be enrolled in a Leadership Lab.*
3. *Although the number of credit hours seem less than required, the contact hours actually meet or exceed those required by AFROTC/Hdqtrs.*

Commissioning
The commissioning of cadets as second lieutenants takes place close to graduation day ceremonies. Prior to commissioning, each cadet must perform the following:
1. Complete all degree requirements
2. Complete the aerospace studies curriculum
3. Complete the applicable summer field training
4. Complete one quarter of English composition (scholarship recipients only)
5. Complete one quarter of college mathematics
6. Complete one year of a foreign language (scholarship recipients only)

Course descriptions
For a complete outline of courses offered at RIT, please request the Course Description Catalog from the Admissions Office, (716) 475-6631.

For more AFROTC information
Call:
Department of Aerospace Studies
Rochester Institute of Technology
(716) 475-5196
Or Visit:
Department of Aerospace Studies
Rochester Institute of Technology
George Eastman Memorial Building
3rd Floor, Room 3211
Rochester, N.Y. 14623-0887

College of Business

Richard N. **Rosett,** Dean

The College of Business offers programs in accounting, finance, information systems, international business, marketing, management, manufacturing management, and photographic marketing management. Within these majors, several options for further specialization are possible.

The environment which graduates of the College of Business will enter is both complex and rapidly changing. A well-educated and prepared manager must have a broad foundation of knowledge not only in business but also in the social sciences, humanities and sciences in order to understand and act intelligently in this business environment. In addition, specialization is necessary if one hopes to make immediate contributions to an organization following graduation.

Plan of education
To achieve the educational aims described above, the College of Business has prepared a program which has four components: the liberal arts, the business core, the major and the cooperative work experience.

The liberal arts component of the business student's program is found in 16 courses (nearly one third of the total program) in the humanities, social sciences and sciences. Within this component, the student is expected to display proficiency in both oral and written forms of communication, and choose a humanities or social science concentration. The capstone course of the liberal arts program is a senior seminar in which a subject is explored in depth.

The business core component, described later in the bulletin, is comprised of a variety of courses in economics, business, mathematics, statistics and computer science. These courses, required of every student regardless of major, provide the fundamental knowledge and analytical skills necessary for successful performance in the pursuit of advanced study in a major. They also provide the background and perspective for consideration of career alternatives.

The third component, the major, provides an opportunity for the student to concentrate study in a specific career field in business. Majors offered by the college are as follows:

Accounting
Public Accounting Option
General Accounting Option

Finance

Information Systems*

International Business Dual Major*

Management
General Management Option
Entrepreneurship Option

Manufacturing Management

Marketing

Photographic Marketing Management*

'Majors offered daytime only

By building on the liberal arts and business core components, the major will provide mastery of marketable skills which are conceptually grounded in the knowledge of larger organizational and societal issues and perspectives.

The final component, cooperative work experience, gives the student a chance to apply and question what has been learned in the classroom. These hands-on, paid work opportunities are planned for the student's last two years so that he or she will have sufficient educational background to contribute to the workplace.

The rigorous, challenging program described above is designed to provide a unique level of competence as well as to lay the foundation for continuous intellectual and career growth.

Cooperative education
Cooperative employment is an integral part of the program in the College of Business. Students obtain practical work experience in an area related to their chosen field of interest. This work experience is part of the student's career exploration and provides not only practical experience which can be related to course work, but also an opportunity to observe and perform work directly related to the student's major. This experience should help the student develop a greater insight into his or her chosen field and provide a record of practical experience which may increase the student's opportunities for placement and more rapid career advancement upon graduation.

All College of Business students are required to complete two successful cooperative work experiences. These "work blocks" take place following the completion of the sophomore year. While RIT and the College of Business cannot guarantee anyone cooperative employment, RIT's Office of Cooperative Education and Placement is available to assist students in their job search efforts.

Advising
The College of Business is committed to providing advising services throughout a student's academic program. In its Student Services Office, all students are assured administrative support to effectively deal with registration, records and scheduling. In addition, the administrative staff is prepared to provide students with information about other support areas within RIT such as career and personal counseling. Students are also assigned an individual faculty advisor in their major area of study once the major is declared by the student. Faculty advisors are an integral part of the student's advising network and are available for questions about courses and scheduling, as well as for cooperative education assessment and placement advising.

Transfer programs
The College of Business has, for many years, integrated transfer students into its baccalaureate degree programs. Typically, students who have earned an associate degree in a business program prior to enrollment at RIT may normally expect to complete the requirements for the BS degree in two years, which includes six academic quarters and two required quarters of cooper ative employment experience.

In every instance, it is the policy of the college to recognize as fully as possible the past academic accomplishments of each student.

Part-time studies
Evening classes are offered by the College of Business for students who wish to pursue a baccalaureate degree in the areas of accounting, marketing, finance, management, and manufacturing management. These upper-level programs are designed for students who have earned an associate degree. RIT's College of Continuing Education offers lower-division business courses for those students who are just beginning their college studies and who are interested in pursuing an associate degree.

Upon successful completion of the associate degree, students may transfer to the College of Business.

Students who wish to pursue part-time studies during the day have the option of selecting one of the following baccalaureate degree programs: accounting, finance, information systems, international business, marketing, management, manufacturing management, and photographic marketing management.

Graduation requirements
The minimum academic requirements in the College of Business for the bachelor of science degree are: 1) minimum of 180 quarter credit hours, 2) earned minimum grade point average of 2.0 in the departmentally approved program, 3) completion of required number of supervised cooperative education blocks for the program, and 4) satisfactory completion of college writing competency requirement.

Resources
The College of Business is housed in the Max Lowenthal Memorial Building. In addition to modern classrooms, facilities include time-sharing terminals on line with RIT's extensive computer system and excellent software support. The college also has two labs with IBM personal computers available for student use.

Business students especially benefit from RIT's library facility with its extensive collection of business texts, periodicals and references. One of the most advanced libraries in the country, Wallace Memorial Library is a multimedia resource center featuring a computerized on-line catalog with remote terminal access.

Accreditation
RIT is accredited by the nationally recognized Middle States Association of Colleges and Schools. Additionally, the College of Business is accredited by the American Assembly of Collegiate Schools of Business (AACSB), a professional accreditation held by approximately 265 of the 1,200 undergraduate business programs in the United States.

Professional affiliations
The public accounting curriculum of the College of Business is registered with the New York State Education Department, and graduates meet the educational requirements for candidacy for the Certified Public Accountant (CPA) examination.

The college's Center for Production and Inventory Management is affiliated with the American Production and Inventory Control Society (APICS) and operates an international information service for APICS.

Memberships in professional organizations contribute to the quality of the programs in the College of Business.

Graduate programs
The College of Business offers a master's degree program in business administration on a part-time and full-time basis.

The program is professional in nature and prepares the student in all aspects of business management as well as offering a concentration in a field of specialization. Undergraduate business students may want to consider the 4:1 program, which allows completion of both a BS and an MBA degree in five years. Specific details are contained in the Graduate Bulletin, available from the Admissions Office.

Course descriptions
For a complete outline of courses offered at RIT, please request the Course Description Catalog from the Admissions office.

Admission at a Glance: College of Business Proems

General information on RIT's admission requirements, procedures and services is included in detail on pages 176-177 of this bulletin.

The College of Business offers several programs of study, referred to as majors, and often provides options within. This allows a student to focus on a specific area of interest. A more detailed description of each major is provided in subsequent pages.

Accounting—The accounting options provide career opportunities in public accounting as well as in accounting departments in corporate organizations. Students majoring in accounting may choose the public accounting option or the general accounting option. Graduates of the public accounting option meet the educational requirements for the CPA examination in New York State. Students interested in the certification in management accounting (CMA) are encouraged to follow the general accounting option.

Finance—Students majoring in finance may choose careers in financial management or security analysis. The finance major will prepare students for entry-level financial management positions in business organizations and entry-level management positions in financial institutions.

Management—Students majoring in management may choose either the general management or entrepreneurship option. Both areas have been developed to prepare students for positions in the field of management consistent with their personal cbaracteristics and career goals.

Marketing—The marketing major is designed to enable students to develop a career foundation based on high degrees of personal and marketing management competencies. Since a great variety of employment opportunities in consumer and industrial organizations exist, the program is reasonably flexible.

Information Systems—This program prepares students for career opportunities in the area of computer information systems. Centered in the College of Business, this program responds to industry's demand for individuals well-versed both in computer technology and major business functions. RIT provides the education needed for a unique career, which spans applications programming, systems analysis and design, and the management of corporate information systems.

International Business—This dual major offers a second field of study in marketing, management or finance. The program is designed as an added opportunity for students who may want to enhance their basic professional career preparation in marketing, management or finance with international business competency. The education acquired through this dual major, coupled with the growing interest of American business in global markets, will provide students with a number of career options.

Manufacturing Management—This specialized program prepares students **for** entry-level positions in manufacture ing management. Because its curricu**lum** is based partly on the needs of professionals in the fields of production and inventory management, purchasing management and quality assurance, highly motivated students may elect to pursue professional certification by organizations such as APICS, NAPM, **or** ASQC.

Photographic Marketing Management—This program is designed to provide students with a thorough knowledge of the photographic process and a solid background in business administration. A combination of work in these two disciplines prepares the student for a management-level career in the photographic business.

Freshman admission requirements
Required high school subjects for all programs in the College of Business are:

- Elementary Algebra
- Intermediate Algebra
- 1 year any science
- 4 years of English (except where state requirements differ)

Desirable elective subjects:

- Additional mathematics and science

Transfer admission requirements
Every effort is made to recognize the past academic work of each transfer student. The College of Business has agreements with several two-year schools designed to facilitate the transfer process and, in most cases, assure junior status for transfer students.

The College of Business Core Curriculum

All students in the College of Business are required to take the business core courses described below (and later displayed in the sample four-year programs). These courses provide the skills specific to functional competencies in accounting, finance, marketing, and production management, and serve as a foundation for advanced study in a specific area of interest.

Business core courses
Career Seminar
Algebra for Management Science
Calculus for Management Science
Survey of Computer Science
Economics I (Macro)
Economics II (Micro)
Financial Accounting
Managerial Accounting
Legal Environment of Business
Introduction to Data Analysis
Management Science
Organizational Behavior
Corporate Finance
Information Systems
Principles of Marketing
Operations Management
Business Environment
Strategy and Policy

Additional requirements
- 2 contemporary science courses
- 7 lower-division liberal arts courses
- 3 upper-division liberal arts electives
- 3 upper-division liberal arts concentration courses
- Senior Seminar
- 6 quarters physical education
- 2 quarters cooperative education

Department of Accounting and Finance

Accounting Major

The accounting major provides fundamental theory and practice in the required accounting core. Beyond this core, students choose an option which best fits their career interests.

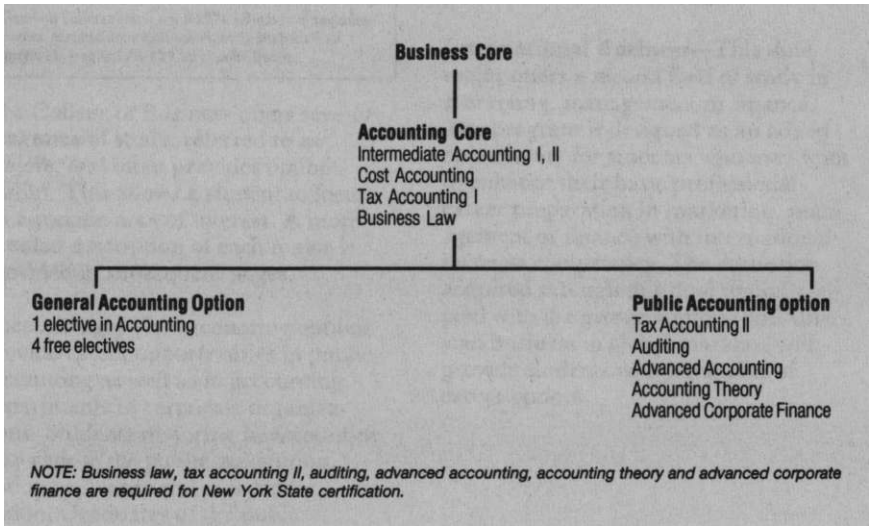
Students wishing to become certified public accountants must choose the public accounting option and complete each course prescribed in this program. This program is registered by the New York State Board for Public Accountancy, which means that the prescribed course work satisfies the state's CPA examination educational requirements. Candidates must have earned at least a "C" grade point average in their accounting courses to be admitted to the CPA exam.

The general accounting option allows more flexibility in choice of courses. This flexibility has been designed to permit students to tailor their programs to meet the diversity of industrial, commercial and municipal opportunities for accounting graduates. Of particular interest to both students and employers in the current environment is the opportunity to take advanced courses in computer and information sciences. Students should consult with an advisor before choosing electives in this option.

Yr.	ACCOUNTING - TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR
1	0106-330 Introduction to Data Analysis			4	
	0511-301,302 Principles of Economics I & II	4	4		
	0602-200 Survey of Computer Science		4		
	1016-225,226 Alg. for Mgmt. Sci; Calc. for Mgmt.Sci. . .	4	4		
	0102-312 Career Seminar		2		
	'Liberal Arts (lower division core)	4	4	8	
	Contemporary Science Electives	4		4	
	tPhysical Education	0	0	0	
2	0101-301,302 Financial and Managerial Accounting . . .	4	4		
	0101-319 Legal Environment of Business	4			
	0101-320 Business Law		4		
	0102-430 Organizational Behavior			4	
	0105-463 Principles of Marketing			4	
	0106-334 Management Science	4			
	'Liberal Arts (lower division core)	4	4	4	
	'Liberal Arts (upper div. concentration or elect.)		4	4	
	tPhysical Education	0	0	0	
	Completion of College Writing Competency Requirement				
3	0101-408,409 Intermediate Accounting I & II	4	4		
	0101-431 Cost Accounting	4			
	0101-522 Tax Accounting I	4			
	0104-441 Corporate Finance	4			
	0106-401 Operations Management		4		
	Accounting Elective			4	
	Free Electives		4	8	
	'Liberal Arts (upper div. concentration or elect.)		4	4	
4	0102-507 Business Environment	4			
	0102-551 Strategy and Policy		C	C	4
	0106-505 Information Systems	4	O	O	
	Free Electives	8	O	O	4
	"Liberal Arts (upper div. concentration or elect.)		*p..*	P	8
	'Liberal Arts (Senior Seminar)	2			

'See page 116 for Liberal Arts requirements.
‡ See page 200 for policy on Physical Education.
"NOTE: Students are expected to complete co-op requirement during the junior and senior years in accordance with specific requirements for their major. General co-op guidelines for the College of Business are discussed on page 41.

Accounting Major Curriculum Chart



Finance Major

Finance Major

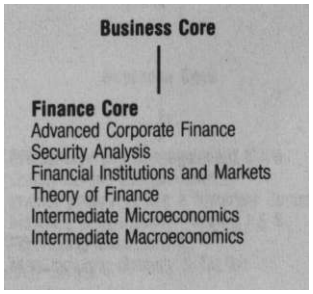
The finance major will prepare students for financial management positions in financial, commercial, industrial, and governmental organizations. Students are taught the principles of financial decision making and given an understanding of the economic, legal, and financial environment in which they must operate.

Finance major graduates would pursue management positions in commercial, industrial, or governmental organizations. The finance student interested in security analysis usually will find positions in asset and securities management with financial institutions such as banks, brokerage houses, insurance companies, or real estate firms.

Yr.	FINANCE-TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR
1	0106-330 Introduction to Data Analysis			4	
	0511-301,302 Principles of Economics I & II	4	4		
	0602-200 Survey of Computer Science		4		
	1016-225,226Alg. for Mgmt. Sci; Calc. for Mgmt. Sci. . .	4	4		
	0102-312 Career Seminar		2		
	Contemporary Science	4		4	
	"Liberal Arts (lower division core)	4	4	8	
	tPhysical Education	0	0	0	
2	0101-301,302 Financial and Managerial Accounting . . .	4	4		
	0101-319 Legal Environment of Business		4		
	0102-430 Organizational Behavior			4	
	0105-463 Principles of Marketing			4	
	0106-334 Management Science	4			
	"Liberal Arts (lower division core)	8	4		
	"Liberal Arts (upper div. concentration & elect.)			8	
	Free Elective		4		
	tPhysical Education	0	0	0	
	Completion of College Writing Competency Requirement				
3	0103-405 Intermediate Microeconomics	4			
	0103-406 Intermediate Macroeconomics		4		
	0104-441 Corporate Finance	4			C
	0104-445 Advanced Corporate Finance		4		0
	0104-507 Security Analysis		4		0
	0104-525 Theory of Finance			4	p..
	0106-401 Operations Management	4			
	"Liberal Arts (upper div. concentration or elect.)			4	
	Free Electives	4	4	8	
4	0102-507 Business Environment	4			
	0102-551 Strategy and Policy		C	4	
	0104-510 Financial Institutions and Markets		O	4	
	0106-505 Information Systems	4	O		
	"Liberal Arts (upper div. concentration or elect.)	4	p..	8	
	"Liberal Arts (Senior Seminar)	2			
	Free Elective	4			

'See page 116 for Liberal Arts requirements.
fSee page 200 for policy on Physical Education.
"NOTE: Students are expected to complete co-op requirement during the junior and senior years in accordance with specific requirements for their major. General co-op guidelines for the College of Business are discussed on page 41.

Finance Major Curriculum Chart



Department of Decision Sciences

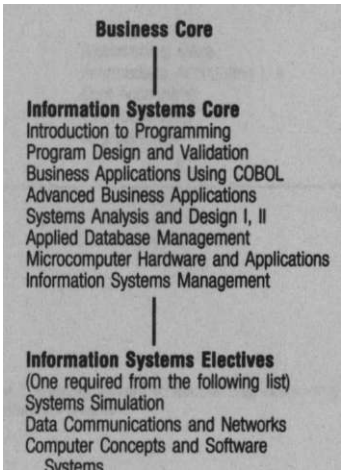
Information systems major

The information systems major will prepare students for careers involving the development and management of information systems. The curriculum provides students with a thorough understanding of data processing fundamentals, including the ability to write properly documented programs. Students are introduced to the tools available for the analysis, design and implementation of computerbased and manual information systems. As a result, they are able to design practical, cost-effective information systems that will satisfy an organization's needs. Major career focuses for graduates of this program include applications pro-ramming, systems analysis, and information systems management.

Yr.	INFORMATION SYSTEMS - TYPICAL SCHEDULE	Qtr. Credit Hour*			
		FALL	WTR.	SPG.	SMR
1	0602-200 Survey of Computer Science	4			
	0602-208 Introduction to Programming		4		
	0602-210 Program Design and Validation			4	
	0511-301,302 Principles of Economics I & II		4	4	
	0102-312CareerSeminar				
	1016-225,226 Alg. for Mgmt. Sci.; Calc. for Mgmt. Sci	4	4		
	Contemporary Science	4		4	
	"Liberal Arts (lower division)	4	4	4	
	^Physical Education			0	
2	0602-300 Business Applications Using Cobol	4			
	0602-303 Advanced Business Applications		4		
	0106-363 Systems Analysis & Design I			4	
	0101-301,302 Financial & Managerial Accounting	4	4		
	0101-319 Legal Environment of Business			4	
	0106-334 Management Science		4		
	0106-330 Introduction to Data Analysis	4			
	"Liberal Arts (lower division core)	4	4	8	
	IPhysical Education		0	0	
	Completion of College Writing Competency Requirement				
3	0602-483 Applied Database Management	4			
	0106-464 Systems Analysis & Design II	4			
	0102-430 Organizational Behavior			4	C
	0104-441 Corporate Finance		4		0
	0105-463 Principles of Marketing			4	0
	0106-401 Operations Management	4			P"
	"Liberal Arts (upper div. concentration or elect.)	4	8	4	
	Free Electives		4	4	
4	0106-540 Microcomputer Hardware & Applications		4		
	0106-553 Information Systems Management			4	
	Information Systems Elective	C	4		
	0102-507 Business Environment	0		4	
	0102-551 Strategy and Policy	0	4		
	"Liberal Arts (upper div. concentration or elect.)	p..	4	4	
	"Liberal Arts (Senior Seminar)				
	Free Elective			4	

'Seepage 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.
"NOTE: Students are expected to complete co-op requirements during the junior and senior years in accordance with specific requirements for their major. General co-op guidelines for the College of Business are discussed on page 41.

Information Systems Major Curriculum Chart



Manufacturing Management
The manufacturing management program is designed to give students an integrated view of the skills needed to manage manufacturing and materials in today's competitive, high-technology environment. Graduates of this program will understand how materials and manufacturing expertise contributes to the strategic well-being of a firm. They will understand and be able to use the basic techniques and systems for materials and operations planning and control, purchasing management, quality assurance (including statistical process control) and quality and productivity improvement. Highly motivated students may elect to pursue professional certification by APICS, NAPM or ASQC.

Center for Production and Inventory Management

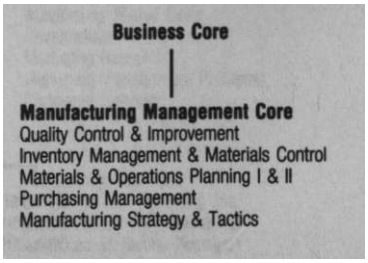
George A. Johnson, Director

The Center for Production and Inventory Management (CPIM) is devoted to applied research, instruction and professional service in support of students and practitioners. The center operates an international information service for APICS, authors a monthly professional help column, called "Dear APICS," which appears nationwide in *P&IM Review* magazine, and prepares *the APICS Bibliography.* The CPIM is a center of activity for faculty, students and practitioners seeking to learn more about the profession of production and inventory management and about how to solve day-to-day problems.

Yr.	MANUFACTURING MANAGEMENT - TYPICAL SCHEDULE	Qtr. Credit Hours FALL	WTR.	SPG.	SMR
1	0106-330 Introduction to Data Analysis			4	
	0511-301,302 Principles of Economics I & II	4	4		
	0602-200 Survey of Computer Science		4		
	1016-225,226 Alg. for Mgmt. Sci.; Calc. for Mgmt. Sci. . .	4	4		
	0102-312 Career Seminar		2		
	Contemporary Science	4		4	
	"Liberal Arts (lower division)	4	4	8	
	†Physical Education	0	0	0	
2	0101-301,302 Financial & Managerial Accounting	4	4		
	0101-319 Legal Environment of Business		4		
	0104-441 Corporate Finance			4	
	0105-463 Principles of Marketing			4	
	0106-334 Management Science	4			
	0106-401 Operations Management			4	
	"Liberal Arts (upper div. concentration or elect.)		4	4	
	"Liberal Arts (lower division core)	8	4		
	†Physical Education	0	0	0	
	Completion of College Writing Competency Requirement				
3	0106-406 Quality Control & Improvement	4			
	0106-412 Inventory Management & Materials Ctrl			4	
	0106-408 Materials & Operations Planning I		4		C
	0106-409 Materials & Operations Planning II			4	0
	0106-415 Purchasing Management		4		0
	0106-444 Manufacturing Strategy & Tactics	4			p..
	"Liberal Arts (upper div. concentration or elect.)		4	4	
	Free Electives	4	4	4	
	0102-430 Organizational Behavior	4			
4	0102-507 Business Environment	C	4		
	0102-551 Strategy and Policy	0		4	
	0106-505 Information Systems	0		4	
	"Liberal Arts (upper div. concentration or elect.)	p..	4	4	
	"Liberal Arts (Senior Seminar)		2		
	Free Electives		8	4	

•See page 116 for Liberal Arts requirements.
†See page 200 for policy on Physical Education.
"NOTE: Students are expected to complete co-op requirements during the junior and senior years in accordance with specific requirements for their major. General co-op guidelines for the College of Business are discussed on page 41.
† state approval pending title change from Manufacturing & Materials Management to Manufacturing Management.

Manufacturing Management Major



Department of Management and Marketing

Management major

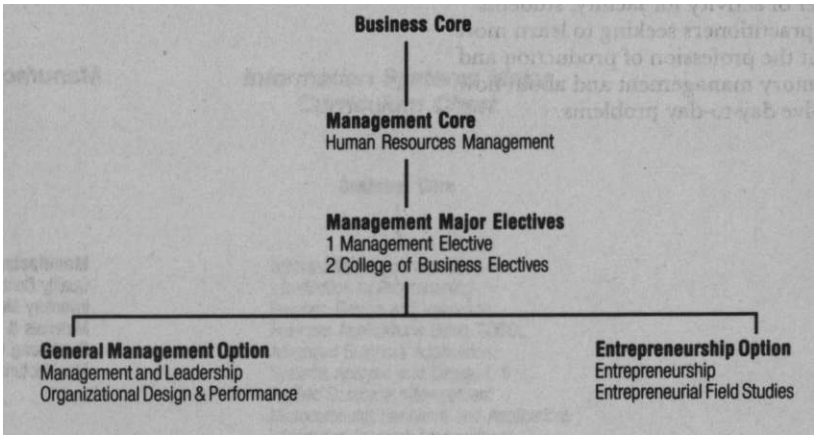
The management major is designed for students who wish to pursue management positions in a business organization. Careers may develop in areas as diverse as sales or production or various levels of management, including the potential to rise to the executive level.

The two options in this major are general management and entrepreneurship. The general management option is designed for students interested in working in medium- to large-sized organizations, while the entrepreneurship option specializes in entrepreneurial or stable small business organizations.

Yr.	MANAGEMENT MAJOR - TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR
1	0106-330 Introduction to Data Analysis			4	
	0511 -301,302 Principles of Economics I & II	4	4		
	0602-200 Survey of Computer Science		4		
	1016-225,226 Alg. for Mgmt. Sci.; Calc. for Mgmt.Sci. . .	4	4		
	0102-312 Career Seminar		2		
	Contemporary Science	4		4	
	"Liberal Arts (lower division)	4	4	8	
	tPhysical Education	0	0	0	
2	0101-319Legal Environment of Business		4		
	0101 -301,302 Financial & Managerial Accounting	4	4		
	0102-430 Organizational Behavior			4	
	0105-463 Principles of Marketing			4	
	0106-334 Management Science	4			
	"Liberal Arts (lower division core)	4	4	4	
	"Liberal Arts (upper div. concentration or elect.)	4		4	
	Free Elective		4		
	tPhysical Education	0	0	0	
	Completion of College Writing Competency Requirement				
3	0102-455 Human Resources Management	4			
	0104-441 Corporate Finance	4			C
	0106-401 Operations Management	4			o
	Major Electives	4	8	8	0
	Free Electives		8	8	p**
4	0102-507 Business Environment			4	
	0102-551 Strategy and Policy		C	4	
	0106-505 Information Systems	4	O		
	"Liberal Arts (upper div. concentration or elect.)	8	O	8	
	"Liberal Arts (Senior Seminar)	2	P"		
	Free Elective	4			

"See page 116 for Liberal Arts requirements.
†See page 200 for policy on Physical Education.
"NOTE: Students are expected to complete co-op requirements during the junior and senior years in accordance with specific requirements for their major. General co-op guidelines for the College of Business are discussed on page 41.

Management Major



Marketing major

The marketing major prepares students for entry-level marketing management positions. As a marketing major, students acquire knowledge of markets, marketing and consumer behavior. Students acquire this knowledge through a combination of academic education and cooperative field education. This combination provides an understanding of problems related to a number of marketing areas: e.g., advertising, sales management, retailing, marketing research and product planning. *

For the student interested in a business career with an objective to explore, experience, and experiment, the marketing major is an ideal option. With a marketing background, the student will find a wide variety of employment opportunities which center on customer understanding and analysis, the major focus of any business. To develop this focus, the marketing curriculum provides an understanding of business, in general, and specific marketing operations with emphasis on customer motivation and business problem solving.

Yr.	MARKETING MAJOR, TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR
1	0106-330 Introduction to Data Analysis			4	
	0602-200 Survey of Computer Science		4		
	1016-225,226 Alg. for Mgmt. Sci.; Calc. for Mgmt. Sci. . .	4	4		
	0511-301,302 Principles of Economics I & II	4	4		
	0102-312 Career Seminar		2		
	Contemporary Science	4		4	
	"Liberal Arts (lower division core)	4	4	8	
	tPhysical Education	0	0	0	
2	0101-301,302 Financial & Managerial Accounting	4	4		
	0101-319 Legal Environment of Business		4		
	0102-430 Organizational Behavior			4	
	0105-463 Principles of Marketing			4	
	0106-334 Management Science	4			
	"Liberal Arts (lower division core)	8	4		
	'Liberal Arts (upper div. concentration or elect.)			8	
	Free Elective		4		
	:fPhysical Education	0	0	0	
	Completion of College Writing Competency Requirement				
3	0104-441 Corporate Finance	4			
	0105-505 Consumer Behavior	4			
	0105-551 Marketing Research		4		C
	0106-401 Operations Management			4	0
	Marketing Eiectives		4	4	0
	'Liberal Arts (upper div. concentration or elect.)	4	4	8	P "
	Free Eiectives	4	4		
4	0102-507 Business Environment	4			
	0102-551 Strategy and Policy			4	
	0105-550 Marketing Management Problems		C	4	
	0106-505 Information Systems	4	O		
	Marketing Elective	4	0		
	'Liberal Arts (Senior Seminar)	2	P "		
	Free Eiectives	4		8	

•See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.
"NOTE: Students are expected to complete co-op requirements during the junior and senior years in accordance with specific requirements for their major. General co-op guidelines for the College of Business are discussed on page 41.

• *Those interested in direct marketing may want to take the following additional courses offered by the College of Graphic Arts and Photography and the Marketing Group: Introduction to Printing, "typography /, Layout & Printing Designs, Copy Preparation, Materials & Process of Photography (10-week Summer Course), Retail Accounting & Merchandise Control.*

Marketing Major

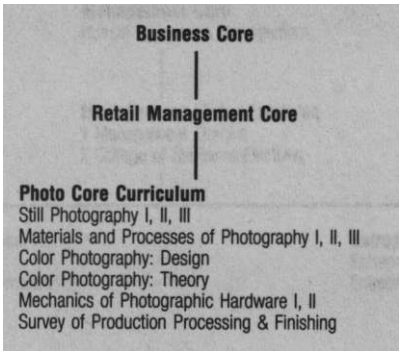
Photographic marketing management major

The photographic marketing management major is a joint degree program offered by the College of Business and the School of Photographic Arts and Sciences. This program is designed to provide students with a thorough knowledge of the photographic process and a solid background in business administration and retail management. The combination of course work in tf^ese two disciplines prepares students for management careers in the photographic industry. Opportunities for positions include those in customer service aspects of photofinishing and professional color laboratories, and management positions with the photographic manufacturers and photographic retailers.

Yr.	PHOTOGRAPHIC MARKETING MANAGEMENT, TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	1016-225,226 Algebra & Calculus for Mgmt. Sci	4	4		
	0106-330 Intro, to Data Analysis			4	
	0602-200 Survey of Computer Science		4		
	0511-301,302 Economics I & II	4	4		
	Contemporary Science	4		4	
	Liberal Arts (lower division core)	4	4	8	
	Physical Education		0	0	
	0102-312 Career Seminar		2		
2	0905-301,302,303 Photo Processing	4	4	4	
	0101-301,302 Financial & Managerial Accounting	4	4		
	0101-319 Legal Environment of Business		4		
	0102-430 Organizational Behavior			4	
	0105-463 Principles of Marketing			4	
	0106-334 Management Science	4			
	Liberal Arts (lower division core)	4	4	4	
	Physical Education		0	0	
	Completion of College Writing Competency Requirement				
3	0902-211,212,213 Materials & Processes of Photography .		3	3	C
	0104-441 Corporate Finance	4			0
	0105-505 Consumer Behavior	4			0
	0105-551 Marketing Research		4		p
	0106-401 Operations Management			4	
	Liberal Arts (upper division concentration/elective)	4	8	8	
	0905-551 Special Topics		3		
4	0102-507 Business Environment	4	C		
	0102-551 Strategy & Policy		O	4	
	0105-550 Marketing Management Problems		O	4	
	0106-505 Information Systems	4	P		
	Marketing/Management Electives	4		8	
	Liberal Arts (Senior Seminar)	2			
	Liberal Arts (upper division concentration elective)	4			

'Seepage 116 for Liberal Arts requirements.
(See page 200 for policy on Physical Education.
"NOTE: Students are expected to complete co-op requirements during the junior and senior years in accordance with specific requirements for their major. General co-op guidelines for the College of Business are discussed on page 41.

Photographic Marketing Management Major Curriculum Chart



International business major

The international business major is offered by the College of Business in cooperation with the College of Liberal Arts. Designed to meet the growing interest of American business in global markets, the major in international business has an adjunct major in either finance, marketing, or management.

Students in international business develop the business and liberal arts foundations necessary to understand business, political and cultural diver sity. Proficiency in a foreign language is an integral part of the program. Students who have a language proficiency equivalent to College Level II may begin Level III in their first year. Language Levels I and II may be taken at RIT, if necessary, and program credits may exceed the required amount. The cooperative education feature for the international business student may be satisfied through foreign work experience, international experience within a domestic corporation, or study abroad. Designed for highly motivated students with strong academic credentials, the international business major has a total quarter credit hour requirement of 192.

Upon graduation, international business students are prepared to step into entry-level positions in several aspects of international trade. They can assume positions such as assistant international product managers, assistant export-import managers, international financial analysts, sales representatives or regional analysts.

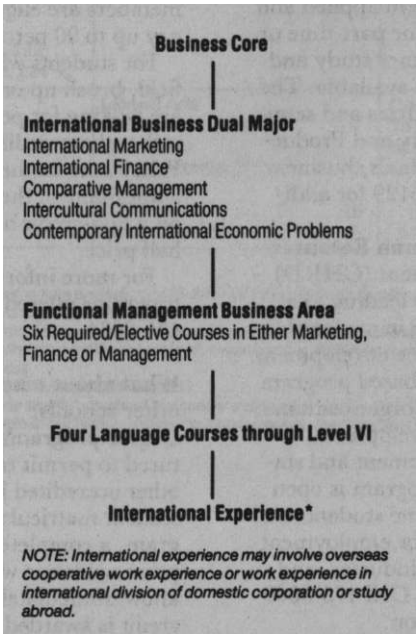
Yr.	INTERNATIONAL BUSINESS CO-MAJOR, TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR
1	0511-301,302 Principles of Economics I, II	4	4		
	1016-225,226 Alg. for Mgmt. Sci.; Calc. for Mgmt.Sci. . .	4	4		
	Contemporary Science	4		4	
	0106-330 Data Analysis			4	
	0102-312 Career Seminar				
	0602-200 Survey of Computer Science		4		
	Language III			4	
	""Liberal Arts (lower division core)	4	4	4	
	IPhysical Education	0		0	
2	0101-301,302 Financial and Managerial Accounting . . .	4	4		s
	0106-334 Management Science	4			u
	0101-319 Legal Environment of Business		4		v 0 p
	0102-430 Organizational Behavior			4	
	0105-463 Principles of Marketing			4	ft A
	"Language IV, V, VI	4	4	4	
	"Liberal Arts (lower division core)	4	4	4	A
	‡Physical Education	0		0	D
	Completion of College Writing Competency Requirement				
3	0106-401 Operations Management	4			
	0104-441 Corporate Finance	4			
	0502-521 Intercultural Communications		4		C
	0105-555 International Marketing		4		O
	0102-432 Comparative Management			4	O
	0511-442 Contemp. International Economic Problems . .			4	P
	Functional Area (option course)		4	4	
	Liberal Arts (upper level elective or concentration)	4	4	4	
	"Liberal Arts (lower division core)	4			
4	0106-505 Information Systems		4		
	0102-507 Business Environment	C	4		
	0104-504 International Finance	O		4	
	0102-551 Strategy and Policy	0		4	
	Functional Area (option course)	P	4	8	4
	"Liberal Arts (upper level elective or concentration)		4		8
	0520-501 Senior Seminar			2	

This language requirement may be completed at RIT in successive previous quarters, or in conjunction with the overseas experience which may last from six to nine months.

"Seepage 116 for Liberal Arts requirements.

fSae *page ZOO for policy on Physical Education.*

International Business Major Curriculum Chart



College of Continuing Education

A traditional college education is not always the answer. For the adult student—juggling work, family and social obligations—alternative ways to reach educational goals are a necessity.

The courses and programs offered by the College of Continuing Education (CCE) are tailored to the adult student who has been working for several years and is reaching for the next rung on the career ladder, is contemplating a career switch, or is re-entering the work force after some years away. Students can earn certificates, diplomas, and degrees.

The courses and programs are offered during the day, at night, on Saturdays, through Weekend College, and even via TeleCourses that students can take at home.

The CCE **Academic Division** offers numerous options in areas such as management, photography, technologies, and machine tool, as well as fine and applied arts, technical communication, business administration, computer science, general education, and emergency management. CCE offers diplomas, associate degrees, bachelor of science degrees and certificate programs in a number of professional areas, as well as the flexible interdisciplinary Applied Arts and Science Degrees at the diploma, associate and baccalaureate levels.

The **Center for Quality and Applied Statistics** (CQAS) offers a master of science degree in applied and mathematical statistics for part-time or full-time students. Summer study and co-op programs also are available. The center presents short courses and seminars through its "Quality and Productivity Series" for individuals, business and industry. Call 475-6129 for additional information.

The **Career and Human Resource Development Department** (CHRD) provides graduate study leading to a master of science degree in career planning and human resource development. The behavioral science-based program emphasizes the areas of organizational development, career development, human resource development and statistical analysis. The program is open to both full- and part-time students and prepares professionals for employment in education, business, industry, and social services agencies. Call 475-5069 for additional information.

The CCE **Open Enrollment Policy** allows a student to take any course or pursue any degree for which he or she has sufficient background. Academic advisors are available throughout the year to answer questions regarding course or program choices.

To officially choose a program, students must matriculate—that is, complete an admissions application and be accepted. At the time of matriculation degree requirements are defined and documented, transfer credits are evaluated to meet degree requirements, and eligibility for applying for student loans and state and federal aid is established.

Students matriculated in CCE bachelor's degree programs are normally expected to complete their degrees within seven years. However, students may take up to eleven years to complete their degrees, if they have not dematriculated and are making satisfactory progress toward their degrees.

Specially trained financial aid counselors can provide students with information about some of the grants and loans available for part-time students. In addition to federal, state and private programs, RIT has special financial aid funds for part-time students that can cut tuition costs by as much as 50 percent. Many companies have employee education benefits that will pay for some or all tuition costs; active U.S. Army Reserve and National Guard members are eligible for benefits that pay up to 90 percent of tuition.

For students who want to try a new field, brush up on some old skills, or are looking for personal satisfaction rather than credit, RIT's new Audit Policy may be the answer. Students can audit many of the CCE credit courses on a non-credit basis, and the tuition is half price.

For more information on any of the programs offered by CCE, call 475-2234.

What about transfer credit from other schools?
Degree programs in CCE are structured to permit transfer of credit from other accredited institutions. When a student matriculates into a specific program, a complete evaluation is made of prior academic work. The student will know immediately how much transfer credit is awarded and what courses will be needed to earn a specific degree.

Transfer credit may also be awarded for courses included in the New York State Education Department Publication, *Guide to Educational Programs in Non-Collegiate Organizations.* Call 475-2218 for more information.

Who teaches our courses?
Most courses in the College of Continuing Education are conducted by instructors who teach what they do professionally. Our faculty are selected for their professional competence, academic background and teaching ability. Our faculty teach because of their enthusiasm for their subject, their interest in seeing others develop personally and professionally, and their own need for a creative outlet.

When are courses taught?
In addition to our weekly evening and trick work schedules, we also offer courses on television and through audio conferences, and Weekend College.

Telecourses offer quality programming which students can take at home. Courses combine video-tape lectures aired on cable and public broadcast television with textbook readings, audio and computer conferencing, assignments, exams, and a limited number of class meetings. Students have access to instructors by mail, computer, telephone, or individual appointment. These electronic delivery systems allow students to learn at times and places convenient to them.

Weekend College courses meet on Saturdays (leaving the rest of your weekend free), usually every other weekend, and a full course may be completed in five weekends. Weekend College students enjoy the schedule and the seminar-like environment. Through Weekend College, you can earn credits toward a degree or complete a certificate or diploma program.

Applied Arts and Science Degrees

Lynda Rummel, Chairperson

Adult students returning to college on a part-time basis need high-quality **degree** programs in a variety of fields **that** are both flexible and recognize an adult's prior college level-learning. The **College** of Continuing Education now **offers** you the opportunity to tailor an **individualized program of technical and professional study** through its **Applied** Arts and Science program. **There** are three levels:

Diploma
36 credits; 1 area of concentration

Associate of Applied Science (AAS) degree: 52 core credits plus 38 credits in 1-2 areas of concentration plus general education courses

Bachelor of Science (BS) degree: 90 **core** credits plus 90 credits in 2-4 areas **of** concentration plus general education **courses**

Individualized Concentrations
The associate and bachelor's degrees **allow** you to study several different professional and technical areas, selected specifically to meet your unique career **and** personal goals. The diploma focuses **on one** concentration. For your professional concentrations, you can draw on **a** wealth of educational resources from **across** RIT colleges and departments, **including: engineering technologies, sciences, computing, photography and printing, business and management, liberal arts, physical and social sciences, mathematics, fine arts, and applied communication.**

No two Applied Arts and Science programs will be exactly alike because each takes into account the student's previous learning and brings together a special combination of courses that are right for the individual student's career and professional development. For example, one individualized program might lead to a bachelor's degree with concentrations in computing, graphic arts, and management, while another could lead to a bachelor's degree that combines fields of communication and health systems administration.

As their career plans evolve and the demands of their technical and professional fields change, students meet regularly with advisors to review and update plans of study.

Common Features
Every Applied Arts and Science degree has certain features in common:

1. An approved program of study developed with an individual advisor and advisory committee
2. General education courses in mathematics, computer science, science, and liberal arts (52 credits for the AAS; 90 credits for the BS)
3. One or more professional concentrations which provide each student with the opportunity to develop an interdisciplinary program tailored to specific career and personal objectives.

Recognition for Prior College-Level Learning
Each program begins by taking account of what the student already knows and has accomplished. For example, college credits earned at RIT or other institutions will be reviewed to see how they might be applied to the program of study; professional certifications and experiences will be evaluated for the possibility of receiving credit; and credits may be earned (by examination, portfolio reviews, or other documentation) for college-level learning that was gained on-the-job or through other educational experiences. For information, contact Bette Anne Winston, Coordinator, at 475-2218.

Course requirements, CIDA-AAS & CIDB-BS degrees

	Math/ Computer/Science	Qtr. Cr.	Liberal Arts	Qtr. Cr.	Concentration(s)* 1 or 2	Qtr. Cr.
Phase 1 + 2 CIDA-AAS	Tech Math CTAM-201,202 or College Math for Business CBCH-201,202 or Math Thought/ Process AND CTAM-205 Modern Math Methods CTAM-206 Intro to Computers/ Prog. CTDS-200 or Intro to Computer Science CTDS-202 or Data Processing CBCC-321 College Physics/ Lab CTCP-221, 222,223,206 207,208 or Contemporary Science (3 of 4 courses) CTCS-221,222, 223,224	8 8 4 4 4 4 12 12	Communications + + CHGL-220 Literature CHGH-260 Communications Elective Humanities Electives Behavioral Science Electives	4 4 4 8 8	To be developed by student with advisor	38
Phase3 + 4 CIDB-BS	Math/Science Math OR Science Electives***	8	Liberal Arts Humanities Elective** Liberal Arts Concentration***" Liberal Arts Electives**** Senior Seminar	4 12 16 2	Concentration(s)* 2 or 3 To be developed by student with advisor	52

++These communications courses require pretest; call 475-2234 for information. Students completing BS or B. Techdegrees must also pass a communications competency test.
'A concentration = 20 QH (or more) in one subject area (I.e., Computers, Communications, Business).
"Must choose one course each from three different areas of Humanities (i.e., Fine Arts, History, Philosophy, or Science/Technoiogy and Values).
'"Cannot be in the same area as professional concentration.
*'"Students choosing a Liberal Arts area for a professional concentration must choose their "Liberal Arts Concentration" and "Liberal Arts Electives" in **other** disciplinary or interdisciplinary areas in the College of Liberal Arts.*

Emergency Management Certificate

Raymond A. Santirocco, Chairperson

Heightened public and governmental awareness of the hazards associated with high technology has led to stringent new Federal and state laws requiring communities to plan comprehensively for toxic chemical or radiation emergencies. In addition, there has always been a need to protect the public during natural emergencies such as floods, earthquakes, and tornados. The field of emergency management has evolved from an intuitive art to a sophisticated specialty with its own body of doctrine. Practitioner organizations and the Federal government are working to develop national standards for the accreditation of emergency managers.

CCE's certificate in Emergency Management is intended to upgrade the skills of existing emergency managers in police, fire, and ambulance work; public safety planners; and emergency officials in industry, and to provide a strong foundation for emergency response personnel desiring to develop a new career specialty. Possession of this certificate is expected to bear significantly on graduates' ability to qualify for national accreditation.

The sequence of five courses is designed to provide students with knowledge of the physical phenomena underlying emergency situations, such as elementary meteorology, earthquake phenomena, toxic chemicals, and radiation; the legal aspect of emergency planning and operations; the theory and methodology of emergency planning, including the planning and management of evacuations; and the theory and practice of operations at a disaster scene. Up to four credits may be awarded to emergency response agency personnel for demonstrable training or experience in lieu of the Emergency Operations course.

Certificate in Emergency Management	**Credit Hours**
Earth Science for the Emergency Manager—CEMP-201	4
Man-made Hazards—CEMP-202	4
Emergency Preparedness Laws and Regulation—CEMP-301	4
Emergency Planning and Methodology—CEMP-302	4
Emergency Operations—CEMP-381	4
Total Credits	20

Courses are scheduled so that the certificate may be completed in three consecutive quarters beginning in the fall. The courses may also be applied toward professional requirements for the B.S. degree in Applied Arts and Science.

Certificate courses were developed with the assistance of local and state professionals in emergency management and will be taught by such professionals. For advising and further information about this program, call Raymond Santirocco at 475-5006.

Business and The Arts

Lynda Rummel, Director
Nancy Kunkler, Academic Program Assistant

The Business and The Arts Division of CCE provides a wide variety of technical and professional programs of study at severed distinct levels of achievement. In addition, many general education courses, which are a required part of every degree program in CCE, are offered by this division.

Each program of study is carefully designed to meet the interests of students and Rochester's expanding business, artistic and industrial complex. Advisory committees composed of representatives from local business, industries and professional groups contribute to an ongoing assessment of courses and programs of study to assure high-quality education. Business and The Arts includes the following:

- Individual courses and sequences of special interest
- Small Business Management Certificate
- Customer and Consumer Service Certificate
- Health Systems Administration Concentration
- Management Certificate
- Certificates in Basic and Advanced Technical Communication
- Certificate in Public Relations and Technical Communication Services
- Business and Career Communication Certificate
- Certificates in Public Relations Communications—Programs in Professional Writing and Graphic Communication
- Certificate in Advanced Public Relations Communications
- Management Diploma (7 options)
- AAS in accounting, business administration, marketing, personnel administration, production management, and logistics and transportation
- AA in general education (with career options)
- Deaf Studies Certificate
- Graphic Arts Certificate
- Diplomas in fine and applied arts and crafts
- Diplomas in printing and photography
- AAS in professional photography
- AAS/BS in graphic arts (with 3 options)

Business and Management Studies

paniel Smialek, Chairperson

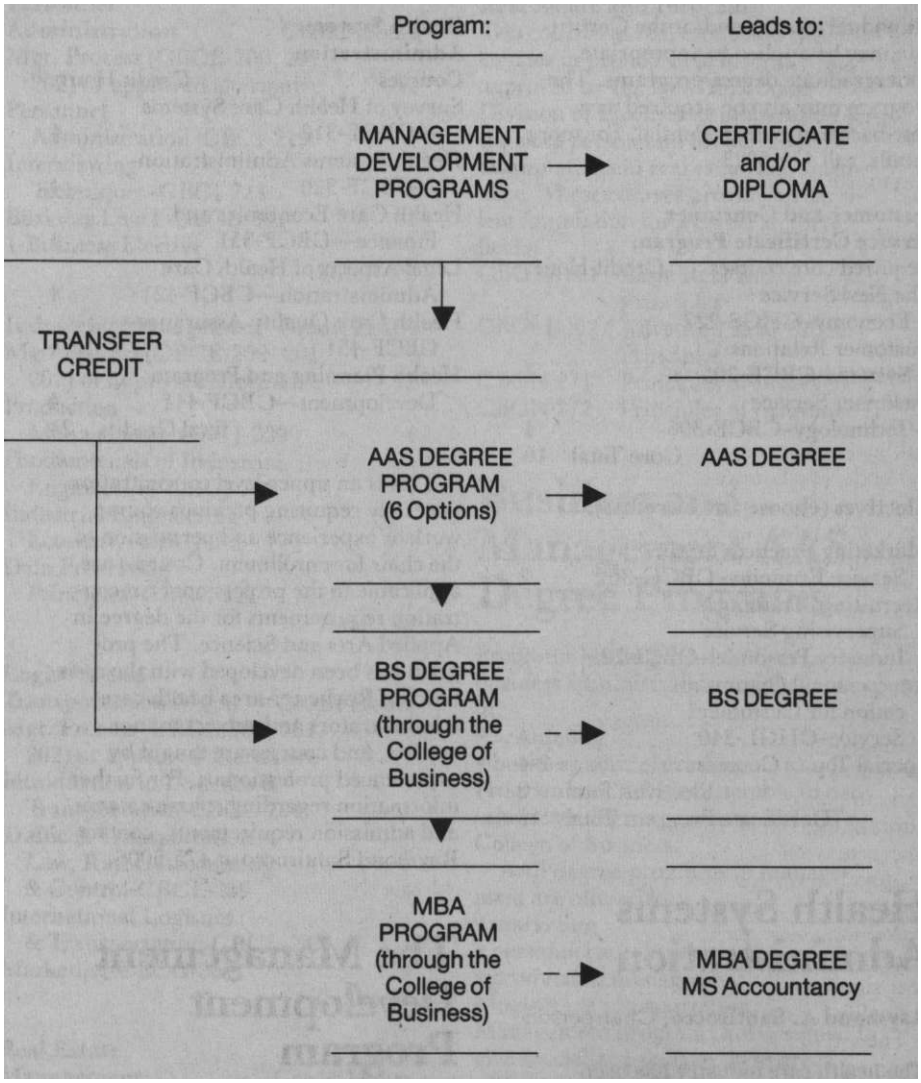
Approximately 50 credit-bearing courses in business and management subjects are available through the College of Continuing Education.

Courses leading to an AAS degree and transferable to appropriate baccalaureate degree programs in RIT's College of Business and other schools are available in business administration, accounting, marketing, personnel administration, production management, and traffic and transportation. For those interested in a short-term concentration in one of these fields, CCE also offers a Management Development Program leading to a Management Certificate and Management Diploma, a Small Business Management program, and a program in Customer and Consumer Service. Courses also may be taken individually.

General requirements for an AAS degree, diploma, or certificate in business or management are:

- Completing the necessary quarter credits
- Following the program outline when selecting courses
- Achieving a program GPA of at least 2.0 in order to be certified

Business/Management Program Paths



Small Business Management Program

The certificate of achievement program in Small Business Management is designed for enterprising individuals who want to launch a new venture or improve an existing small business. It is especially appropriate for entrepreneurs, key members of families owning businesses, and key employees in companies with sales under $2 million.

The three courses in the program are tightly integrated, to provide a solid foundation in managing, marketing, and financing small businesses. The faculty include academically qualified entrepreneurs who have managed their °wn small companies. Courses may count as business electives in degree Programs, may serve as foundation courses to the Management Diploma, and do not have to be taken in sequence. Typically, the program is offered as part of Weekend College and °ur regular schedule.

Like most courses in CCE, Small Business Management courses may be taken on an audit basis (non-credit, without exams), at a reduced rate.

Small Business Management Certificate Program

	Credit Hours
New Venture Development-CBCE-221	4
Small Business Management & Finance-CBCE-222	4
Small Business Marketing & Planning-CBCE-223	4
Total	12

Customer and Consumer Service

Increasingly, in today's competitive and growing service economy, the key to success is customer satisfaction. Customer satisfaction comes from delivering quality products and services that are strongly shaped by thorough and comprehensive attention to customer needs.

This unique certificate of achievement program focuses on customer satisfaction as the sustainable competitive advantage for both manufacturing and service industries (e.g., health care, communications, banking and finance, transportation, retailing). Special attention is paid to developing an orientation toward customer satisfaction throughout organizations, and to the relationship between customer satisfaction and customer service.

This program is designed for:

- managers and potential managers who want to implement customer satisfaction principles and practices throughout their organizations
- current and future managers, supervisors, and personnel in sales, customer service, consumer service, customer relations, quality management, and human resource management.

The program consists of 16 credits—10 in required core courses and an additional 6 selected from an array of specialized electives. The Certificate may be completed in one year of study.

Individual courses and/or the Certificate may be applied to appropriate undergraduate degree programs. The program may also be acquired as a post-baccalaureate credential. For more details, call 475-5023.

Customer and Consumer Service Certificate Program Required core courses	Credit Hours
The New Service Economy-CHGS-227	2
Customer Relations Systems-CBCE-305	4
Customer Service Technology-CBCE-306	4
Core Total	10
Eiectives (choose any 6 credits):	
Marketing Practices for the Service Economy-CBCG-362	2
Recruiting, Training & Supervising Service Industry Personnel-CBCI-225	2
Interpersonal Communication for Customer Service-CHGL-340	4
Special Topics Courses	2-4
Eiectives Total	6
Certificate Program Total	16

Health Systems Administration

Raymond A. Santirocco, Chairperson

The health care industry has been transformed in recent years by advances in technology, new modalities of care, changes in financing and organization, greater demand for accountability, and a general expansion as the population ages. These developments have led to increasing demand for administrators at all levels.

CCE's concentration of courses in Health Systems Administration is designed to equip students with the skills necessary to obtain entry-level positions in health administration. Such students are typically those with a clinical background in nursing or an allied profession desiring to change their professional emphasis. However, certain courses may also be of interest to present administrators desiring to upgrade their skills in special areas.

The sequence of six courses consists of three survey courses (a systems overview, administration in the health care setting, and finance and budgeting), followed by three specialized courses (legal aspects of health care, quality assurance, and program planning and development).

Health Systems Administration Courses	Credit Hours
Survey of Health Care Systems —CBCF-310	4
Health Systems Administration —CBCF-320	4
Health Care Economics and Finance—CBCF-351	4
Legal Aspects of Health Care Administration—CBCF-421	4
Health Care Quality Assurance—CBCF-431	4
Health Planning and Program Development—CBCF-441	4
Total Credits	24

This is an upper-level concentration generally requiring previous course work or experience and permission of the chair for enrollment. Courses are applicable to the professional concentration requirements for the degree in Applied Arts and Science. The program has been developed with the assistance of Rochester-area health care administrators and subject matter experts, and courses are taught by experienced professionals. For further information regarding course content and admission requirements, contact Raymond Santirocco at 475-5006.

The Management Development Program

The Management Development Program has two components: The Management Certificate and The Management Diploma. By successfully completing the Management Process (CBCE-200, 201, 202), a 12-credit course in practical supervision, management, and communication skills, students may earn the Management Certificate. To receive a Management Diploma, students must complete 16 additional credits in one of seven business/management concentrations.

The program is structured to provide a broad foundation in applied general management, and focused study in a specialized field. It is specifically designed for new supervisors, emerging managers, and those seeking supervisory and management positions; and for new and re-entering students. *Both parts of the program are also appropriate for individuals with degrees* in the liberal arts, sciences, or technologies, who wish to acquire new professional skills and expand their career opportunities.

Students may take one or both parts of the program; and both may be completed in one academic year. Credits earned in The Management Development Program can be applied to various degree programs. Management Certificate and Diploma courses are typically offered as part of our Weekend College and our regular schedule. For further information, call 475-5023.

Management Certificate

The first component of The Management Development Program is The Management Certificate.

The Management Certificate is earned by successfully completing CCE's unique three-quarter, 12-credit course, The Management Process (CBCE-200, 201, 202).

The Management Process focuses on:

- practical applications of management theory
- management problems, solutions and ideas
- personal development as an effective manager

The Management Process offers a comprehensive, integrated study of supervisory management. Topics covered include effective motivation, decision making, team building, conflict resolution, problem solving, time and stress management, communication techniques and strategies, planning, organizing, staffing, performance appraisal, and leadership.

In this program students associate with others who have similar career aspirations, job responsibilities and challenging problems on the job. Through case studies, role-plays, simulations, and other instructional methods, students learn effective supervisory and management practices. Instruction is usually guided by a team of management specialists, rather than by a single instructor.

Credits earned in the Management Certificate program may also be applied toward appropriate degree programs.

Management Certificate Program	Credit Hours
Management Process I-CBCE-200	4
Management Process II-CBCE-201	4
Management Process III-CBCE-202	4
Total	12

Management Diploma

The second component of The Management Development Program is The Management Diploma.

In the Management Diploma program, students concentrate their studies in one of seven specific areas of business and management (such as accounting or marketing) that may be immediately relevant on the job.

A Management Diploma is earned **by** completing 16 quarter credits in addition to, typically, a Management Certificate. However, one of the following options may be substituted for the Management Certificate:

- the Small Business Management Certificate
- three core courses and one elective course from the Customer and Consumer Service Certificate program
- three foundation courses (Organization and Management, CBCE-203; Communications, CHGL-204 or 205 or 220; and one additional business elective)
- or approved equivalents.

Courses applied toward a Management Diploma may also be counted as professional courses in appropriate degree programs.

Management Diploma Programs

Accounting	Credit Hours
Mgt. Process (CBCE-200, 201, 202) or approved alternative	12
Financial Accounting-CBCA-201	4
Managerial Accounting-CBCA-203	4
Intermediate Accounting I-CBCA-308	4
Intermediate Accounting II-CBCA-309	4
Total	28

General Management	Credit Hours
Mgt. Process (CBCE-200, 201, 202) or approved alternative	12
Financial Accounting-CBCA-201	4
Managerial Accounting-CBCA-203	4
Data Processing Principles-CBCC-321	4
Marketing-CBCG-361 or 1-Business Elective	4
Total	28

Marketing	Credit Hours
Mgt. Process (CBCE-200, 201, 202) or approved alternative	12
Marketing-CBCG-361	4
Effective Selling-CBCG-210	4
Advertising Principles-CBCG-213	4
'"Business Elective	4
Total	28

Personnel Administration	Credit Hours
Mgt. Process (CBCE-200, 201, 202) or approved alternative	12
Personnel Administration-CBCI-229	4
Interviewing Techniques-CBCI-224	4
Business Law I-CBCB-301	4
1-Business Elective	4
Total	28

Industrial Management	Credit Hours
Mgt. Process (CBCE-200, 201, 202) or approved alternative	12
Production Management-CBCJ-209	4
Fundamentals of Industrial Engineering-CBCJ-305	4
Industrial Engineering Economy-CBCJ-306	4
Data Processing Principles-CBCC-321	4
Total	28

Logistics and Transportation Mgmt.	Credit Hours
Mgt. Process (CBCE-200, 201, 202) or approved alternative	12
Introduction to Logistics & Transportation-CBCL-234	4
Traffic & Transportation Law, Rates, Accounting & Control-CBCL-239	4
Internationa] Logistics & Transportation-CBCL-241	4
Marketing-CBCG-361	4
Total	28

Real Estate Management	Credit Hours
Mgt. Process (CBCE-200, 201, 202) or approved alternative	12
Basic Real Estate Principles-CBCM-201	4
Advanced Real Estate Principles-CBCM-202	4
Real Estate Investment & Finance-CBCM-203	4
Real Estate Evaluation-CBCM-204 or 1-Business Elective	4
Total	28

Real Estate and Insurance

Two courses in real estate and two courses in principles of insurance are approved by the New York State Division of Licenses as preparation for the sales person and broker's license examinations in real estate and insurance. These courses provide an excellent foundation for a career in these fields:

CBCM-201	Basic Real Estate Principles
CBCM-202	Advanced Real Estate Principles
CBCN-271	Principles of Insurance I
CBCN-272	Principles of Insurance II

Business and Management AAS Degree Programs

Programs leading to an AAS degree in business administration are available in:

- accounting
- business administration

Programs are fully transferable to baccalaureate degree programs in RIT's College of Business.

AAS degree programs in management are offered in:

- marketing
- personnel administration
- production management
- logistics & transportation

Management programs are designed to give specialized skills in these areas, with course work being transferable to a BS degree program in RIT's College of Business.

All business and management degree programs include a core group of business courses in organization and management, accounting, data processing and business law. Approximately half of the credits in degree programs are earned through these professional courses, which may count in Management Diploma programs, as well as in AAS degrees. In addition, all business and management degree programs include a broad spectrum of courses in communication, behavioral/social sciences, humanities, math and science.

Core Requirements, All Business and Management AAS Programs

Below are the core requirements for all business and management degree programs to which professional program requirements are added.

	PROFESSIONAL COURSES	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	MATH, STATISTICS & SCIENCE	Qtr. Cr.
Required Courses 92 Credits	Financial Accounting . . CBCA-201	4	Communications". CHGL-220	8	Science Electives"	8
	Managerial Accounting . CBCA-203	4	Literature.?™. CHGH-260		Math for Business . CBCH-201,202	8
	Organization &Mgmt(1) . CBCE-203	4	or	or	Statistics. CBCH-351,352	8
	Data Proc. Principles . . CBCC-321	4	Dyn.Comm. I*. CHGL-204	8		
	Principles of Marketing . CBCG-361	4	Dyn. Comm li. CHGL-205			
	Management Science . . . CBCE-353	4				
	Professional Concentration Courses (see below)	20	Economics. CHGS-221,222	8		
			Psychology. CHGS-211	4		
			Sociology. CHGS-231	4		
	Total	44	Total	24	Total	24

In sequentially numbered courses, the lower number course is prerequisite.

(1) The Management Process (CBCE-200,201,202) may be substituted for the following:

	Qtr. Cr.
Dynamic Communications I (CHGL-204).	*.4*
Organization & Management (CBCE-203).	*.4*
1-Business elective	*.4*

' These communications courses require pretest; call 475-2234 for information.
Students who take CHGL-204 should also take CHGL-205. Students who take CHGL-220 should also take CHGH-260.

Science electives may include any of the following:
Comtemporary Science/Biology CTCS-221
Contemporary Science/Chemistry CTCS-222
Contemporary Science/Physics CTCS-223
Contemporary Science/Oceanus CTCS-224
College Physics CTCP-201,202,203

Professional Concentration Requirements, Business and Management AAS Programs

In addition to the core requirements, students must also complete *one* of the following professional concentrations.

Accounting (CBCA)

		Cr. Hrs.
Intermediate Accounting I.	CBCA-308	4
Intermediate Accounting II.	CBCA-309	4
Business Law I.	CBCB-301	4
Business Law II.	CBCB-302	4
History or Fine Arts Elective		4
		20

Business Administration (CBCE)

		Cr. Hrs.
History or Fine Arts Elective.		4
Legal Environment of Business.	CBCB-310	4
3-Business Electives.		12

Marketing (~~CBCG~~)

		Cr.Hrs.
Effective Selling.	CBCG-210	4
Advertising Principles.	CBCG-213	4
Business Law I.	CBCB-301	4
2-Business Electives		8
		20

Personnel Administration (CBCI)

		Cr. Hrs.
Personnel Administration.	CBCI-229	4
Interviewing Techniques.	CBCI-224	4
Business Law I.	CBCB-301	4
2-Business Electives		8
		20

Production Management (CBCJ)

		Cr. Hrs.
Production Management.	CBCJ-209	4
Fundamentals of Industrial Engineering	CBCJ-305	4
Industrial Engineering Economy.	CBCJ-306	4
Business Law I.	CBCB-301	4
Elective		4
		20

Logistics & Transportation (CBCM)

		Cr. Hrs.
Introduction to Logistics & Transportation.	CBCL-234	4
Traffic & Transportation Law Rates, Accounting & Control.	CBCL-239	4
1-Transportation & Logistics Elective.		4
Business Law I.	CBCB-301	4
Elective.		4

Professional courses may be counted in management diploma *and* AAS business/management programs.

The Arts/General Education

The arts side of Business and the Arts includes courses and programs in liberal arts and humanities, behavioral and social science and communication. **These** are often referred to as general education courses. In the Arts we also **offer** programs providing credentials which take advantage of RIT's **strengths** within the arts and humanities. Diploma options are offered in the **fine** and applied arts (CHAA) and crafts (CHAC), as well as the associate in arts degree in general education (CHGE). Certificates in technical communication, public relations communications and deaf studies also are available.

General **Education**
General education courses serve a piv**otal** function within all programs of the **College** of Continuing Education. **These** courses provide the foundation **upon** which professional knowledge is **built.** The faculty introduces the basic concepts and skills of the arts, human**ities,** communication, and the behav**ioral** and social sciences.

Each professional and technical program within CCE selects from general education courses essential to developing professional and personal competence. Students are then given a range of free electives to fill out personal interests.

Writing Program and Exit Test
To insure that graduates of all CCE associate degree programs will be prepared to meet the writing demands of their careers. CCE instituted the following writing program in September 1984.

1. Diagnostic Test. All students planning to register for Dynamic Communications I (0236-204), or Communications 220 (0236-220) must take a 40-minute diagnostic placement test prior to registration. (Students may register for 205 without pretesting if they have credit for 204.) Results of the tests will allow us to place students in the most appropriate course for developing their written and other communication skills. Students may take the diagnostic test at their convenience in the CCE office (M-R, 8:30 a.m.-7:30 p.m. and F, 8:30 a.m.-3 p.m.) or during Open Registration (see quarterly schedule for testing times).
2. Exit Test. An exit test given prior to the last week of classes in 205 and 220 is part of the communications requirements for all associate degrees. Students who do not pass the test may work out a program with their instructors for mastering needed skills and may re-take the exit test at a later time. When the test has been passed, students will receive the grade they earned in the course.

General Education AA degree program

Ronald Hilton, Chairperson

The associate in arts (AA) is the only liberal arts degree program offered by the College of Continuing Education. Students will sample literature, arts, philosophy, history, and the other disciplines that have traditionally been at the core of a college education. At the same time, they will consider the relationship of these studies to 20th century technology and business.

After fulfilling the basic course requirements, students finish the degree by choosing one of two options: to deepen understanding of the liberal arts by adding courses in the humanities, communication, and social sciences; or to take advantage of RIT's extensive opportunities in career training by including 20 credits of study in a specific career skill. Areas of career study include;

Accounting
Advertising Design
Technical Communication
Communication
Public Relations Communications
Fine Arts
Personnel Management
General Management & Supervision
Industrial Management
Small Business Management
Real Estate
Marketing
Deaf Studies

For more information on the career skills option contact the Division of Business and the Arts at 475-5027.

Course requirements, General Education (CHGE), AA Degree

		Qtr. Cr.		Qtr. Cr.
	Humanities . . CHGH-201,202,203	12	Economics . CHGS-221	4
	Introduction to Literature CHGH-260	4	Psychology . CHGS-211	4
	Introduction to Art CHGH-210	4	Philosophy . CHGH-270	4
	Introduction to Music Appreciation CHGH-230	4	Electives*	20
	Modern Europe CHGH-323 *or* Modern America CHGH-325	4	Career Skills Area . .	20
	Political Science CHGS-261	4		
	Contemporary Science Elective . .	4		
	Science, Technology & Humanity Elective	4		

'Students may petition the chairperson for Liberal Ms to apply courses outside the area generally regarded as general education electives. This must be a written request.

Public Relations Communications Certificates

Ronald Hilton, Chairperson

Public relations communications are vital to virtually every human endeavor. Almost every organization employs individuals, either in house or by contract through public relations agencies, who can prepare press releases, brochures, newsletters, annual reports, point of purchase promotions, and other persuasive, informative materials in a variety of media. The demand for people trained in the special skills of public relations communications will continue to grow well into the 1990s.

Underlying successful public relations communications are skills in two key areas: writing and graphic communication. CCE now offers a certificate program in each of these specialities. Both programs share a common core of courses that provide an introduction to public relations and teach widely used principles and techniques of advertising, project management, and persuasion. The professional writing program provides specialized instruction in writing marketing materials, inbound and outbound publications, corporate-level communications, and speeches and scripts. The graphic communication program (designed specifically for non-artists) focuses on understanding the components of the advertising process, the use of effective design principles in the preparation of layouts, and the combining of creative and technical skills to achieve design success.

These programs are intended for individuals who wish to enter the field of public relations or take on PR responsibilities; or who have been working in a particular aspect of public relations and who wish to upgrade or broaden their skills; and/or who have been performing PR tasks for which they have had little formed preparation. Courses in these programs were developed with the assistance of Rochester-area public relations communicators and are taught by experienced professionals.

Up to four credits may be awarded by examination or for courses taken at another college. Prerequisite for the core courses is demonstration (by examination, portfolio, or transcript) of a command of standard written English.

Courses are scheduled so that the core and one or both of the certificate options may be completed in four quarters of part-time study. Students may earn one or both certificates, and students not wishing to take an entire certificate program may take specific individual courses. Courses may be applied toward appropriate diploma, AAS, and BS degree programs. Students must achieve a program GPA of at least 2.0 in order to be certified. For advising and further information about these courses, transfer credit, credit for college-level learning, and financial assistance, call Ronald Hilton, 475-4986.

Core Courses, Certificates in Public Relations Communication	Credit Hours
Introduction to Public Relations-CHGL-360	2
Psychology of Persuasion-CHGS-320	2
Advertising Evaluation & Techniques-CBCG-214	4
Managing the Project-CHGL-332	2
Core Total	10

Certificate in Public Relations Communications—Professional Writing	Credit Hours
Core Courses	10
Writing for the Organization I-CHGL-365	2
Writing for the Organization II-CHGL-366	2
Promotional Writing-CHGL-331	2
Scripting and Speechwriting-CHGL-367	4
Certificate Total	20

Certificate in Public Relations Communications—Graphic Communication	Credit Hours
Core Courses	10
Graphic Communication for the Non-Artist I-CHAD-270	3
Graphic Communication for the Non-Artist II-CHAD-271	3
Art for Reproduction-CHAD-220	3
Certificate Total	19

Advanced Public Relations Communications Certificate

A new certificate in advanced public relations communications has been developed, in part as a response to community interest. This certificate provides students who are working in a variety of communications fields—or plan to—with advanced knowledge and skills, particularly writing skills, in public relations communications. It has been especially designed for graduates of the Professional Writing Program described above, but it is open to those who can demonstrate the necessary prerequisite skills and understandings.

The new certificate equips students with more complete and professional portfolios as well as newly developed capacities to work in public relations campaigns and in a variety of media settings and capacities. It should be especially attractive to persons already working in the communications industry who desire increased versatility, upward mobility, or specific competencies. Likely students will also include those who have already undertaken or may have completed an undergraduate degree in English, journalism, business administration, marketing, or even public relations. Regardless of background, students are likely to find this more advanced certificate provides a capstone to their undergraduate public relations education.

Like its predecessor programs, this one has been prepared in close consultation with practicing professionals in the local public relations community.

Certificate in Advanced Public Relations Communications	Credit Hours
The Public Relations Campaign—CHGL-411	4
The Mass Media in Public Relations—CHGS-451	4
Communicating in Print and Broadcast Media—CHGL-412	4
Seminar in Public Relations Communications—CHGL-413	4
Total Credits	16

Up to four credits may be awarded by examination or for courses taken at another college. All courses in the program have prerequisites, which may be found in the course descriptions elsewhere in this publication.

Courses are scheduled so that the entire certificate may be completed in one calendar year. Courses may be applied toward BS degree programs. Students must achieve a program GPA of at least 2.0 in order to be certified. For advising or further information about this program, call Ronald Hilton at 475-4986.

technical Communication Certificates

Elizabeth Conley, Chairperson

In this age of information, all kinds of organizations, large and small, have increasing needs for individuals skilled jn documenting, presenting, managing, and packaging technical and scientific information. Whether these tasks are done within the company or outside by contract, organizations involved in manufacturing, materials handling, computer products, marketing, and medical and scientific products all need professionally prepared documents, brochures, manuals, and other materials for product users, service technicians, purchasing managers, trainers, and other employees and customers.

The following sequence of courses, designed to be completed in two consecutive quarters of study, is intended to provide a strong, practical foundation in technical communication.

Certificate in Basic Technical Communication	Credit Hours
Phase I:	
Technical Writing & Editing-CHGL-323	4
Research Techniques-CHGL-324	2
Phase II:	
nstructional Design Principles-CHGL-325	2
Document Design Principles-CHGL-326	2
Vacticum: Designing Manuals-CHGL-327	2
Total Credits	12

Up to four credits may be awarded >y examination or for courses taken at nother college. Prerequisite for the 'asic sequence is demonstration (by lamination, portfolio, or transcript) fa command of standard written English. Students must achieve a proram GPA of at least 2.0 in order to be ertified.

For those interested in further professorial development and instruction in [a]ore specialized topics, the following e~luence of courses, designed to be [0]Hpleted in two quarters of study, is **"ailable.**

Certificate in Advanced Technical Communication	Credit Hours
Phase I:	
Oral Communication Skills for Technical Communicators-CHGL-329	2
Communicating Online-CHGL-330	2
Promotional Writing-CHGL-331	2
Phase II:	
Writing in the Sciences-CHGL-328	2
Managing the Project-CHGL-332	2
Managing Media Presentations-CHGL-333	2
Total Credits	12

Up to four credits may be awarded by examination or for courses taken at another college. Prerequisite for the Advanced sequence is completion of the Basic sequence or the equivalent. Students must achieve a program GPA of at least 2.0 in order to be certified.

Courses in these sequences were developed with the assistance of working technical communicators and are taught by experienced professionals. For advising and further information about these courses, transfer credit and financial assistance, call Betty Conley at 475-4936.

Public Relations and Technical Communication Services

Elizabeth Conley, Chairperson

This is a new certificate program for communicators of the nineties.

Today, in the dynamic and rapidly expanding field of public relations and technical communication, professionals face an interesting and challenging spectrum of communication tasks. In addition to the research and writing competencies that have long been the standard requisites for success in the communication field, today's professional communicators—whether within organizations or as contract service suppliers—must be prepared to oversee all phases of their projects from client request through delivery of the product, be it a brochure, training manual, or video. To manage the many functions in this process, communicators must have good interpersonal and leadership skills, administrative skills, fundamental knowledge of print and media technologies, and an understand ng of t! current and emerging issues that affect the communication field.

The new certificate in Public Relations and Technical Communication Services will provide these special skills and competencies in four quarters of part-time study, as follows:

Certificate in Public Relations and Technical Communication Services	Credit Hours
Creative Leadership Skills—CHGL-393	4
Supervising Communication Services—CHGL-394	4
Managing the Project—CHGL-332	2
Managing Media Presentation—CHGL-333	2
Coordinating Publication Production—CHGL-395	2
Communication Seminar—CHGL-396	2
Total Credits	16

Courses are offered during the evening hours for the convenience of adult, employed students. To earn the certificate, students must complete all 16 credits with a program CPA of at least 2.0. However, transfer credit and appropriate work experience will be evaluated for up to four credits in the program.

Courses may be taken individually (provided individual course prerequisites are met) or as part of the certificate program. All courses may be applied to the Applied Arts and Science degree in the College of Continuing Education.

To enter the program, students must have the Certificate in either Basic or Advanced Technical Communication or the Certificate in Public Relations Communication, Professional Writing or Graphics option; substantial work experience in either public relations or technical communication; or a relevant undergraduate degree, e.g., in journalism, corporate communication, public relations, technical communication, professional communication.

All courses in the program were developed and are taught by experienced professional communicators. For advising and further information about the program, transfer credit, and financial assistance, call Betty Conley at 475-4936.

Business and Career Communication Program

Elizabeth Conley, Chairperson

Business leaders say that a key to success is the ability to communicate successfully. A CCE certificate of achievement in business and career communication may be earned by completing three, four-credit courses designed to cover written, oral, and visual communication skills. Courses may be taken separately and may be used as elective or professional concentration courses in appropriate CCE degrees.

Business and Career Communication Certificate Program	Credit Hours
Professional Presentations-CHGL-301	4
Discussions Skills & Leadership-CHGL-302	4
Commifnicating in Business-CHGL-307	4
Total	12

Deaf Studies Certificate

Ron Hilton, Chairperson

The Deaf Studies Certificate is intended primarily to achieve two purposes: First, to permit employees and volunteers in the private and public sectors to prepare themselves to communicate more effectively with deaf clientele, students, fellow professionals, or employees in businesses, industries, schools, colleges, and hospitals; and secondly, to provide a stimulating foundation for those who wish to pursue further education in the fields of interpreting for the deaf or deaf education.

The 16-credit curriculum is comprised of the seven courses listed below. Although a primary emphasis in the curriculum is learning both Basic Sign Language and American Sign Language, students will also deepen their understanding of the phenomenon of deafness, through courses related to the physical, psychological, social and linguistic aspects of deafness.

The courses have been designed and are largely taught by the faculty of the National Technical Institute for the Deaf.

Although substitutions of one course for another will not generally be permitted, students will be able to challenge course content in any of the courses listed.

Rochester has the second highest population per capita of deaf and hard-of-hearing individuals in the United States, a fact which has led to extensive community and educational resources for them.

Deaf Studies Certificate Program	Credit Hours
Sign Language & Manual Communication Systems I, II & III CHGD-211, 212, 213	6
American Sign Language I & II CHGD-311,312	4
Aspects & Issues of Deafness I & II CHGD-241,242	6
Total Credits	16

Fine and Applied Arts and Crafts Diploma Programs

Eric Bellmann, Chairperson

Fine and applied arts courses are designed to contribute to the student's personal growth and cultured enrichment. Individual courses are offered or a diploma may be earned by following a program of study in crafts, fine and applied arts, advertising design, or interior design.

Options begin with introductory courses to provide students with a basic exploration of the creative process and to help them develop visual organization skills. After taking these courses, the student will be able to earn a fine and applied arts diploma by completing the requirements in any of four areas. Students may want to include printing and photography eiectives in their programs after receiving an advisor's approval. Some courses are offered only in alternate years.

Students should consult with a CCE advisor to plan their course of study and to clarify goals. The chairperson can be consulted regarding course substitution.

Students enrolled in the fine and applied arts diploma program prior to Fall 1980 may elect to follow either the previous program requirements or the new program as listed.

For more information call Eric Bellmann at 475-4977.

Graphic Arts and Photography

The arts side of Business and the Arts also offers graphic arts programs that are structured to provide students with a broad understanding of the graphic arts field, and, at the same time, allow them to select a major in design, printing, and photography. In addition, a program leading to an AAS in professional photography is available.

Printing Diploma

Linda Tolan, Adjunct Chairperson

This program utilizes the laboratories of the School of Printing Management and Sciences, which are completely equipped with the most modern printing machinery for all processes of producing the printed word, including flexography screen printing, lithography, gravure, and imaging. The printing program leads to a diploma indicating competency in specialized areas of printing as well as a practical understanding of the entire printing operation. All printing courses shown are open to students not enrolled as diploma candidates. Courses in the printing diploma (at the 200 level or higher) may be applied towards Graphic Arts degrees.

Printing Diploma Program

	Credit Hours
Introduction to Printing CHGT-201, 202, 203	6
Copy Preparation-CHGT-227	3
Lithography I & II CHGT-265,365	6
Offset Film Assembly CHGT-221, 222, 223	9
Reproduction Camerawork CHGT-301, 302, 303	6
Human Relations CBCE-101, 102, 103	6
Printing Electives	4
Total	40

Photography Diploma

Andrew Davidhazy, Adjunct Chairperson

This sequence of photographic courses is designed to prepare students for the highly competitive field of professional photography. The requirements combine a thorough technical education in photography with an introduction to human relations. Because of the specific nature of the diploma, all six required courses must be completed before a diploma can be earned. Students may apply photography courses completed for the diploma towards the associate in

Fine and Applied Arts and Crafts Diploma Programs (CHAA and CHAC)

Core Requirements:		Qtr. Cr
Basic Drawing and Media	CHAF-201,202,203	6
Basic Design	CHAD-201,202,203	6
Introduction to Art Appreciation	CHGH-210	4
		16

Program Requirements:

Craft (CHAC). In addition to the core requirements each student must become familiar with three of four areas.

	Qtr. Cr.
Core Requirements*	16
Major craft courses	18
Minor craft courses	6
Third craft choice	2
Eiectives with advisor's approval	6
	48

Fine Arts (CHAA)		Qtr.Cr.
Core requirements*		16
Drawing (3 **quarters**)	CHAF-306	6
Basic Figure Drawing	CHAF-207	2
Figure Drawing (2 quarter credit)	CHAF-317	4
Eiectives with advisor's approval		20
		48

Advertising Design (CHAA)		Qtr. Cr.
Core requirements*		16
Display Design	CHAD-211,212,213	6
Advanced Design and Typography!	CHAD-261,262,263	6
Graphic Design	CHAD-311,312,313	6
Advertising Design	CHAD-315,316,317	6
Basic Figure Drawing	CHAF-207	2
Eiectives with advisor's approval		6
		48

Interior Design (CHAA)		Qtr. Cr.
Core Requirements*		16
Display Design	CHAD-211,212,213	6
Marketing	CBCG-361	4
Interior Design	CHAD-224,225	4
History of Interior Design	CHAD-226	2
Environmental Design	CHAD-251,252,253	6
Eiectives with advisor's approval		10
		48

'Core requirements are prerequisite for all diploma programs: CHAA and CHAC.
tFormerly titled Lettering and Layout.

applied science degree in professional photography. Students completing the AAS in professional photography may continue their studies in the Graphic Arts bachelor degree program.

Photography Diploma Program

	Credit Hours
Basic Professional Photography	
CHGP-201, 202, 203	12
Color Photography	
CHGP-211, 212, 213	12
Commercial Photography	
CHGP-241, 242, 243	9
Portrait Photography	
CHGP-231, 232, 233	9
Portrait Retouching	
CHGP-331, 332, 333	3
Commercial Retouching	
CHGP-321, 322, 323	3
Human Relations	
CBCE-101, 102, 103	6
or	
Psychology:	
Introduction-CHGS-211	4
Total	52-54

AAS Program in Professional Photography (CHGP)

Andrew Davidhazy, Adjunct Chairperson

The role of photography has become increasingly influential in the development of modern technology. In its multitude of applications it plays a vital role in communication, business, medicine and education, as well as being the primary means of recording moments of the present for future enjoyment.

Although at this time competition in the fields of commercial, advertising and freelance photography is very great, there is a need for qualified technicians and specialists particularly in the fields of marketing, training, medicine, graphic arts, photofinishing, law enforcement, and others.

The degree program in professional photography provides students with a balanced education comprised of courses in science, general education and applied photography. Specific educational goals can be met through careful selection from a comprehensive list of professional electives.

Course requirements

The AAS degree is awarded after completion of all courses in Phases I and II. Transfer students seeking a degree must complete 45 credits at RIT.

The primary aim of the program is to prepare students with a broad background in photography so that they may modify general knowledge to fit their particular job specialty.

Although courses are designed to serve the needs of students with a well-defined career objective, most are also suitable for improving photographic background or providing photographic training that would help further develop job skills. After receiving the AAS degree, graduates may pursue a further degree in the BS program in graphic arts with a major in photography with complete transfer of credit. Consult with chairperson for details.

Professional electives for professional photography (CHGP) degree

CHGP-404, 405, 406	Architectural Photography
CHGP-241, 242,243	Commercial Photography
CHGP-401, 402, 403	Fashion Photography
CHGP-221, 222, 223	Illustrative Photography
CHGP-351	Industrial Photography-Instrumentation
CHGP-352	Industrial Photography—A.V. Techniques
CHGP-353	Industrial Photography-Special Topics
CHGP-301, 302	Motion Picture Photography
CHGP-431, 432,433	Photographic Communication
CHGP-411	Photography of the Natural World
CHGP-231, 232, 233	Portrait Photography
CHGP-321, 322, 323	Retouching, Commercial
CHGP-331, 332, 333	Retouching, Portrait
CHGP-366	Dye Transfer Printing

Other courses not listed above are also acceptable. This includes topics in printing design and audio visual areas. Up to six quarter credits may be scheduled in management, quality control, electronics or other technical areas. At least 15 quarter credits must be scheduled from the professional photography area. All electives should be scheduled with the chairperson s approval.

Course requirements, Professional Photography (CHGP), AAS degree

		MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
95 Quarter Credits	Phase 1	Technical Mathematics . CTAM-201,202 or Mathematical Thought and Processes. . . . . CTAM-205 And Modern Mathematical Methods. CTAM-206	8 8	Communications*. . . . . CHGL-220 and or Dynamic Comm. I*. . . . . CHGL-204 and Dynamic Comm. II. . . . . CHGL-205 Communications Elective Psychology. CHGS-211	8 8 4 4	Basic Professional Photography . . CHGP-201,202,203	12 12
	Phase 2		12	Economics CHGS-221	4 4	Color Photography . CHGP-211,212,213	12 15

Suggested photographic electives are listed below. All electives for degree seeking students are to be selected with advisor's approval. At least 15 quarter credits must be from the photography

These communications courses require a pretest; call 475-2234 for information. Students who take CHGL-204 should also take CHGL-205; students who take CHGL-220 should also take CHGH-260.

The Graphic Arts Degree Program (CHGT)

Eric Bellmann
Andrew Davidhazy
Linda Tolan, Chairpersons

This program is structured to provide students with an opportunity to receive **a** broad understanding in the graphic arts field, and, at the same time, to select a major in design, photography or printing.

The professional courses in this program are presented in a manner which provides a well-rounded practical background in printing, photography, design, and related fields as well as a concentration of study in the student's major. Classroom instruction is supplemented by related work in studios and laboratories where actual experience is gained.

Students need not take courses in the order listed, as long as all courses are completed in one phase before proceeding to the next. After successfully completing all courses in Phases I and II, students will receive an AAS degree. If students are transferring from another institution, students must complete 45 credits within CCE.

Course requirements, Graphic Arts (CHGT), AAS and BS degrees with options in design, printing or photography

		MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
92 Quarter Credits	Phase 1	Technical Mathematics . CTAM-201,202 or Mathematical Thought and Processes. . . . . .CTAM-205 And Modern Mathematical Methods. CTAM-206	8 8	Communications*. . . . .CHGL-220 and Literature. . . . . .CHGH-260 or Dynamic Comm. I". . . . .CHGL-204 and Dynamic Comm. II. . . . .CHGL-205 Communications Elective Psychology. CHGS-211	8 8 4 • 4	Intro to Printing . . CHGT-201,202,203 Basic Professional Photography . . CHGP-201,202,203 Basic Design CHAD201.202.203	6 12 6
	Phase2	Contemporary Science. . . . .CTCS-221,222,223 Of Physics . . . . CTCP-201,202,203 (lec) -206,207,208 (lab)	12	Economics. CHGS-221	4 4	Paper and Printing. . . . . .CHGT-251 Technology of Typesetting . . CHGT-237 GraphicDesign . . CHAD-311,312,313 Professional Electives Lithography I. CHGT-265	3 3 2 6 - 10 3
94 Quarter Credits	$	Science, Technology and Society Electives	8	Electives	20	Reproduction Camerwork . . CHGT-301,302.303 Lithography II. . . . . .CHGT-365 Advertising. CHAD-301,302	S 3 8
	Phase 4			Electives	16	Estimating. . . . . .CHGT-219 Imposition and Finishing . . . CHGT-421 Professional Electives	4 2 24

In order to meet program objectives and prerequisites of later courses, transfer students who have an associate's degree may be required to take courses within Phase I and II. In many instances, such transfer students will be granted credit within Phase III and IV for appropriate work completed by the time of transfer.
'These communications courses require pretest; call 475-2234 for information. Students who take CHGL-204 should also take CHGL-205; students who take CHGL-220 should also take CHGL-260. All BS students must also satsifactorily pass a communications competency test.

Graphic Arts Certificate

Eric Bellmann, Chairperson

The certificate of achievement program in Graphic Arts is intended to provide students with foundational skills and knowledge in design, printing, and photography, so that they may better understand the interrelated nature of these fields, communicate better with others engaged in related tasks, and perform a wider variety of basic activities throughout the design-through-production process. The program will also be of interest to individuals with access to desktop publishing equipment as well as those with specialized knowledge in one of the three fields. With the approval of the Chairperson, up to 6 credits may be awarded for related college-level learning. Credits from this program may be applied to appropriate CCE degrees and programs. The program may be completed in three quarters of study. Students may earn a certificate of achievement by achieving a program G.P.A. of 2.0 and completing all program requirements.

Graphic Arts Certificate Program	Credit Hours
Introduction to Printing I, II & III CHGT-201, 202, 203	6
Photography Workshop I & II CHGP-101, 102	4
Color Photography Workshop CHGP-104	2
Graphic Communication for the Non-Artist I & II CHAD-270,271	6
Total Credits	18

Science and Technology

Henry Cooke, Director
Barbara Warth, Academic Program Assistant

This division in CCE offers a variety of technical and scientific programs of study. Included are:

- AS in engineering science, computer science
- AAS in applied science in building technology, electrical technology, electromechanical technology, manufacturing technology, mechanical technology, and computer systems
- BS in applied science in mechanical, and mechanical-industrial

Each program is carefully designed to meet the student's needs as well as the particular needs of local industry for technical personnel trained to meet the requirements of Rochester's expanding industrial community.

Courses for people on rotating work schedules
If rotating work schedules make it impossible for an individual to attend regular evening classes, enrollment in certain courses is also offered during the day, and are taught by the same instructors.

Courses in this program include basic technical and general education courses which can be applied to a diploma or AAS degree program. It is necessary to begin these course sequences in September. There are no beginning entry points in December or March for rotating work schedules.

Mathematics diagnostic examination
In order to take any of the beginning mathematics courses, a student must take a diagnostic examination to determine the level at which he or she should start the mathematics courses. An advisor should be consulted to determine where to start the mathematics sequence. Call 475-2234 to arrange an appointment to take the math exam. There is no charge for this exam.

Degree Programs BS in Applied Science

The BS in applied science programs is designed for the individual with better than average preparation in high school mathematics and science. Students having a deficiency in mathematics may wish to strengthen their skills by taking TLDT-011, 012, 013.

An intensive core of courses in mathematics, physics, chemistry, and the basic engineering sciences is required in these programs while allowing the student to develop some depth in the interest area of choice.

After completing approximately half the courses in the BS program, students receive an AAS degree. If the student already holds an AAS degree, he or she may be able to enter a BS program with minimal loss of credit. Consult an advisor for transcript evaluation before entering these programs.

Computer Systems Associate in Applied Science Degree

Henry Cooke, Chairperson

The goal of this program is to provide students with the programming skills and the computer science fundamentals to enter careers as computer programmers in business or information systems.

Aside from programming skills, students acquire some of the mathematics necessary to move from programming as an art to programming as a science.

Prospective students are urged to see an advisor before enrolling in classes. For an advising appointment call 475-2218.

Course requirements, (CTDD), AAS Degree

		MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
		Technical Mathematics . . . CTAM-201	4	Communications". CHGL-220	4	Introduction to Computer Science CTDS-202	4
		Technical Mathematics . . . CTAM-202	4	or	or	Programming I- Algorithmic Structures . . . CTDP-241	4
		Discrete Mathematics CTAM-265	4	Dynamic Comm. I". CHGL-204		Programming II- Data Structures CTDP-242	4
		Discrete Mathematics CTAM-266	4	and	8	Assembler Language CTDP-305	'4
	JC £	Business Statistics. CBCH-351	4	Dynamic Comm. II*. CHGL-205			
				and	8		
				Humanities Electives . . . . CHGH-			
				Social Science Electives . . CHGS-	8	Programming III- Design and Validation . . . CTDP-243	4
				Liberal Arts Electives . . . . CHG?-	8	Digital Computer Organization CTDS-315	4
						Data Organization and Management CTDS-325	4
	OM					Business Applications Programming CTDP-307	4
	5					System Specification, Design and Implementation CTDS-335	4
						Computer Science Elective" .	4
						Organization and Management . CBCE-203	4
						Financial Accounting CBCA-201	4

** Students may choose from:*
CTDS-420 Data Communications Systems
CTDS-485 Data Base Systems
" These communications courses require a pretest, call475-2234 for information.

Mechanical-Industrial Program (CTBI)

Henry Cooke, Chairperson

The mechanical-industrial curriculum integrates management courses with courses in engineering, science and general education in order to satisfy industry's need for qualified personnel in the manufacturing management field. Graduates of this program have a combined background in management and engineering. Students need not take courses in the order listed, as long as all courses are completed in one phase before proceeding to the next phase. After successfully completing all courses in Phases I and II, students receive an AAS degree. In the case of transfer students seeking a degree, 45 credits of this program must be completed at RIT.

Course requirements, (CTBI), AAS and BS degrees

		MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
	Phase 1	College Algebra and Trigonometry. CTAM-210	4	Communications". CHGL-220		Machine Shop . CTIS-201,202.203 (lec.) 206,207,208 (lab.)	6
		Calculus. CTAM-251,252	8	and	8	Prod. & Eng. Drwg. CTID-204	4
		ComputerTechnlques . . . CTDP-201	2	Literature. CHGH-260		Accounting for Engineers CBCA-207,208	8
		Physics . . . . CTCP-301,302,303 (lec.) 306,307,308 (lab.)	12 3	or	or		
				Dynamic Commun. I" CHGL-204			
				and	8		
				Dynamic Comm. II. CHGL-205			
	i	Calculus. CTAM-253	4	Economics. CHGS-221	4	Organization and Management. CBCE-203	4
		Calculus. CTAM-305	4	Psychology. CHGS-211	4	Engineering Mechanics . CTBM-341,342	8
						Manufacturing Analysis. . . . CTEF-201,202,203	9
						Strength of Materials . . CTBM-344 (lec.) 354 (lab.)	3 1
	Phase 3	Engineering Chemistry . . . CTCC-241,242 (lec.) 246,247 (lab.)	6 2	Psychology - Behavior in Industry. CHGS-316	4	Data Processing. CBCC-321	4
		Engineering Statistics . . CTAM-341,342	8			Electrical Engineering Principles CTBE-461,462,463	12
	8	Mathematics Elective	4	Sociology. CHGS-231	4	Fundamentals of Industrial Engineering. CBCJ-305	4
				Professional Presentations . CHGL-301	4	Industrial Engineering Economy. CBCJ-306	4
				"Electives	12	Electives	24

In sequentially numbered courses, the lower numbered course is prerequisite.

' These communications courses require pretest; call 475-2234 for information. Students completing BS degrees must also pass a communications competency test.

" These electives must be selected from the areas of humanities, social sciences and language arts, subject to advisor's approval.

Mechanical Program
(CTBM)

Henry Cooke, Chairperson

This curriculum is designed to provide the student with a sound basis in mathematics, science and general engineering. Courses in theory are supplemented by laboratory work to increase the understanding of industrial methods and techniques. The knowledge and skills acquired in this program apply to a wide variety of industrial assignments in mechanical design and manufacturing.

Courses need not be taken in the order listed, as long as all courses in one phase are completed before proceeding to the next phase. The AAS degree is awarded upon satisfactory completion of all courses in Phases I and II. In the case of transfer students seeking a degree, 45 credits of this program must be completed at RIT.

Course requirements, (CTBM), AAS and BS degrees

		MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
	T" 3 I	College Algebra and Trigonometry. . . . . CTAM-210 Calculus . CTAM-251 252 Computer Techniques . . . CTDP-201 Engineering Chemistry . . . CTCC-241,242 (lec.) 246,247 (lab.)	4 8 2 6 2	Communications* CHGL-220 and CHGH-260 or Dynamic Comm. I* CHGL-204 and Dynamic Comm. II CHGL-205	8 or 8	Machine Shop . CTIS-201,202,203 (lec.) 206,207,208 (lab.) Prod. & Eng. Drwg. CTID-204	6 4
	N 8 1	Calculus. . . . . CTAM-305 Physics . . . . CTCP-301,302,303 (lec.) 306,307,308 (lab.) Math Elective	4 4 12 3 4	CHGS-221	4	Engineering Mechanics . CTBM-341,342 Manufacturing Analysis. . . . . CTEF-201,202,203 Strength of Materials . . CTBM-344 (lec.) 354 (lab.)	8 9 3 1
	CO S 1	Differential Equations . . . . CTAM-306 Boundary Value Problems . CTAM-318 Modem Physics. . . . . CTCP-457,458 Nuclear Physics. CTCP-459	4 4 8 4	History or Political Science . Psychology CHGS-211	4 4	Strength of Materials . . . . CTBM-345 Materials Technology I . . . . CTEF-314 Materials Technology II . . . . CTEF-315 Thermodynamics . . . . CTBM-401,402 Electrical Engineering Principles CTBE-461,462,463	4 3 3 8 12
	Phase4				12 4	**Machine Design . CTBM-551,552,553** **Fluid Mechanics . . . . CTBM-411,412** **Electives**	9 8 6

** These communications courses require pretest; call 475-2234 for information. Students completing BS and B. Tech. degrees must also pass a communications competency test.*
" These electives must be selected from the areas of humanities, social sciences and language arts, subject to advisor's approval.
In sequentially numbered courses, the lower numbered course is prerequisite.

Engineering Science (CTSE)

Henry Cooke, Chairperson

This AS program in engineering science is designed to prepare the student to pursue a BS in engineering. The program permits orderly transfer into RIT's College of Engineering to continue pursuit of the baccalaureate degree in engineering through completion of upper-level courses made available during the evening hours by the College of Engineering. These degree programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Students with a strong high school mathematics and science background can earn the engineering bachelors degree in two stages at RIT.

After earning the AS degree in engineering science students are eligible to apply to the College of Engineering for admission in the baccalaureate program in engineering. Students accepted in this program can complete an engineering degree through continued part-time study.

Course requirements, Engineering Science (CTSE), AS Degree

		MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION		Qtr. Cr.	PROFESSIONAL		Qtr. Cr.
		Calculus CTAM-251,252,253	12		CHGL-220	4	Engineering Graphics	CTID-211	2
		Physics . . . . CTCP-301,302,303 (lec.)	12	or		or	Engineering Mechanics .	CTBM-341,342	8
	8	306,307,308 (lab.)	3	Dynamic Comm. I"	CHGL-204		Computer Programming		
? U	iF a			and		8	for Engineers . . .	CTDP-320	4
				Dynamic Comm. II	CHGL-205				
		Calculus CTAM-305	4		CHGS-211	4	Circuit Analysis	CTBE-401 (lec.)	3
	OM	Differential Equations CTAM-306	4	Economics	CHGS-221	4		406 (lab.)	1
l f £	§ a		4		CHGS-231	4		CTEE-321 (lec.)	3
		Engineering . . . . CTCC-241,242 (lec.)	6	Literature	CHGH-260	4		CTEE-326 (lab.)	1
g o	a	Chemistry. . . . . 246,247 (lab.)	2						
		Modem Physics CTCP-457,458	8						

• These communications courses require pretest; call 475-2234 for information.

Computer Science Associate in Science Degree

Henry Cooke, Chairman

The AS program in Computer Science is designed to prepare the student to pursue a B.S. degree in computer science. The program permits orderly transfer into RIT's School of Computer Science and Technology to continue studying towards the baccalaureate degree offered part-time during evening hours by the School of Computer Science and Technology. Part-time B.S. degree students of the School of Computer Science and Technology must complete all of the school's requirements, including co-op.

Prospective students are urged to meet with an academic advisor before enrolling in this program. Please call 475-2218 for an advising appointment.

Course requirements, (CTDE), AS Degree, Computer Science

		MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
48 Quarter Credits	Phase 1	CTAM-251	4	CHGL-220	4		
		CTAM-252	4		or	CTDS-202	4
		CTAM-253	4	CHGL-204		Programming 1- AJgorithmic Structures . . CTDP-241	4
		Discrete Mathematics. . . CTAM-265	4	and	8	Programming II- Data Structures CTDP-242	4
		Discrete Mathematics. . . CTAM-266	4	Dynamic Comm. II CHGL-205		Assembler Language CTDP-305	4
				Humanities Electivest . . . CHGH-	8		
48 Quarter Credits	Phase 2	Engineering Statistics . . . CTAM-341	4	Social Science Electivest. . CHGS-	8	Programming III- Design and Implementation CTDP-243	4
		CTCP-301	4	CHGH-260	4	Digital Computer	
		CTCP-306	1	Liberal Arts Elective CHG?-	4	CTDS-315	4
		CTCP-302	4			Data Organization and	
		Physics Lab CTCP-307	1			CTDS-325	4
		CTCP-303	4			Computer Science Elective*	4
		Physics Lab CTCP-308	1				

" Students may choose from:
CTDP-307Business Applications Programming
CTDP-320 Computer Programming for Engineers
† Courses may not be chosen from the same discipline.
" These communications courses require a pretest, call475-2234 for information.

Associate in Applied Science programs (AAS)

Henry Cooke, Chairperson

Industrial Technnology
Associate degree programs in building technology, electrical technology, electromechanical technology, and mechanical technology are designed to allow an employed individual to develop the technical skills needed to function at the technician level and to earn the AAS degree usually required for the job title "technician." Course work is applied and practical, emphasizing laboratory experiences.

Each program contains a core of technical mathematics and physics to prepare the student for the technical courses to follow.

Candidates for this program should have completed at least two years of high school mathematics including algebra and trigonometry. Students having a deficiency in mathematics may wish to strengthen their skills by taking TLDT-011,012,013.

Several of these beginning courses are offered on a shift schedule to accommodate those working a rotating shift. A core of general education courses is required and structured to develop the student's skills in communications and interpersonal relations essential to the technician.

Courses need not be taken within any phase in the order listed, so long as all courses in one phase are completed before proceeding to the next phase. After successfully completing all courses in Phases I and II, the student will receive an AAS degree (about 5 years of two courses per term). A student transferring from another institution must complete 45 credits of this program at RIT.

Many graduates of these programs continue on to the B.S. degree in engineering technology.

Electrical Technology (CTIE)
This program is designed to prepare the student for a career at the technician level in the field of electricity and electronics.

Phase I is devoted to providing the student with the mathematics and science background necessary to master the technical courses which follow. These technical courses provide the broad practical background of electricity and electronics required of the technician in industry. Instruction is * supplemented by related work in the laboratories, where the student will gain actual work experience in handling and operating electrical equipment.

Course requirements, (CTIE), AAS degree

		MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION		Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
95 Quarter Credits	Phase 1	Technical Mathematics . CTAM-201,202	8		CHGL-220			4
		Technical Calculus. CTAM-203	4	and		8	Elements of Electricity and	
		College Physics CTCP-201,202,203(lec.)	9	Literature	CHGH-260		Electronics.. CTIL-201,202,203(lec.)	12
		206,207,208 (lab.)	3	or		or	206,207,208 (lab.)	
				Dynamic Comm. I*	CHGL-204			
				and		8		
				Dynamic Comm. II	CHGL-205			
	Phase 2			Psychology	CHGS-211	4	Applied Electronics . CTEE-361,362,363	12
				Economics	CHGS-221	4	366,367,368	
							Machines and Power CTIL-301,302	8
							Systems. 306,307	
							Computer Techniques CTDP-201	2
							Digital Systems. CTEE-321	3
							Digital Systems (lab). CTEE-326	1
							Programmable Controllers . . CTEE-331	3
							Microprocessors. CTIL-353	3
							Microprocessors (lab) CTIL-358	1
							Electivesf	4

† All electives must be selected with advisor's approval.
' These communications courses require pretest; call475-2234 for information.

Electromechanical Technology (CTIL)

The manufacture of new and sophisticated equipment and complicated devices in which a number of electrical, electronic and mechanical principles are involved in one function or one piece of equipment, has led to the demand by industry for a new technology recognized by the composite word "electromechanical." A graduate of this dual-discipline program will be qualified to assist in design and development of new devices and to install, operate, service and maintain complex electromechanical assemblies. A graduate could also qualify for employment in automation and numerical control systems. The curriculum has a mathematics and science base with applications in electricity, electronics and mechanics. The emphasis is on the interrelationship of electronic and mechanical principles in systems and devices in which these principles are interdependent.

Course requirements, (CTIL), AAS degree

		MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
95 Quarter Credits	Phase1	Technical Mathematics . CTAM-201,202 College Physics CTCP-201,202,203 (lec.) 206,207,208 (lab.)	8 9 3	Communications'. . . . .CHGL-220 and Literature. . . . . .CHGH-260 or Dynamic Comm. I*. . . . .CHGL-204 and Dynamic Comm. II. CHGL-205	 8 or 8	Prod. & Eng. Drwg. . . . . .CTID-204 Elements of Electricity and Electronics. . CTIL-201,202,203(lec.) 206,207,208 (lab.) Mechanical Components and Mechanisms. CTIL-221,222	4 9 3 8
	Phase2			Psychology. . . . . .CHGS-211 Elective	4 4	Machine and Power Systems . . . . . CT1L-301,302 (lec.) 306,307 (lab.) Pneumatic and Hydraulic Systems. . . . . .CTIL-303 (lec.) 308 (lab.) Digital Systems. . . . . .CTEE-321 CTEE-326 (lab.) Computer Systems. . . . . .CTEE-323 Electromechanical Devices and Systems. . . . . .CTIL-351,352 Microprocessors (lec.) . . . . CTIL-353 Microprocessors (lab.) . . . . CTIL-358 Elective	 6 2 3 1 3 1 3 8 3 1 3

' These communications courses require pretest; call 475-2234 for information.

Building Technology (CTIJ)
David Onesti, Adjunct Chairperson

This program is structured to provide the student with a broad understanding **of** the building industry, while majoring in architectural technology or construction technology.

The architectural technology major provides in-depth training in all aspects of architectural drawing to qualify a graduate for employment as an architectural technician. The professional courses in this major are designed to meet individual requirements.

The construction technology major provides a more general background in building construction and qualifies the student for career opportunities in the building industry.

In addition to purely technical courses relating to the building industry, the program includes courses in college mathematics and physics as well as a selection of courses in general education.

Course requirements, (CTIJ), AAS degree

		MATHEMATICS ANDSCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
95 Quarter Credits	Phase 1	Technical Mathematics . CTAM-201,202 College Physics CTCP-201,202,203 (lec.) 206,207.208 (lab.)	8 9 3	Communications'. . . . .CHGL-220 and Literature. . . . . .CHGH-260 or Dynamic Comm. I*. . . . .CHGL-204 and Dynamic Comm. II. CHGL-205	8 or 8	Architectural Drawing CTIB-201,202,203,204,205,206	12
	Phase 2			Economics. . . . . .CHGS-221 Elective	4 4	Architectural Drawing" . . . . CTIB-207,208,209 Statics. . . . . .CTEM-301 Strength of Materials. . . . . .CTEM-303 Building Materials. . . . . .CTIB-241 Building Construction . . CTIB-242,243 Construction Contracting . . CTIB-251 Building Estimating (Residential)*". . . . . .CTIB-252 Building Estimating (Commercial)*". . . . . .CTIB-253 Structural Theory. . . . . .CTIB-301 Structural Design. . . . . .CTIB-302 Surveying. . . . . .CTIB-231 Eiectives	6 4 4 3 6 3 . 3 3 4 4 4 8

All eiectives must be selected with advisor's approval.
** These communications courses require pretest; call 475-2234 for information.*
" Required for Architectural Technology.
Required for Construction Technology

Mechanical Technology (CTIM)
This program is designed to prepare a student for a career at the technician level in the mechanical field. Phase I provides the mathematics and science background necessary to master the technical courses which follow. These technical courses in mechanics, materials, design, and manufacturing procedures cover the broad principles of mechanical engineering. The program is designed to meet the needs of industry for training in design, development, test engineering, manufacturing and other branches of this broad field.

Course requirements, (CTIM), AAS degree

	MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
95 Quarter Credits — Phase 1	Technical Mathematics . CTAM-201,202	8	Communications' CHGL-220		Prod. & Eng. Drwg. CTID-204	4
	Technical Calculus. CTAM-203	4	and	8	Machine Shop . . . CTIS-201,202,203	6
	College Physics CTCP-201,202,203 (lec.)	9	Literature CHGH-260		206,207,208 (lab.)	
	206,207,208 (lab.)	3	or	or		
			Dynamic Comm. 1* CHGL-204			
			and	8		
		•	Dynamic Comm. II CHGL-205			
95 Quarter Credits — Phase 2			Economics CHGS-221	4	Manufacturing Analysis .. CTEF-201,202	6
			Psychology CHGS-211	4	Applied Mechanics and Strength of Materials. . . CTEM-301,302,303	12
					Materials Technology I CTEF-314	3
					Materials Technology II CTEF-315	3
					Production Control. CTEF-391	3
					Principals of Mechanical Design. CTEM-315,316,317	6
					Elective	6

• These communications courses require pretest; call 475-2234 for information.

Manufacturing Technology (CTED)
This program is designed to prepare a student for a career at the technician level in the field of manufacturing. Emphasis is on the practical aspects of process and materials courses, work measurement and design, as well as the concepts of computer numerical control. Graduates of industrial training programs may find this program offers additional growth opportunity from the vocational to the professional levels.

Lower Division Technical Electives

Mechanical/Manufacturing Electives
CTEF-203 Manufacturing Analysis
CTEF-328 Report Writing
CTEF-360 Introduction to Numerical Control

Course requirements, (CTED), AAS degree

	MATHEMATICS AND SCIENCE	Qtr. Cr.	GENERAL EDUCATION	Qtr. Cr.	PROFESSIONAL	Qtr. Cr.
95 Quarter Credits — Phase I	Technical Mathematics . CTAM-201,202	8	Communications' CHGL-220		Machine Shop . . . CTIS-201,202,203	6
	Technical Calculus. CTAM-203	4	and	8	206,207,208 (lab.)	
	Introduction to Computers and Programming CTDS-200	4	CHGH-260		CTID-204	4
			or	or	Materials Technology I CTEF-314	3
			Dynamic C omm. I" CHGL-204		Materials Technology II CTEF-315	3
			and	8		
			DynamicComm.il CHGL-205			
95 Quarter Credits — Phase II	College Physics CTCP-201,202,203 (lec.)	9	Economics . . . CHGS-221	4	Manufacturing Analysis .. CTEF-201,202	6
	206,207,208 (lab.)	3	Psychology . . . CHGS-211	4	Intro to Numerical Control . . CTEF-360	4
					Statics CTEM-301	4
					Strength of Materials CTEM-303	4
					Report Writing CTEF-328	2
					Time Study CTEF-380	3
					Tool Design CTEF-370	4
					Technical Electives . .	6

" These communications courses require pretest; call475-2234 for information.

Diploma Programs

A diplo[ma] of the Institute can be **earned** by completing one of four technical diploma programs. These pro**grams** are carefully planned to include the basic courses in their respective specialized fields, so that maximum benefit will accrue for a minimum expenditure **of** time. Enrollment in or completion of [a] diploma program does not preclude the possibility of later pursuing a degree program; in fact some courses are applicable to degree programs if the student should decide to pursue a degree at a later time.

Students not interested in pursuing a diploma program may register for individual courses of their choice as long as they meet any prerequisites.

Diplomas of the Institute are granted in the following programs: instrument making and experimental work; machine shop; tool and die making; turret lathe and chucker operation and set-up, computer service technology.

Machine Tool Programs
Apprenticeship programs
In cooperation with local industry, CCE offers a wide selection of courses applicable to apprenticeship programs. Applicants seeking to complete courses required in apprenticeship programs should consult with their company training director to determine courses required.

Machine shop
For tool room work, there are a number of precision machines to perform the required machining operations such as: Bridgeport vertical mills, Pratt & Whitney jig bore, cylindrical grinders, surface grinders, electrical discharge machines (EDM), engine lathes, pantograph machine and punch presses for trying out of dies. Other active facilities in the machine shop are numerical control, computer-aided manufacturing (CAM), and heat treating labs.

When registering for the following programs, a student must register in the proper sequence. For example, when Shop Mathematics (TLDT-051) has been completed, the next course to complete would be TLDT-052, etc.

Specialized industrial training
Specialized intensive training programs may be developed on a one-time basis or as on-going programs to meet the specific needs of a given company or organization.

If seeking advanced standing in subjects in the machine shop area, a student must submit transcripts of courses taken at other schools and/or take an examination in those courses for which the student seeks credit. The examination fee is $50 per credit. An admission card must be received before being admitted to the test. The test may be scheduled at City Center. For further information call Henry Cooke at 475-5021.

Course Requirements

	TOOL AND DIE MAKING (CTML)		INSTRUMENT MAKING AND EXP. WORK (CTMI)
Phase 1	Mechanical Blueprint Reading . . . . . CTID-200 Machine Shop Lecture . . . . . CTIS-201,202,203 Machine Shop Lab . . . . . CTIS-206,207,208 Shop Mathematics TLDT-051,052,053	Phase 1	Mechanical Blueprint Reading . . . . . CTID-200 Machine Shop Lecture . . . . . CTIS-201,202,203 Machine Shop Lab . . . . . CTIS-206,207,208 Shop Mathematics TLDT-051,052,053
2	Advanced Machine Shop I . . . . . CTIS-104,105,106 Shop Trigonometry TLDT-054,055,056	2	Instrument Making I . . . . . CTIS-111,112,113 Shop Trigonometry TLDT-054,055,056
3	Tool & Die Making I . . . . . CTIS-121,122,123 Heat Treatment CTIS-161,162	3	Instrument Making II . . . . . CTIS-114,115,116 HeatTreatment CTIS-161,162
4	Tool & Die Making II . . . . . CTIS-124,125,126 Human Relations CBCE-101,102,103	4	Instrument Making . . . . . CTIS-117,118,119 Human Relations CBCE-101,102,103
S	Tool & Die Making II . . . . . CTIS-127,128,129 Electives (any 3 quarters)	5	Electives (any 3 quarters)

	MACHINE SHOP (CTMS)
Phase 1	Mechanical Blueprint Reading . . . . . CTID-200 Machine Shop Lecture . . . . . CTIS-201,202,203 Machine Shop Lab . . . . . CTIS-206,207,208 Shop Mathematics TLDT-051,052,053
2	Advanced Machine Shop I . . . . . CTIS-104,105,106 HeatTreatment CTIS-161,162
3	Advanced Machine Shop II . . . . . CTIS-107,108,109 Human Relations CBCE-101,102,103
	Electives (any 3 quarters of the following): Precision Measurement . . . . . CTIS-101,102,103 Engineering Drawing . . . . . CTID-204 Industrial Plastics . . . . . CTEF-210 Numerical Control (CNC) Mill . . . . . CTIS-281 Numerical Control (CNC) Lathe . . . . . CTIS-282 Computer Programming for N/C (CAM) . . . . . CTIS-283 Intro. GD&T CTID-205

Starting Classes for Mid Year

Winter	Spring	Summer
Mach. Lec. CTIS-201 Mach. Lab. CTIS-206 MathCTIS-157 B/P CTID-200	B/P CTID-200	Mach. Lec. CTIS-204 Mach. Lab. CTIS-209

Computer Service Technology

The advent of the "personal computer," the use of computer controlled machines in industry, and the increased use of computers in large and small business, have created a need for technicians to service this hardware. This exciting field will continue to grow, and the demand for individuals trained in the maintenance of computers and computer controlled devices will expand as new applications for computers develop.

Students in the Computer Service Technology diploma program study electricity and electronics, computer related courses dealing with hardware, microprocessors, and CPU operation, as well as work related courses in math and communications. The facilities used in the program provide opportunities for extensive experience on a variety of equipment used in the repair of computers and exposure to a sampling of the computer hardware used today.

Computer Service Tech. Requirements

FIRST QUARTER	COURSENUMBER	CREDIT
Dynamic Communications	0236-204	04
Introduction to Computer Operations 1	0275-237	03
SECOND QUARTER		
Technical Mathematics	0240-201	04
Introduction to Computer Operations II	0275-238	03
THIRD QUARTER		
Interpersonal Communication for Customer Service	0236-340	04
Elements of Electricity/Electronics	0264-201	03
Elements of Electricity/Electronics Lab	0264-206	01
FOURTH QUARTER		
Elements of Electricity/Electronics	0264-202	03
Elements of Electricity/Electronics Lab	0264-207	01
FIFTH QUARTER		
Digital Circuits	0275-234	04
Micro-Computer Organization	0275-240	04
SIXTH QUARTER		
Computer Systems Troubleshooting	0275-250	04
	Total	38

Computer-Aided Drafting Certificate

Computer-aided drafting (CAD) is changing the role of drafters, designers, and engineering professionals. This has resulted in a need for advanced skills and knowledge in order to remain current.

The certificate is designed for individuals who have a strong drafting/ design background (individuals without this experience may enroll in the Engineering Graphics Certificate courses).

The certificate requires 20 quarter credit hours of study which may be completed in one year. For further information, contact the Drafting/ CAD/CAM department at 475-5028.

CAD/CAM Certificate

Fall	Qtr. Cr.	Winter	Qtr. Cr.	Spring	Qtr. Cr.
Intro to Computer Operations 1 CAIC-237	3	Intro to Computer Operations II CAIC-238	3	CAD CTID-347	3
				Special Project (Indep. Study) CTID-398	2
Intro to CIM CTID-301	3	Intro to CAD CTID-345	2	CAM-CNC CTID-348	4
	6		5		9
				Total	**20**

Engineering Graphics Certificate

Fall	Qtr. Cr.	Winter	Qtr. Cr.	Spring	Qtr. Cr.	Summer	Qtr. Cr.
Prod, and Eng. Dwg. CTID-204	4	Computerized Descriptive Geom. CTID-210	4	Manufacturing Processes CTID-215	4	Intro.to CAD CTID-345	2
Machine Shop Lecture CTIS-201	1	Machine Shop Lecture CTIS-202	1	Electrical/Electronics Schematic Interpretation CAIC-212	2	Material Selection CTID-216	2
Machine Shop Lab CTIS-206	1	Machine Shop Lab CTIS-207	1				
	6		6		6		4
					Total		**22**

Engineering Graphics Certificate

The Engineering Graphics Certificate is designed for individuals who are interested in gaining the knowledge and skill to enter the drafting and design field. The program includes mechanical drawing, machine shop, and other technical courses. The certificate may be completed in one year of study.

College of Engineering

Paul E. Petersen, Dean

The programs offered by the College of Engineering are planned to prepare students to fit into present-day industrial and community life and to lay a foundation for graduate work in specialized fields. This is accomplished by offering curricula that are strong in fundamentals, yet lead to specialization in the junior and senior years, and maintain a balance among humanistic-social subjects, the physical sciences, and professional courses.

Five-year programs
The college offers five five-year cooperative education programs leading to the bachelor of science degree with majors in electrical, computer, industrial, mechanical and microelectronic engineering.

Resources
The departments of Electrical, Industrial and Manufacturing and Mechanical Engineering maintain extensive laboratory facilities in the James E. Gleason Memorial Building to provide for both undergraduate and graduate instruction and research by faculty and graduate students. The Departments of Computer Engineering and Microelectronic Engineering operate laboratories in the Center for Microelectronic and Computer Engineering, a 57,000-square-foot laboratory structure containing over 10,000 square feet of clean room space for the fabrication of integrated circuits. The Institute's extensive computer facilities are augmented for students and faculty in the College of Engineering by the Gleason User Center, a four-station Calma computer for VLSI design and a new 16-station Intergraph system for computer-aided design (CAD), plus numerous small computers and personal computers in virtually all offices and most labs. Laboratory instruction is a vital part of the college's five undergraduate curricula, and the faculty pride themselves on having integrated both the computer and real-life laboratory work in the academic program. The College of Engineering laboratory experience helps prepare the engineering student for industrial work assignments while on co-op. The industry experience, in turn, strengthens the total academic program through exposing the student to the newest and most modern of industrial computers and equipment.

Cooperative education plan

Year		Fall	Winter	Spring	Summer
1 and 2		RIT	RIT	RIT	
3 and 4	A	RIT	CO-OP	RIT	CO-OP
	B	CO-OP	RIT	CO-OP	RIT
5	A	RIT	CO-OP	RIT	
	B	CO-OP	RIT	RIT	

The cooperative plan
Students in the five-year cooperative programs attend classes during the Fall, Winter, and Spring quarters of their first and second years. Prior to the beginning of the third year, students are assigned to A and B blocks. In any given quarter, students in one block obtain cooperative employment while those in the other block attend classes. Employment arrangements are made by each student through his or her co-op coordinator in the Center for Cooperative Education and Placement. The chart illustrates the cooperative program as offered by the College of Engineering.

Academic advising
Each student is assigned an advisor upon entry into the College of Engineering. This person is available to the student for career counseling as well as academic advising.

Transfer programs
The College of Engineering at RIT has for many years admitted graduates from two-year engineering science programs at community colleges and technical institutes. The rapid integration of these transfer students into the baccalaureate programs in significant numbers has provided an added dimension and a uniqueness to the College of Engineering.

In virtually all cases, accepted graduates of the two-year engineering science programs are able to enter the regular third year program in RIT's five engineering programs.

For those students who have completed programs in electrical or electronics technology with a high scholastic average, it is possible to develop a program of eight or nine academic quarters leading to a bachelor of science degree in electrical engineering.

Orientation
The engineering programs are strongly oriented toward mathematics and the physical sciences. Emphasis is placed upon the study of these subjects in the first two years to provide a foundation for the applied sciences and for the engineering subjects which are scheduled later in the programs.

Careers
Graduates qualify for professional work in design and development of equipment and systems, research and experimental work, supervision of technical projects and managerial positions in industry. Increasing numbers of graduates continue their education for the master of science or the doctor of philosophy degrees.

Entrance requirements (BS)
Applicants for the engineering programs must be high school graduates, and must have completed elementary and intermediate algebra, plane geometry, trigonometry, and both physics and chemistry while in high school. Advanced algebra, solid geometry, and calculus, while not required, are highly desirable. The applicant's proficiency in the required entrance subjects should be high since these provide a good index of his or her ability to cope with the more advanced courses in the science programs.

All applicants are required to take entrance examinations as described in the general section of this bulletin.

Graduation requirements
The minimum requirements for the bachelor of science degree in the College of Engineering are:

1. Successful completion of all required and elective courses of the program, including the co-op requirement.
2. A program cumulative grade point average of at least 2.0 (the number of quality points must be equal to at least twice the number of quarter credit hours required).
3. A principal field grade point average of at least 2.0 as defined for the specific discipline.

Prospective students should consult the individual program descriptions for cooperative employment requirements and for additional information.

Accreditation
The programs of study leading to the bachelor of science degree in computer engineering, electrical engineering, industrial engineering, mechanical engineering and microelectronic engineering are accredited by the Accreditation Board for Engineering and Technology (ABET). The college is a member institution of the American Society for Engineering Education. All graduating seniors are eligible, and encouraged, to sit for the Intern Engineer portion of the New York State Professional Engineering examination during their final quarter in school.

Part-time students
An increasing number of students desire to pursue their engineering degree on a part-time basis while maintaining full-time employment in industry. In response to the needs of such students the College of Engineering has expanded its scheduling of classes in the upper division of the electrical engineering program so that these courses may be taken during the late afternoon and early evening as well as during the day. Students wishing to pursue part-time studies must qualify for matriculation as regular third-year engineering students through normal admission procedures. As with full-time students, part-time students are required to complete the equivalent of five quarters of approved cooperative work experience. Arrangements are made for part-time students to utilize approved portions of their regular employment to satisfy the co-op requirements. Persons wishing further information on part-time studies in electrical engineering should contact the department head.

Graduate degrees
Programs leading to the master of science degree are offered in the computer engineering, electrical engineering and mechanical engineering departments. The programs may be pursued on a part-time or full-time basis since the majority of courses are offered in the late afternoon and early evening.

In addition, the College of Engineering offers post-baccalaureate professional programs leading to the master of engineering degree. Study may be pursued in such areas as electrical engineering, manufacturing engineering, industrial engineering, mechanical engineering, engineering management, microelectronic manufacturing engineering, and systems engineering. The program is unique in that it extends the undergraduate cooperative concept to the graduate level in an industrial internship for which academic credit is granted.

Designed as a full-time program, the master of engineering degree may also be pursued on a part-time basis by engineers employed in local industry.

The College of Engineering offers jointly with the College of Science a program leading to the master of science degree in materials science and engineering.

For further information on graduate programs in the College of Engineering, request the Graduate Bulletin or contact the Associate Dean for Graduate Studies and Research, College of Engineering.

Course descriptions
For a complete oudine of courses offered at RIT, please request the Course Description Catalog from the Admissions Office.

Admission at a Glance: College of Engineering Programs

General information on RIT's admission requirements, procedures and services is included in detail on pages 176-177 of this bulletin.

Five-year cooperative programs leading to the BS degree are offered including majors in computer, electrical, industrial, mechanical and microelectronic engineering.

The programs prepare students for employment in the modern industrial world. There are extensive laboratory and experimental facilities available for student use. The programs in computer, electrical, industrial, mechanical and microelectronic engineering are accredited by the Accreditation Board for Engineering and Technology.

Electrical Engineering—Students first develop proficiency in mathematics, science, and engineering fundamentals. Fundamental electrical studies include electromagnetics, energy conversion, circuit theory, electronics, controls, and digital systems. Degree granted: BS-5 year.

Computer Engineering—This program builds upon a blend of computer science and electrical engineering and is designed to enable the graduates to intelligently incorporate computers within engineering products and processes. Degree granted: BS-5 year.

Freshman Admissions Requirements **Transfer Admission with advanced standing**

Program	Required High School Subjects*	Desirable Elective Subjects	Two-Year College Programs
Electrical Engineering	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Physics and Chemistry	additional mathematics	Engineering Science (liberal arts with math/science option considered on individual basis) or Electrical Technology (A.A.S. Degree)
Computer Engineering	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Physics and Chemistry	additional mathematics	Engineering Science (liberal arts with math/science option considered on individual basis)
Industrial Engineering	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Physics and Chemistry	additional mathematics	Engineering Science (liberal arts with math/science option considered on individual basis)
Mechanical Engineering	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Physics and Chemistry	additional mathematics	Engineering Science (liberal arts with math/science ' option considered on individual basis)
Microelectronic Engineering	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Physics and Chemistry	additional mathematics	Engineering Science (liberal arts with math/science option considered on individual basis)

'Four years of English are required in all programs, except where state requirements differ.
A substantial number of professional and free electives are also available.

Industrial and Manufacturing Engineering—Students learn design improvement and installation of integrated systems of people, materials, and equipment. Students also develop specialized knowledge in mathematics and physical science with methods of engineering and design. Degree granted: BS-5 year.

Mechanical Engineering—Students devote the first two years to the study of mathematics, physics, chemistry, and mechanics. By appropriately selecting courses from science, technical and free elective courses, a student can concentrate in the applied mechanics area or in the thermal fluid sciences area. Degree granted: BS-5 year.

Microelectronic Engineering—This interdisciplinary engineering curriculum combines elements of electrical engineering with chemistry, physics, imaging science and mathematics to provide an emphasis on manufacturing or process engineering as it relates to the design and fabrication of integrated circuits. Degree granted: BS-5 year.

Computer Engineering

Roy S. **Czernikowski,** Head

The computer engineering program focuses on the design and development of computer systems and computer-integrated systems with due consideration to such engineering factors as function, performance, cost, reliability and maintainability. The goal of the computer engineer is to build computer systems or computer-integrated systems to meet application requirements with attention to the hardware/software interaction and all the aspects just mentioned.

The program prepares graduates to design and implement various engineering products with embedded computers and to undertake graduate study where sophisticated computer system design can be addressed.

The program strives to interweave and span the topics from formal specifications to heuristic algorithm development, from system architecture to computer design, from interface electronics to real-time applications, and from interprocess communications management to VLSI implementation.

As an engineering discipline, this program emphasizes the careful adoption of design methodology and the application of sophisticated engineering tools. The intensive laboratory requirements ensure the graduate of significant experience with modern facilities and up-to-date design tools.

The cooperative education program of the final three years enables the student to apply the principles and techniques of computer engineering to real industrial problems, which provides students with a stronger framework on which to build their academic courses. These co-op work periods alternate with academic quarters over the last three years of the program.

Yr.	BS DEGREE IN COMPUTER ENGINEERING	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	EECC-200 Introduction to Computer Engineering	1		
	ICSP-241 Programming I Algorithmic Structures	4		
	ICSP-242 Programming II Data Structures		4	
	EECC-250 Assembly Language Programming			4
	SCHG-208 College Chemistry I	4		
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SMAM-305 Calculus IV			4
	SPSP-311,312 University Physics I, II		4	4
	SPSP-375,376 University Physics Lab I, II		1	1
	"Liberal Arts	4	4	
	tPhysical Education	0	0	0
2	EECC-341 Intro, to Digital Systems for Computer Engineers . . .		4	
	EECC-361 Modeling of Linear Systems			4
	EEEE-351 Circuit Analysis I			4
	EMEM-335 Elements of Statics		2	
	EMEM-349 Elements of Dynamics			3
	ICSP-243 Programming III Design & Implementation	4		
	ICSP-319 Scientific Applications Programming			4
	ICSS-325 Data Organization & Management		4	
	SMAM-265 Foundations of Discrete Math		4	
	SMAM-306 Differential Equations	4		
	SPSP-313 University Physics III	4		
	SPSP-377 University Physics Lab III	1		
	SPSP-314 Modern Physics		4	
	"Liberal Arts	4		
	tPhysical Education	0	0	0
		FALL WTR.		SPG. SMR.
3	EECC-452 Linear Control Systems			4
	EEEE-352 Circuit Analysis II	4		
	EEEE-441,442 Electronics I, II	4		4
	ICSS-440 Operating Systems	4		
	SMAM-351 Probability			4
	"Liberal Arts	4		4
4	EECC-550 Computer Organization			4
	EECC-553 Digital Control Systems Design	4		
	EECC-560 Interface & Digital Electronics	4		
	EECC-561 Digital Systems Design for Computer Engineers			4
	EECC-630 Intro, to VLSI Design			4
	ICSP-450 Programming Language Concepts	4		
	"Liberal Arts	4		4
5	EECC-551 Computer Architecture	4		
	EECC-655 Projects in Computer Engineering	4		
	EECC-694 Data & Computer Communications			4
	'Professional Elective	4		4
	Free Elective			4
	"Liberal Arts	4		4
	"Liberal Arts (Senior Seminar)			2

'Professional electives must have a 25% engineering design component.
"Seepage 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Combined B.S./M.S. Degree Sequence in Computer Engineering

The Department of Computer Engineering also offers a combined bachelor of science and master of science degree course sequence over five calendar years. This accelerated sequence provides an excellent opportunity for outstanding undergraduate students to pursue a graduate degree in a cohesive program. Applications to this special sequence will be accepted from matriculated undergraduate computer engineering students who have completed all the courses in the first two years of the baccalaureate program with a cumulative grade point average of at least 3.4 out of 4.0; at least 55 of these credits must have been earned at RIT. Continuance in this program also requires the maintenance of at least a 3.0 overall grade point average as well as at least 3.0 in the 45 quarter credits directly applicable to the master of science degree portion.

Principal field of study

For students matriculated in the interdisciplinary computer engineering program, the principal field of study is defined to be all courses taken in the College of Engineering and the School of Computer Science and Technology. Matriculated students not maintaining a 2.0 cumulative grade point average in their principal field of study are subject to academic probation and suspension according to Institute policy.

Electrical Engineering

Paul E. Petersen, Head

The cooperative five-year engineering program

The role of an engineer has been defined as "applying the laws of mathematics and principles of science to the solution of practical problems." The curriculum of the BS degree program in electrical engineering at RIT has been planned with this definition in mind.

In today's world, a tremendous diversity of interest and wide variety of talents and skills are expected of an electrical engineer by industry and graduate schools. As a consequence, the electrical engineering curriculum not only provides a basic foundation in the fundamental areas of electrical engineering, but also permits each student to pursue one or more specific areas of interest by selecting professional electives in a variety of different fields. The curriculum is flexible to allow a student's individual program to range from a high degree of specialization in one area to a broad general coverage of engineering and science.

The philosophy of the faculty of the Department of Electrical Engineering stresses the use of the laboratory in strengthening a student's knowledge of the subject. The curriculum includes a large number of courses in which the laboratory is an integral part. There is a continual effort on the part of the faculty to keep the laboratory equipment and experience up to date.

Since the ability to design is an important part of the training of an engineer, the student is presented with challenging problems of design in a number of courses.

The co-op requirement of the curriculum enhances student knowledge acquired in the classroom and the laboratory. The exposure and experience gained by the student in industry make the student keenly aware of the constraints imposed by the industrial environment on the solution of engineering problems. The co-op experience also aids the student in deciding which career path would be most challenging and rewarding in his or her case. The co-op requirement results in the production of a mature graduate with well-developed academic and industrial perspectives.

Yr.	BS DEGREE IN ELECTRICAL ENGINEERING	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	EEEE-240 Intro, to Digital Systems			4
	SCHG-208,209 College Chemistry I,II	4		4
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SPSP-311,312 University Physics I, II		4	4
	SPSP-375,376 Univ. Phys. Lab. I, II		1	1
	ICSA-220 Fortran Prog, for Engineers		4	
	"Liberal Arts (Core)	8	4	
	tPhysical Education Elective	0	0	0
2	EEEE-351 Circuit Analysis I			4
	EMEM-331 Mechanics I	4		
	EMEM-349 Elements of Dynamics			3
	EEEE-365 Introduction to Microcomputers		4	
	SMAM-305 Calculus IV	4		
	SMAM-306 Differential Equations		4	
	SMAM-328 Engineering Mathematics			4
	SPSP-313 University Physics III	4		
	SPSP-377 University Physics III Lab	1		
	SPSP-314 Modern Physics I		4	
	SPSP-315 Intro, to Semiconductor Physics			4
	EEEE-310 Numerical Methods			2
	"Liberal Arts (Core)	4	4	
	Education Elective	0	0	0
		FALL WTR.		SPG. SMR.
3	EEEE-352 Circuit Analysis II	4		
	EEEE-453 Linear Systems I			4
	EEEE-441,442 Electronics I, II	4		4
	EEEE-471 Electromagnetic Fields I			4
	SMAM-351 Probability			4
	SMAM-420 Complex Variables	4		
	"Liberal Arts (Core)	4		
4	EEEE-554 Linear Systems II	4		
	EEEE-544 Physics of Electronic Devices	4		
	EEEE-531 Electromechanical Energy Conversion	4		
	EEEE-472 Electromagnetic Fields II	4		
	EEEE-513 Intro, to Automatic Controls			4
	EEEE-534 Intro, to Communication Systems			4
	EEEE-545 Digital Electronics			4
	"Liberal Arts (Concentration)			4
5	EMEM-431 Thermodynamics	4		
	"Professional Elective	4		4
	"Professional Elective	4		4
				4
	"Liberal Arts (Concentration)	4		4
	"Liberal Arts (Senior Seminar)			2

'One of the professional electives must be a design elective.
"See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

the curriculum is devoted to the study of liberal arts throughout the five years of the program. These courses are aimed at making students more sensitive to the factors that normally surround any decision-making situation, improving their ability to communicate with others, and making their professional life more meaningful and rewarding.

The first two years of the curriculum are devoted to the mastery of the laws of mathematics and principles of science essential to the study of electrical engineering subjects. Some technical courses directly involving electrical engineering principles also are offered in the first two years in order to motivate the student in electrical engineering. The third and fourth years build upon the basic foundation laid in the first two years by focusing on the subjects that form the core of electrical engineering. Courses in circuits, electronics, linear systems, electromagnetic fields, physics of semiconductor devices, communication systems, control systems, and energy conversion are taught in these two years. The fifth and final year allows the student to specialize in an area of his or her professional interests. The professional electives may be taken from courses offered by the Department of Electrical Engineering, the other departments in the College of Engineering, or the College of Science, subject to the approval of the student's faculty advisor.

Transfer programs
The Department of Electrical Engineering actively seeks transfer students who have successfully completed an associate degree program. Those holding an associate degree in engineering science, as well as those holding an associate degree in applied science are accepted into the program, provided they meet the admission requirements in effect at the time of their application.

Transfer credits are awarded only on a course-by-course basis to all transfer students. All students are expected to complete the same course requirements as those entering the BS degree program as freshmen, either by actually completing the specific courses or by receiving transfer credits.

Transfers from two-year engineering science
Graduates of the AS degree in engineering science program are usually in step with the third-year student in electrical engineering at RIT except for the following three courses: EEEE 240, Introduction to Digital Systems (4 credits); EEEE 310, Numerical Methods (2 credits); and EEEE 365, Introduction to Microcomputers (4 credits).

Transfer from two-year electrical or electronic technology
Graduates with an AAS degree in electrical or electronic technology usually require eight academic quarters of courses in addition to the five quarters of co-op in industry. The program to be followed will vary significantly from one student to another since there is a significant variation in the two-year technology programs offered by different community colleges.

Extended day schedule (for part-time evening students)
In order to permit a person working full time in industry to earn a BS degree in electrical engineering (accredited by the Accreditation Board of Engineering and Technology), courses also are scheduled in the late afternoons and evenings. These courses are offered and taught by the faculty of the Department of Electrical Engineer ing and meet the same standards as those taught during the normal daytime hours. Students entering these programs must have an AS in engineer ing science and be employed full time in a technical position. Applicants to the extended day schedule will be evaluated in the same manner as those transferring to the full-time day schedule of the program. A student must plan to take two courses in each academic quarter. A typical schedule of courses for the extended day student is shown in the adjoining table. Variations will be necessary in individual cases depending on the transfer credits awarded at the time of entering the program.

Industrial and Manufacturing Engineering

Richard Reeve, Head

Industrial engineering differs from other branches of the engineering profession in at least two ways. First, industrial engineering education is relevant to most types of industry and commercial activity. Second, it is that major branch of engineering concerned n(Jt only with machines, but with people as well.

Specifically, industrial engineering is concerned with the design, improvement, and installation of integrated systems of people, materials, and equipment. It draws upon specialized knowledge and skill in the mathematical and physical sciences, together with the principles and methods of engineering analysis and design.

The industrial engineering curriculum covers the principal concepts of human performance, mathematical modeling, computer programming and applications, management systems, and manufacturing processes.

The curriculum stresses the application of computers in solving the engineering problems of today. For example:

1. The undergraduate industrial engineer at RIT utilizes computer graphics in designing the layout of manufacturing plants and in the development of dynamic, animated computer simulation models.

2. The industrial engineer utilizes computers to control flexible manufacturing systems involving robots, machines, and conveyors.

3. Industrial engineers at RIT utilize the computer in conjunction with touch-sensitive devices, voice recognition systems, and robots in the analysis and design of man/machine systems.

Through the use of professional and free electives the industrial engineering student can build a strong concentration of courses in manufacturing engineering. A student within the department of industrial and manufacturing may build a concentration of manufacturing expertise involving robotics, automation, design for manufacturing, NC programming, safety, and other related areas. In addition, there are other program concentrations that would enable the industrial engineering student to build a minor concentration of study in mechanical engineering, electrical engineering, or computer science.

Careers

Some of the activities of industrial engineers include work measurement, operations research, applied statistics, human factors, plant layout, materials handling, production planning and control, manufacturing, and management consulting.

Balance rather than specialization has allowed our graduates to pursue varied paths. Examples of the diversity, along with the role that an industrial engineer might function within, are reflected through the following partial listing of industrial engineering co-op assignments.

1. Hospitals
   a. improve efficiency of a patient therapy department
   b. optimal patient scheduling for physicians
   c. establishment of outpatient clinic staffing levels
2. Manufacturing industries
   a. product life studies
   b. layout of new and existing work areas
   c. design and implementation of an information system
   d. investigation of production processes involved in cleaning carbide dies
   e. economic investigation—new versus repaired breakdown analysis
   f. investigation of waiting lines in connection with a product line
   g. investigation of delivery service which involved scheduling, route modification and material handling
   h. assisted in setting up a production control monitoring board
   i. computer programming relating to pricing policies, blending problems, and truck scheduling
   j. downtime studies of various operations using time study and work sampling
   k. development and computer ization of a forecasting model

Transfer programs

Transfer programs for industrial engineering students are arranged on an individual basis. This allows a student to build an industrial engineering program which best takes into account his or her previous education and work experience. Students completing an AS in engineering science normally receive credit for the first two years and start their program at RIT with the third-year class.

Yr.	BS DEGREE IN INDUSTRIAL ENGINEERING	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	EIEI-201 Introduction to Industrial Engineering	4		
	EIEI-202 Computing for Industrial Engineers		4	
	SCHG-208,209 College Chemistry I, II	4		4
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SPSP-311,312 University Physics I, II		4	4
	SPSP-375,376 University Physics Lab I, II		1	1
	"Liberal Arts (Core)	4	4	4
	JPhysical Education Elective	0	0	0
2	EMEM-331 Mechanics I	4		
	EMEM-332 Mechanics II			4
	SMAM-305 Calculus IV	4		
	SMAM-306 Differential Equations		4	
	SMAM-328 Engineering Mathematics			4
	SPSP-313 University Physics III	4		
	SPSP-377 University Physics Lab III	1		
	EMEM-343 Materials Processing		4	
	EMEM-344 Materials Science			4
	EIEI-301 Computer Tools for Increased Productivity		2	
	Science Elective		4	
	"Liberal Arts (Core)	4	4	4
	tPhysical Education Elective	0	0	0
		FALL WTR.		SPG. SMR.
3	EIEI-420 Work Measurement & Analysis I	4		
	EIEI-520 Engineering Economics	4		
	EIEI-401 Introduction to Operations Research I	4		
	SMAM-351 Probability	4		
	SMAM-352 Applied Statistics I			4
	EIEI-415 Human Factors			4
	EIEI-481 Management Theory & Practice			4
	EIEI-422 Systems & Facilities Planning			4
4	EIEI-510,511 Applied Statistics I, II	4		4
	EIEI-402 Introduction to Operations Research II	4		
	EIEI-503 Simulation	4		
	EIEI-516 Human Factors II	4		
	EIEI-630 Computer Aided Manufacturing			4
	EIEI-530 Engineering Design			4
	"Liberal Arts (Concentration)			4
5	EIEI-560 Project Design			4
	•Professional Elective	8		8
	Liberal Arts (Concentration)	4		4
		3		
	"Liberal Arts (Senior Seminar)			2

'At least one professional elective must be selected from the following courses: EMEM-431 Thermodynamics: EMEM-415 Fluid Mechanics I; EEEE-351,352 Circuit Analysis I, II.
"See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Mechanical Engineering

Charles W. Haines, Acting Head

Mechanical engineering is perhaps the most comprehensive of the engineering disciplines, and the mechanical engineer's interests encompass the design of such diverse systems as missiles, power plants, robots, and machine tools. The spectrum of professional activity for the mechanical engineering graduate runs from research through design and development to manufacturing and sales. Because of their comprehensive training and education in the areas of production and economics, mechanical engineers are often called upon to assume management positions.

The Mechanical Engineering Department is staffed to offer professional courses in the areas of thermal systems, applied mechanics, manufacturing, materials science, environmental science, systems analysis, computer-aided graphics and design, and robotics. The department's laboratories are equipped to provide extensive experimentation in these areas. For instance, they include a laser doppler anemometer for measuring fluid velocities, a sting balance for measuring drag and lift, dynamic system simulators, spectrum analyzer, and a model analysis system.

Students have an opportunity to participate in the design of an all-terrain vehicle, the minibaja, and enter the vehicle in national competitions. They also are encouraged to participate in the student chapters of professional societies such as ASME, SME, and SAE.

The 194 quarter-credit Mechanical Engineering undergraduate program provides students a broad base of academic and practical experience. To emphasize the curricular strengths, the courses have been grouped by topical areas under two major headings, liberal arts/sciences areas and mechanical engineering.

Yr.	BS DEGREE IN MECHANICAL ENGINEERING	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SCHG-208,209 College Chemistry I, II	4		4
	EMEM-343 Materials Processing	4		
	SPSP-311,312 University Physics I, II		4	4
	SPSP-375,376 University Physics Lab I, II		1	1
	EMEM-211 Intro, to Graphics		3	
	EMEM-342 Fortran			3
	'Liberal Arts (Core) 1,2	4	4	
	‡Physical Education Elective	0	0	0
2	SMAM-305 Calculus IV	4		
	SMAM-306 Differential Equations		4	
	SMAM-318 Matrices and Boundary Value Problems			4
	SPSP-313 University Physics III	4		
	SPSP-377 University Physics Lab III	1		
	Science Elective 1		4	
	EMEM-336 Statics	4		
	EMEM-347 Engineering Mechanics		4	
	EMEM-348 Engineering Mechanics Lab I		1	
	EMEM-344 Materials Science		4	
	EMEM-311 Computer-Aided Design			3
	EEEE-364 Digital Circuits and Microprocessors			4
	"Liberal Arts (Core) 3,4	4		4
	tPhysical Education Elective	0	0	0
		FALL WTR.		SPG. SMR.
3	EMEM-437 Machine Design	4		
	EMEM-440 Numerical Methods	4		
	EMEM-413 Thermodynamics	4		
	Science Elective 2	4		
	EMEM-415 Fluid Mechanics			4
	EMEM-416 Thermal Fluid Sci. & Energy Lab I			1
	EMEM-439 Dynamics			4
	EMEM-518 Adv. Computational Techniques			4
	"Liberal Arts (Core) 5			4
4	EMEM-514 Heat Transfer	4		
	EMEM-543 Response of Dynamic Systems	4		
	EMEM-545 Dynamics Lab	1		
	EMEM-550Transport Phenomenon	4		
	Liberal Arts (Core) 6	4		
	EMEM-551 Thermal Fluid Sci. & Energy Lab II			1
	Technical Elective 1,2			8
	EMEM-464 Design for Manufacture			4
	"Liberal Arts (Concentration) 1			4
		FALL WTR.		SPG. SMR.
5	EMEM-630 Senior Design Project I	4		
	EMEM-631 Senior Design Project II			4
	Technical Elective 3	4		
	Free Elective 1,2	4		4
	"Liberal Arts (Concentration) 2,3	4		4
	"Liberal Arts (Senior Seminar)*			2

'See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Liberal Arts & Sciences Courses
Liberal Arts
Composition
Literature
Humanities 1,2
Social Science 1,2
Upper Division Courses 1,2,3
Senior Seminar
(38 credits)
Mathematics
Calculus 1,2,3,4
Differential Equations
Matrices & B.V.P.
(24 credits)
Science
Chemistry 1,2
Physics 1,2,3
Science Eiectives 1,2
(31 credits)
Institute-wide Courses
Free Eiectives 1,2
(8 credits)

Mechanical Engineering Courses
Structures & Motion
Statics
Engineering Mechanics
Materials Science*
Machine Design
Dynamics
Response of Dynamic Systems
(24 credits)
Manufacturing
Introduction to Graphics*
Computer-Aided Design*
Materials Processing*
Digital Circuits and Microprocessors
Design for Manufacturing
(18 credits)
Energy
Thermodynamics
Fluid Mechanics
Heat Transfer
Transport
Phenomenon
(16 credits)
Computation
Fortran
Numerical Methods
Advanced Computational Techniques
(11 credits)
Laboratory
Engineering Mechanics
Response of Dynamic System
Thermodynamics
Fluid/Heat Transfer
(4 credits)
Design/Theory
Technical Eiectives 1,2,3
Senior Design Project 1,2
(20 credits)

'Laboratory is part of course

Each of the listed technical eiectives offered by the department includes one significant design project. Students may enroll in any three of the following courses. For convenience they have been grouped by interest areas.

Technical Eiectives
Solid Body Mechanics
EMEM-672 Dynamics of Machinery
EMEM-694 Stress Analysis
EMEM-658 Engineering Vibrations
EMEM-615 Robotics
EMEM-620 Optimal Design

Thermal-Fluid Science
EMEM-635 Heat Transfer II
EMEM-652 Turbomachinery
EMEM-660 Refrigeration and Air Conditioning
EMEM-633 Energy Conversion Systems

Aerospace
EMEM-560 Introduction to Aerospace Engineering
EMEM-671 Aerospace Structures
EMEM-675 Aerodynamics
EMEM-678 Propulsion
EMEM-682 Flight Dynamics

Free Elective Courses
EMEM-637 Laser Engineering
EMEM-643 Control Systems
EMEM-650 Gas Dynamics
EMEM-651 Viscous Flows
EMEM-669 Introduction to Water Pollution
EMEM-680 Advanced Thermodynamics
EMEM-685 Advanced Strength of Materials
EMEM-687 Engineering Economy
EMEM-690 Environment and the Engineer
Graduate Courses and courses from other colleges

The writing policy of the Mechanical Engineering Department requires that during the third year, all mechanical engineering students take the Test of Standard Written English (TSWE). Those receiving a scaled score of 50 or above will be certified as having satisfied the program's writing competency requirements. Those receiving a scaled score below 50 must take and pass the College of Liberal Arts course, College Writing I (0502-301), in order to satisfy competency requirements. This course is defined as an overload.

Course descriptions
For a complete outline of courses offered at RIT, please request the Course Description Catalog from the Admissions Office.

Transfer programs
The Mechanical Engineering Department at RIT has a long-standing tradition of admitting graduates from two-year community college programs in engineering science and in engineering technology. The addition of significant numbers of transfer students to our regular undergraduate students provides RIT's engineering program with a unique academic atmosphere.

The AS graduate in engineering science with above average scholastic achievement can generally anticipate entering the BS program in mechanical engineering as a regular third-year student. It may be necessary to adjust a few courses in our program to accommodate differences in the programs of preparation in the first two years, since transfer credits are granted on the basis of a course-by-course evaluation.

The AAS graduate in mechanical technology who has demonstrated outstanding achievement should seriously consider transfer to a BS program in mechanical engineering as one alternative for continuing formal education. The exact number of transfer credits that he or she may qualify for varies widely, and therefore the student should contact the department head.

Combined five-year BS/MS degree sequence
In addition to the bachelor of science and master of science degree programs described under the section entitled "College of Engineering," a combined BS/MS degree sequence is also available for the mechanical engineering student. A student enrolled in this sequence is required to successfully complete a minimum of 227 quarter credit hours. After completing this requirement the student is awarded the BS and MS degrees simultaneously. A student may apply for admission to this sequence in the spring quarter of his/her sophomore year. Admission into the sequence is based on the student's cumulative grade point average, which must be at least 3.0, two letters of recommendation from the faculty, and a personal interview by a departmental committee. All students in the sequence are required to maintain a cumulative grade point average of at least 3.0. Further information regarding this sequence can be obtained from Professor Charles Haines, (716) 475-2029, in the Department of Mechanical Engineering or from the department office, (716) 475-2162.

A transfer student may apply to the program while completing his/her last semester at a community college. This applicant would have to meet the requirements stated above.

Microelectronic Engineering

Lynn Fuller, Director

The College of Engineering is proud to offer an undergraduate degree program in microelectronic engineering. This program is the only one of its type in the United States that leads to the bachelor of science degree in microelectronic engineering. Offered in conjunction with the College of Graphic Arts and Photography and the College of Science, the ABET accredited five-year program emphasizes all aspects of microelectronic engineering. It provides the broad disciplinary background in optics, chemistry, device physics, computer science, electrical engineering, photographic science, and statistics necessary for entry into the microelectronic industry.

Students participate in the required co-op portion of the program after completion of their second year of school. Microelectronic engineering co-op students work for all of the major manufacturers of integrated circuits across the United States. Upon completion of the program the student will be well-prepared to enter the industry immediately or go on to advanced work in graduate school.

Students in the program will have hands-on experience in the design and processing of integrated circuits, the vital component in almost every advanced electronic product manufactured today. The undergraduate laboratories at RIT for microelectronic engineering are among the best in the nation.

As the nationwide shortage of microelectronic engineers continues to grow, RIT graduates will provide a valuable resource to the microelectronic industry in the United States. For the student, this program offers an unparalleled opportunity to prepare for professional challenge and success in one of the leading areas of engineering of our time.

Yr.	BS DEGREE IN MICROELECTRONIC ENGINEERING	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	EMCR-201 Intro, to Microelectronics	4		
	SCHG-211,212 Chemical Principles I, II	3	3	
	SCHG-205,206 Chem. Principles I, II Lab	1	1	
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SPSP-311,312 University Physics I, II		4	4
	SPSP-375,376 Physics Lab I		1	1
	EMCR 221 Intro to Microlithography			4
	'Liberal Arts (Core)	4	4	4
	fPhysical Education Elective	0	0	0
2	EEEE-351 Circuit Analysis I			4
	EEEE-364 Digital Circuits & Microprocessors		4	
	EMCR-3501.C. Technology			4
	ICSA-220 Fortran	4		
	SMAM-305 Calculus IV	4		
	SMAM-306 Differential Equations		4	
	SMAM-328 Engineering Mathematics			4
	SMAM-314 Statistics		4	
	SPSP-313 University Physics ill	4		
	SPSP-377 Physics Lab Ill	1		
	SPSP-314 Modern Physics		4	
	SPSP-315 Intro. Semiconductor Physics			4
	"Liberal Arts (Core)	4		
	tPhysical Education Elective	0	0	0
		FALL WTR.		SPG. SMR.
3	EEEE-352 Circuit Analysis II	4		
	EEEE-441,442 Electronics I, II	4		4
	EEEE-455 Linear Systems			4
	EMCR-530,540 EM Fields I, II	4		4
	PIMG-541 Fundamentals of Optics			4
	"Liberal Arts (Core)	4		
4	EMCR-520 VLSI Design			4
	EMCR-560 Device Physics	4		
	EMCR-573 Microlithography I Lab			1
	EMCR-640 Microelectronics			4
	PIMG-543 Optical Engineering	4		
	PIMG-561 Microelectronic Chem. I	4		
	PIMG-563 Microlithography I			3
	Liberal Arts (1 Core, 1 Concentration)	4		4
5	EMCR-575 Microlithography II Lab	1		
	EMCR-630 Advanced Micro. Chem	4		
	EMCR-6501.C. Processing Lab	4		
	EMCR-660 Seminar/Research			4
	EMCR-670 Advanced Microlithography			4
	PIMG-565 Microlithography II	3		
	"Liberal Arts (Concentration)	4		4
	"Liberal Arts (Senior Seminar)			2
	Professional Elective			4

"Seepage 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

College of Fine and Applied Arts

peter Giopulos, Acting Dean

The College of Fine and Applied Arts offers programs in the arts and crafts through curricula in the School of Art and Design and the School for American Craftsmen. Concentrations, or majors, in the School of Art and Design are given in graphic design, industrial design, interior design, painting, packaging design, printmaking, painting-illustration, printmaking-illustration, and medical illustration. In the School for American Craftsmen concentrations are given in ceramics and ceramic sculpture, glass, metalcrafts and jewelry, weaving and textile design and woodworking and furniture design.

The studies in the two schools of the college express a common educational ideal; the conviction that technical competence provides the most satisfactory foundation for the expression of creative invention. However, the mastery of techniques is seen as a means, not an end; the end of education in the arts is the exercise of creative imagination.

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Resources
The equipment and the studios of the School of Art and Design are superior. A comprehensive art library of source material and an outstanding collection of slides are available for reference; and instructional films and other visual aids are utilized. Exhibitions, held in the Bevier Gallery, feature the work of contemporary painters, designers, and graphic artists, as well as work by faculty and students. Exhibition space in the Bevier Gallery extends the classroom into the public arena. In this gallery the focus is to bring attention to excellence in ideas, concepts, and aesthetic endeavors through the arts, crafts, and design expressions. Openings are planned for students to meet the artists. The Student Honors Show hangs through the summer and the opening of classes in September. Professional designers, painters, photographers, and graphic arts personalities are invited to lecture and give demonstrations. Rochester industry and commerce often sponsor pilot programs which are carried on under faculty supervision.

An added resource is the community of Rochester itself, with its many opportunities for educational, cultural, and social enrichment. Exhibitions, programs in the performing arts, and lectures are available to provide extracurricular learning for the interested student.

The resources of the School for American Craftsmen available for the student are exceptional; excellent equipment and facilities and a unique and challenging program combine learning and doing.

The faculty in the College of Fine and Applied Arts are productive in the fields in which they teach, and the honors and prizes they have won are a reflection of the prestige they enjoy as artists, designers and craftspeople. They have been broadly educated in the United States, and are well acquainted with contemporary practice in their art, design or craft. While the teaching staff is composed of professionals able to practice their discipline with distinction, they are, as well, interested and sympathetic teachers and counselors.

The Computer Centers, available for student use, are equipped with Apple, IBM, Artronics, Autographies, Digital and Genigraphics terminals. Photo darkrooms also support the assigned problems. The Craft Village provides additional support for blacksmithing, sculpture, glassblowing and ceramic firing needs.

The Wallace Memorial Library is particularly strong in the extensive list of contemporary periodicals in design, arts and crafts available for study and research.

The hearing-impaired student receives assistance through the educational support team within the college.

Cooperative education
Recognizing the importance of cooperative education to the overall academic program, the college has initiated an optional summer co-op for sophomores and juniors. Co-op experience provides firsthand knowledge of the forces influencing the fields of art, design and craft, and allows the practice of new skills in work settings. It also gives students an opportunity to earn an income to help meet educational costs. The student is responsible for finding the co-op job and for performing productively. Co-op students evaluate career goals before making employment decisions, gain professional experience for their resumes and enhance quality placement after graduation. As an option, a co-op experience usually follows the sophomore and junior years, the student being gainfully employed during the two summers.

Accreditation
The programs of study offered in the College of Fine and Applied Arts are fully accredited: courses of study have been approved by the New York State Department of Education, the Middle States Association of Colleges and Secondary Schools, and the National Association of Schools of Art and Design.

Plan of education
The programs in the College of Fine and Applied Arts are two and four years in length and lead to the associate in applied science and the bachelor of fine arts degrees. The packaging design program is four years and leads to the bachelor of science degree. Students attend school for three quarters, each eleven weeks in length, during the school year. Advanced study at the graduate level is offered leading to the master of fine arts and the master of science for teachers degrees. The former may be earned normally in two years, the latter in one. The MST may be earned in programs carried during regular and summer studies, depending on admission and department offerings. Among the programs offered for the master of science for teachers degree is a concentration in art education designed for those holding the bachelor of fine arts degree (or a bachelor of arts degree with an art major) which leads to the graduate degree and permanent certification to teach in the public schools of the State of New York. This is a September start.

Those interested in graduate study should request a copy of the Graduate Bulletin, which describes the degrees offered, the programs of study, and the procedures governing admission.

Course descriptions
For a complete outline of courses offered at RIT, please request the Course Description Catalog from the Admissions Office.

Advising
Peers, faculty, support staff and administration all contribute to effective advising. Students are urged to participate and take on the responsibility of obtaining good advising. Many resources are provided. Self advising information is available through a variety of sources: RIT bulletin, program outline as printed in the Viewbook, CFAA Handbook for undergraduate and graduate students, grade reports, transcripts and a log sheet that records completed courses and requirements.

It is recommended that each student select an advisor and develop a working relationship for program and career advising. Questions about degree requirements and the selection of an advisor should be directed to the associate dean for graduate studies and to the assistant dean for undergraduate studies.

Transfer program
The College of Fine and Applied Arts offers a summer transfer program for art and design majors. Successful completion of this program qualifies students for second-year standing in the following options: graphic design, packaging design, industrial design, interior design, painting, printmaking, painting-illustration, printmaking-illustration, or medical illustration. Designed especially, though not exclusively, for graduates of community colleges, this transfer program is open to students with:

1. good academic standing at another college;
2. one or two years of college, with a heavy emphasis in studio art (minimum of 12 semester or 18 quarter credit hours);
.3. presentation of an acceptable art portfolio demonstrating strength in one or more areas.
4. dependent on previous education, credit evaluation and portfolio review some students may qualify for third-year standing after summer school study in selected programs. This review is arranged through the assistant dean.

Articulation
Transfer credit is evaluated on an individual basis through the admission process. The strength of the portfolio and academic transcripts is reviewed to determine the equivalent standing in the RIT program. Students from design schools follow specific procedures for application and should contact their director of education for complete information about transferring.

Summer session
The College of Fine and Applied Arts offers a program of summer study in both the School of Art and Design and the School for American Craftsmen that is arranged for designers, teachers, and craftspeople. Both basic and advanced workshops are given as well as graduate courses. Those interested should write the director of the summer session for information.

Junior year abroad
The School for American Craftsmen, in cooperation with the Scandinavian Seminars, offers a junior year abroad in the field of the crafts. This permits certain well-qualified students to spend their third year of study in one of the Scandinavian countries, after which they return for a fourth year of study at RlT. Full credit for the year of satisfactory study overseas will be granted toward the BFA degree if arrangements are made prior to departure. Information on the junior year abroad program can be obtained by writing the dean, College of Fine and Applied Arts.

Policy regarding student work
The College of Fine and Applied Arts reserves the right to retain student work for educational use or exhibition for a period of time not to exceed one and one-half quarters beyond the year the object has been made. The college also reserves the right to select an example or examples for its permanent collection. In such cases, where work is selected for the permanent collection the material cost only will be paid by the college. It is an honor to have one's work in the permanent collection of the College of Fine and Applied Arts.

Attendance regulations
The programs of the college utilize studio and shop experiences as an essential part of the educational program; therefore it is imperative that the student regularly attend all classes unless specifically excused for special projects or activities by the instructor. Failure to attend classes, and to complete assignments, will be taken into consideration in grading.

Professional approach
Educational programs in the College of Fine and Applied Arts are related to the kinds of art services which the society needs, and based on teaching projects which can be made realistic and meaningful to the student. The programs duplicate, as far as possible, those found in the working situation after graduation. The courses are full-time, instruction is largely on an individual basis, and full opportunity is given for personal development. Exhibitions, lectures, and field trips add breadth and variety to the formal programs of study.

A unique feature of the educational programs offered in the College of Fine and Applied Arts is its emphasis on the professional approach to the under standing and solution of problems. Instructional services provided by a professionally experienced and oriented faculty, plus the well-equipped shops and studios designed with the needs of professional artists, designers or craftspeople in mind, further emphasize the practical character of this program of instruction.

Students are asked to demonstrate a professional attitude and purpose, to apply themselves to the requirements of the program, to cooperate in the fulfillment of its goals, and to assume some responsibility for their educational development through independent work.

Relationship with other RIT schools
Educational facilities of a rare sort in the arts are available to the student in the School of Art and Design—the superior resources of the School of Photographic Arts and Sciences and the School of Printing Management Sciences. A program of instruction which emphasizes production, as well as design of the crafts, gives a unique character to the educational program in the School for American Craftsmen. A few programs offer cooperative education (co-op) as an option to be taken during the Summer Quarter.

The School of Arts and Design, in addition to its major concentrations, offers courses in drawing, design, and art eiectives required in the curriculum. Craft eiectives are taught by the School for American Craftsmen. Students may select, with advising and as space is available, elective courses in the college; these complement their programs and interests.

Packaging design students enroll in courses taught by the College of Applied Science and Technology, especially in the areas of production, marketing and materials.

Portfolio Guidelines for Undergraduate Applicants

The following guidelines are presented for all undergraduate students (including transfers) applying to the College of Fine and Applied Arts. Presentation of the portfolio is one of the requirements used in totally assessing the performance and academic capabilities of the applicant. The selection of the work to be included is an important consideration in determining skills, concepts, craftsmanship and design sensitivity.

1. The portfolio must contain examples of at least 10 pieces of the applicant's best work, two of which are drawings—35mm slides are required, displayed in an 8 ½ " x 11" vinyl slide protector page with identification. It is recommended that drawing be included.

For medical illustration applicants, six additional drawings of natural forms (shells, figures, animals) rendered in a single medium are required.

School for American Craftsmen applicants should submit samples of work in the area of their selected craft major.

2. All portfolio work must be submitted as slides for committee review. Original work is not accepted.

3. Slides will be returned by the College of Fine and Applied Arts only when return postage is enclosed.

4. While every precaution will be taken to ensure proper care and handling, the Institute assumes no responsibility for loss or damage to slides.

5. Identify slides by name and address.

6. Please send portfolio and all other application materials to:

Rochester Institute of Technology
Office of Admissions
One Lomb Memorial Drive
P.O. Box 9887
Rochester, New York 14623
Telephone: (716) 475-6631

Visits to the campus and College of Fine and Applied Arts are encouraged. Please contact the Admissions Office.

Admission at a Glance: College of Fine and Applied Arts

General information on RIT's admission requirements, procedures and services is detailed on pages 176-177 of this bulletin.

This college is composed of the School of Art and Design and the School for American Craftsmen, with approximately 1,000 students.

Students are urged to develop the highest technical abilities as well as personal creative expression. The faculty includes many of the nation's most outstanding and creative artists, designers * and craftsmen. Students learn by working in the studios equipped with excellent facilities. Most graduates earn their living utilizing their RIT background.

Graphic Design—Graphic design has many facets. A visual problem solver at the core, the graphic designer is concerned with achieving the highest level of information and aesthetic quality in their work. Graphic designers work for design studios, advertising, corporate design offices, government offices, magazines, industrial firms, printers, offices, museums and other organizations. Degrees granted: AAS—2 year; BFA—4 year.

Fine Arts—Students may concentrate in printmaking, painting, printmaking-illustration, painting-illustration or medical illustration. They prepare as professional artists, developing perform mance levels that enable graduate degree studies in studio concentrations and careers in many of the visual arts fields or teaching. The printmaking-illustration or painting-illustration students prepare for careers as studio artists or as illustrators. Medical illustrators enter research areas in hospitals, publishing and teaching institutions. Degrees granted: AAS—2 year; BFA—4 year.

Industrial Design—The program prepares students for careers in the expanding profession of industrial design. Artistic talent and analytical thought are applied to the design of products. Practical design projects develop aesthetic understanding, technical abilities, design concepts, sensitivity to human needs and awareness of the social consequences of the designer's efforts. Degrees granted: AAS—2 year; BFA—4 year.

Interior Design—Functional space is defined for human use as the need for designers expands into commercial, industrial, historical and residential settings. Material specifications and historical references are studied to further enhance the practical and aesthetic client concerns. Graduates work for industry, architectural firms and design houses or may be self-employed. Degrees granted: AAS—2 year; BFA—4 year.

Packaging Design—Students study design applications for project packaging in an interdisciplinary program emphasizing design, management, packaging theory and techniques, and liberal arts. Practical application of design theory is an important component of this program. Graduates are prepared to enter corporate packaging and marketing departments and packaging consulting firms. Degree granted: BS—4 year.

Ceramics and Ceramic Sculpture— Graduates are self-employed as designer craftsmen, designers or technicians in industry, teachers, or administrators of craft programs. Professional competencies are developed in such areas as fabrication, chemistry and application of glazes, organization of ceramic shop for efficient production, ceramic raw materials, kiln types, fuels and construction. Degrees granted: AAS—2 year; BFA—4 year.

Glass—Graduates are self-employed designer craftsmen, designers or technicians in industry, teachers, or administrators of craft programs. Professional competencies are developed in organization and construction of the glass studio, functions and care of tools, analysis of glass as a material, glass fabrication, glass design, engraving, cold-working techniques, mixing of batch glass, color and fuming techniques. Degrees granted: AAS—2 year; BFA—4 year.

Metalcrafts and Jewelry—Graduates are self-employed designer craftsmen, designers or technicians in industry, teachers or administrators of craft programs. Professional competencies are developed in use of equipment, metalcrafts, techniques and production in various metals, raising, forging, forming, planishing, enameling, design of jewelry, flatware, holloware. Degrees granted: AAS—2 year; BFA—4 year.

Freshman Admission Requirements			Transfer Admission with junior standing
Program[1]	Required High School Subjects*	Desirable Elective Subjects	Two-Year College Programs
Graphic Design	1 year any mathematics; 1 year any science	Art courses; portfolio of original artwork required.	Art, design for commercial art. Admissions and class standing determined in part by evaluation of required portfolio. Where student lacks sufficient art credit, a summer transfer program is offered at RIT.
Fine Arts painting, printmaking medical-illustration painting-illustration printmaking-illustration	1 year any mathematics 1 year any science; 2 years science for medical-illustration	Art courses; portfolio of original artwork required; examples of natural forms for medical illustration.	Art or commercial art. Admission and class standing determined in part by evaluation of required portfolio. Where a student lacks sufficient art credit, a summer transfer program is offered at RIT. Space in medical illustration is limited at admission time, and a special portfolio is required.
Industrial Design	1 year any mathematics; 1 year any science	Art courses; geometry, mechanical drawing; portfolio of original artwork required.	Art or commercial art. Admission and class standing determined in part by evaluation of required portfolio. Where student lacks sufficient art credit, a summer transfer program is offered at RIT.
Interior Design	1 year any mathematics; 1 year any science	Art courses; geometry, mechanical drawing; portfolio of original artwork required.	Art or commercial art. Admission and class standing determined in part by evaluation of required portfolio. Where student lacks sufficient art credit, a summer transfer program is offered at RIT.
Packaging Design	1 year science; 3 years mathematics	Art courses; chemistry, physics; algebra; geometry; mechanical drawing; portfolio of original artwork required	Art, design, or commercial art, and chemistry algebra, physics, biology. Admission and class standing determined in part by evaluation of required portfolio. Where student lacks sufficient art credit, a summer transfer program is offered at RIT.
Ceramics and Ceramic Sculpture	1 year any mathematics; 1 year any science	Art or industrial courses; portfolio of original ceramics work required.	Transfer as a junior is uncommon, as comparable programs are not generally available at other colleges, but with additional summer study, acceleration is possible.
Glass	1 year any mathematics; 1 year any science	Art or industrial courses; portfolio of original glass or ceramic work required.	Transfer as a junior is uncommon, as comparable programs are not generally available at other colleges, but with additional summer study, acceleration is possible.
Metalcrafts and Jewelry	1 year any mathematics; 1 year any science	Art or industrial courses; portfolio of original metals work required.	Transfer as a junior is uncommon, as comparable programs are not generally available at other colleges but with additional summer study, acceleration is possible.
Weaving and Textile Design	1 year any mathematics; 1 year any science	Art or industrial courses; portfolio of original textiles work required.	Transfer as a junior is uncommon, as comparable programs are not generally available at other colleges, but with additional summer study, acceleration is possible.
Woodworking and Furniture Design	1 year any mathematics; 1 year any science	Art or industrial courses; portfolio of original wood work required.	Transfer as a junior is uncommon, as comparable programs are not generally available at other colleges, but with additional summer study, acceleration is possible.

'About one-third of the courses in each program consist of eiectives in social science, literature and humanities.
"Four years of English are required in all programs (except where state requirements differ).

Weaving and Textile Design—Graduates are self-employed designer craftsmen, designers or technicians in industry, teachers, or administrators of craft programs. Professional competencies are developed in such areas as fabric design, analysis of equipment and problems, pattern drafting, analysis of fibers, use of eight to ten harness looms, techniques of weaving, design within price range and use. Degrees granted: AAS—2 year; BFA—4 year.

Woodworking and Furniture Design—Graduates are self-employed designer craftsmen, designers or technicians in industry, teachers, or administrators of craft programs. Professional competencies are developed in such areas as functions and care of woodworking tools, wood as a material, techniques of wood fabrication, design layout, construction analysis, veneering, and finishing, estimating, and production. Degrees granted: AAS—2 year; AOS—2 year; BFA—4 year.

Double Crafts Major—The double crafts major enables the student to study for two years each in two differ ent craft disciplines. Requests for this option may be made either when first applying to RIT or after successfully completing two years in one major concentration. A portfolio reflecting both craft majors is required. Degrees granted: AAS—2 year; BFA—4 year.

School of Art and Design

The objectives of the programs are to prepare students for a wide variety of positions in which art is related to commerce and industry. Students are prepared to accept major responsibility for the creation and execution of projects in graphic, industrial, interior, and packaging design; painting; printmaking; painting-illustration; printmaking-illustration; and medical illustration.

The educational objectives of the School of Art and Design are to encourage imagination, creative ability, and a sense of artistic discrimination; to develop the skills essential to professional competence; to relate the various arts and to assist students in finding the means to enjoy them; and to cooperate with the College of Liberal Arts in helping students grow culturally and socially; and to inspire them to make their maximum contributions as creative artists and citizens. Aesthetic and applied concepts are brought together.

Programs

Major concentrations are offered in graphic design, industrial design, interior design, packaging design and the fine arts (painting, printmaking, painting-illustration, printmaking-illustration, medical illustration). Electives may be pursued, beginning in the second year, in painting, printmaking, industrial design, interior design, graphic design and the crafts. The first year forms the foundation preparation for the major concentration, with courses required in drawing and two- and three-dimensional design. Graphic design is a program that deals with systematic thinking, strong visual fundamentals, aesthetic/informational requirements, problem solving and methodology. New communications technologies such as computer graphics are utilized. The industrial design program prepares students for careers in the expanding product design fields. Artistic talent and analytic thought are applied to the design process. Interior design students study three-dimensional concepts as they relate to space, function and aesthetic resolution. Practiced design projects develop aesthetic understanding, technical abilities, sensitivity to human needs and awareness of the social consequence of the designer's effort. Packaging design is an interdisciplinary program that emphasizes design, management, packaging theory and techniques. The practical application of design theory is also an important component of the program.

Yr.	GRAPHIC DESIGN, PAINTING, PRINTMAKING, INDUSTRIAL DESIGN INTERIOR DESIGN, PAINTING-ILLUSTRATION, PRINTMAKING-ILLUSTRATION MAJORS	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	FADF-231,232,233 Two Dimensional Design	3	3	3
	FADF-241,242,243 Three-Dimensional Design	3	3	3
	FADF-205,206,207 Creative Sources	2	2	2
	FADF-210,211,212 Drawing	4	4	4
	'Liberal Arts	4	4	4
	•Physical Education Elective	0	0	0
2†	FSCF-225,226,227 Art and Civilization	3	3	3
	'Liberal Arts	4	4	4
	•Physical Education Elective	0	0	0
	"Electives (must have two studios each quarter-one which must be the core in which you are going to major			
	"'FADC-301,302,303 Introduction to Graphic Design	4	4	4
	•"FADU-301,302,303 Introduction to Industrial Design	4	4	4
	•"FADI-301,302,303 Introduction to Interior Design	4	4	4
	'"FADP-301,302,303 Introduction to Fine Arts	4	4	4
	See Note Below			
3	FSCF-380 Contemporary Art (one quarter required; offered every quarter)	3		
	#Art History Electives (select two)		3	3
	"Liberal Arts	4	4	4
	Major (one)			
	FADR-401, 402,403 Printmaking			
	FADR-404,405,406 Printmaking-illustration			
	FADC-401,402,403 Graphic Design	6	6	6
	FADP-401, 402,403 Painting			
	FADP-404,405,406 Painting-Illustration			
	FADU-401,402,403 Industrial Design			
	FADI-401,402,403 Interior Design			
	"Electives (one quarter)	3	3	3
4	'Liberal Arts	4	4	4
	Major (one)			
	FADR-501, 502,503 Printmaking			
	FADR-504, 505, 506 Printmaking-illustration			
	FADC-501,502,503 Graphic Design			
	FADP-501,502,503 Painting	9	9	9
	FADP-504,505,506 Painting-Illustration			
	FADU-501,502,503 Industrial Design			
	FADI-501,502,503 Interior Design			
	"Electives (one per quarter)	3	3	3

tUpon completion of the second yeer, the associate in applied science degree is awarded.

"Additional intercollege studio courses are available by recommendation of the academic advisor and administrator. Electives en registered on a space available basis and subject to change without prior notic. Consult the advisor when planning programs.

"'Core Electtves-Introductory courses that are prerequisite to the respective third year major. FADC-301,302,303, required-for entrance into Graphic Design major; FADD-301,302,303 for Printmaking major. However, all three CORE Electives are available as elective choices.

0Total of 18 quarter credits of Art History: Art and Civilization and Contemporary Art required.

tSee page 200 for policy on Physical Education.

"Seepage 116 for Liberal Arts requirements. Fine and Applied Arts students are only required to study 20 qtr. cr. of Liberal Arts Core curriculum. They are advised to select from nine courses other than fine arts.

NOTE: Beginning September 1962 students in their second year of study will select only two art courses, one will be a core prerequisite and the second course may be a core or an art elective. Core courses will be four credits each and meet for nine clock hours. Recommended program in two art core courses.

The fine arts serve the student who is interested in concentrated study in areas of painting, printmaking, painting-illustration, printmaking-illustration, or medical illustration, and electives of additional art choices. Students emerging from this program are prepared as professional artists and have exploratory potentialities for later careers in teaching. An option within fine arts exists with concentration in medical illustration for a few further selected students, thus leading to work in health areas.

Medical illustration students will be taught Gross Anatomy through the University of Rochester during the Spring Quarter of the junior year. A tuition surcharge will be in effect that quarter.

The credit requirements for students admitted September 1990 in Fine Arts —Painting; Printmaking; Painting-illustration; Printmaking-illustration; Graphic Design; Industrial Design and Interior Design programs are as follows:

	Cr.
Required Major	87
Required Professional Electives	21
Open Electives	9
Liberal Arts	50
Art History	18
Creative Sources	6
	191

Freshmen Kit for art and design students is approximately $260. There is an additional cost for supplies.

Course descriptions
For a complete outline of courses offered at RIT, please request the Course Description Catalog from the Admissions Office.

Electives

FADC-411, 412, 413	Graphic Design
FADC-511, 512, 513	Graphic Design
FADC-520	Professional Design Business Practices
FADD-320	Graphic Visualization
FADD-311, 312,313	Industrial, Interior and Packaging Design
FADD-411, 412, 413	3-D Computer Graphics
FADP-320	Color
FADP-321, 322, 323	Illustration
FADP-411, 412, 413	Drawing and Painting
FADP-511, 512, 513	Painting
FADR-411, 412, 413	Printmaking
FADR-511, 512, 513	Printmaking
FADS-411, 412, 413	Sculpture
FADP-450	Drawing Problems
FSCC-251, 252, 253	Ceramics I
FSCG-251, 252, 253	Glass I
FSCM-251, 252, 253	Metalcrafts I
FSCT-251, 252, 253	Textiles I
FSCT-520	Business Practices for Crafts
FSCW-251, 252, 253	Woodworking I
PPHF-207, 208	Introduction to Filmmaking
PPHG-209	Introduction to TV
PPHG-207, 208, 209	Still Photography
PPRT-201, 202, 203	Typographical Composition

Art History: select two courses—

FSCF-300	History of Design
FSCF-310	History of Crafts
FSCF-320	History of Art Criticism
FSCF-330	Philosophy in Art
FSCF-340	Symbols and Symbol Making
FSCF-350	Asian Art
FSCF-360	18th and 19th Century Art
FSCF-370	20th Century Art
FSCF-390	Selected Topics

Yr.	MEDICAL ILLUSTRATION OPTION	Qtr. Credit Hours		
		FALL	WTR.	SPG.
	(CFAA portfolio and additional six drawings of natural forms, to be presented as slides, are required for admission.)			
	FADF-231,232,233 Two Dimensional Design	3	3	3
	FADF-241,242,243 Three-Dimensional Design	3	3	3
1	FADF-205,206,207 Creative Sources	2	2	2
	FADF-210,211,212 Drawing	4	4	4
		4	4	4
	•Physical Education Elective	0	0	0
	FSCF-225,226,227 Art and Civilization	3	3	3
		4	4	4
	•Physical Education Elective	0	0	0
	""FADP-311,312, 313 Medical Illustration	4	4	4
2†	SBIG-205 General Biology	4		
	SBIG-231,232 Human Biology		4	4
		4	4	4
	FADP-421,422,423 Medical Illustration Applications	8	8	5
3	Gross Anatomy (U of R)T			7
		3	3	
		4	4	**6**
	FADP-531,532,533 Advanced Medical Illustration	6	**6**	**6**
	Select One; courses may be mixed:			
4	FADD-411,412,413 Industrial and Interior Design			
	FADD-320 Graphic Visualization	3	3	3
	FADC-411,412,413 Graphic Design			
	"Art Elective (one per quarter)	3	3	3

"Art Electives listed on previous page.
""Core courses that are prerequisite to the third year.
""3 quarters of Still Photography may be substituted.
fA tuition surcharge will be applied in this quarter.
' Upon successful completion of the second year, the association in applied science (fine arts-painting) degree is awarded.
f See page 200 for policy on Physical Education.
'See page 116 for Liberal Arts requirements. Fine and Applied Arts students are required to study only 20 qtr. cr. of Liberal Arts core curriculum. They are advised to select from nine courses other than fine arts.

Yr.	PACKAGING DESIGN	Qtr. Credit Hours		
		FALL	WTR.	SPG.
	FADF-231,232,233 Two Dimensional Design	3	3	3
	FADF-241,242,243 Three-Dimensional Design	3	3	3
	FADF-205,206,207 Creative Sources	2	2	2
1	IPKG-201 Principles of Packaging	4		
	SMAM-204 College Algebra and Trigonometry		4	
	SBIG-289 Contemporary Science - Biology			4
		4	4	4
	•Physical Education Elective	0	0	0
	FSCF-225,226,227 Art and Civilization	3	3	3
	FADD-301,302, 303 Introduction to Industrial, Interior and Packaging Design	4	4	4
	IPKG-311 Packaging Materials I	3		
	IPKG-312 Packaging Materials II		3	
2	IPKG-321 Container Systems I			4
	SCHG-289 Contemporary Science - Chemistry		4	
	SPSP-289 Contemporary Science - Physics			4
		4	4	4
	•Physical Education Elective	0	0	0
	FADK-401,402,403 Packaging Design II	4	4	4
	IPKG-431 Packaging Production Systems	4		
	IPKG-432 Packaging for Distribution		4	
	IPKG-433 Packaging for Marketing			4
3	IPKG-310 Methods of Evaluation			2
	ICSA-200 Survey of Computer Science	4		
	GLLC-520 Public Speaking		4	
		4		4
			3	
	FADK-501, 502, 503 Packaging Design III	4	4	4
	IPKG-420 Technical Communications		3	
4	Art History Elective	3		
		4	4	4
		3	3	3

tSee page 200 for policy on Physical Education.
•Seepage 116 for Liberal Arts requirements.

School for American Craftsmen

The objectives of the programs of study of the School for American Craftsmen are to provide for creative growth, the development of professional competence, and intellectual and cultural enrichment. Students who complete the two-year program are prepared for work in the design studios and workshops of established craftspeople, or as technicians in industry. Those who complete the four-year course of study are prepared for careers as self-employed designer-craftspeople, as designers or technicians in industry, or as teachers or administrators of crafts programs.

In order to achieve the desired occupational goals, the educational objectives seek to stimulate creative imagination and technical invention, develop knowledge of process and command of skills, foster appreciation, not only of the crafts, but the related arts. The programs strive to inspire the student to seek continual improvement through analysis and self-evaluation, and the AAS and BFA programs cooperate with the College of Liberal Arts in assisting students to develop personally and socially.

Student responsibilities

Students are responsible for the care and cleanliness of their shops and for the care and maintenance of the tools and machines with which they work. No student may use any machine until instruction in its proper use has been given, and responsibility for observing safety precautions is assumed by each student upon entering the school. Some unique supplies are provided for convenience and choice, but financial obligations must be met for successful completion of courses. Fees for kiln firings, supplies, and furnace use are student responsibilities.

Yr.	CRAFT MAJORS, DOUBLE CRAFTS MAJORS#	Qtr. Credit Hours		
		FALL	WTR.	SPG.
	FADF-231,232,233 Two Dimensional Design	3	3	3
	FADF-205,206,207 Creative Sources	2	2	2
	FADF-261,262,263 Drawing Crafts	3	3	3
		4	4	4
	Materials and Processes (one)			
1	FSCC-200 Ceramics			
	FSCG-200 Glass			
	FSCM-200 Metalcrafts	5	5	5
	FSCT-200 Textiles			
	FSCW-200 Woodworking			
	$Physical Education Elective	0	0	0
	FSCF-225,226,227 Art and Civilization	3	3	3
	FADF-241,242,243 Three Dimensional Design	3	3	3
		4	4	4
	Materials and Processes (one)			
2†	FSCC-300 Ceramics			
	FSCG-300 Glass			
	FSCM-300 Metalcrafts	5	5	5
	FSCT-300 Textiles			
	FSCW-300 Woodworking			
	tPhysical Education Elective	0	0	0
	FSCF-380 Contemporary Art (one quarter required; offered every quarter)	3		
	##Art History Electives (select two)		3	3
		4	4	4
	Materials and Processes (one)			
3	FSCC-400 Ceramics			
	FSCG-400 Glass			
	FSCM-400 Metalcrafts	5	5	5
	FSCT-400 Textiles			
	FSCW-400 Woodworking			
	"Electives (one per quarter)	3	3	3
		4	4	6
	Techniques and Thesis (one)			
	FSCC-500 Ceramics			
4	FSCG-500 Glass			
	FSCM-500 Metalcrafts	8	8	8
	FSCT-500 Textiles			
	FSCW-500 Woodworking			
	"Electives (one per quarter)	3	3	3

#Double Crafts Major The first two years are the same as a crafts major, third year FSC 300 (5 cr.), FSC 400(5 cr.); fourth year FSC 400 (5 cr.), FSC 500 (8 cr.). BFA degree totals 185 quarter credits.

tUpon satisfactory completion of the second year, the associate in applied science degree is granted.

"Additional intercollege studio courses are available by recommendation of the academic advisor and administrator. Electives are registered on a space available basis and are subject to change without prior notice. Consult the advisor when planning programs. Craft students elect in studio other than their major concentrations.

##Total of 18 quarter credits of Art History: Art and Civilization and Contemporary Art are required.

tSoe page 200 for policy on Physical Education.

•See page 116 for Liberal Arts requirements. Fine and Applied Arts students are required to study only 20 qtr. cr. of Liberal Arts core curriculum. They are advised to select from nine courses other than fine arts.

Yr.	AOS WOODWORKING AND FURNITURE DESIGN	Qtr. Credit Hours		
		FALL	WTR.	SPG.
	FSCW-220 Materials and Processes	5	5	5
	FADF-205,206,207 Creative Sources	2	2	2
	FADF-261,262,263 Crafts Drawing	3	3	3
1	FADF-231,232,233 Two Dimensional Design	3	3	3
	FSCW-231,232,233 Technical Drawing	2	2	2
	JPhysical Education Elective	0	0	0
	FSCW-320 Materials and Processes	7	7	7
	FADF-241,242,243 Three Dimensional Design	3	3	3
2	FSCW-331,332,333 Furniture History	3	3	3
	FSCW-341,342,343 Wood Professional Practices	2	2	2

Programs of study

The School for American Craftsmen offers a full-time program of study with opportunity for concentration in one of five craft fields: ceramics and ceramic sculpture, metalcrafts and jewelry, weaving and textile design, woodworking and furniture design, and glass. After satisfactory completion of two years of study the associate in applied science degree is granted. Those with the aptitude and interest for further study may continue for two additional years. After sucessful completion of the four-year program the bachelor of fine arts is awarded. A double crafts major will study two years in each of two craft areas. A bachelor of fine arts is awarded after a total of four years of study.

A two year associate in occupational studies is also offered in woodworking and furniture design.

Course descriptions

For a complete oudine of courses offered at RIT, please request the Course Description Catalog from the Admissions Office.

Electives

FADC-411, 412, 413 Graphic Design
FADC-511, 512, 513 Graphic Design
FADC-520 Professional Design Business Practices (Spg. Qtr.)
FADD-320 Graphic Visualization
FADD-311, 312, 313 Industrial, Interior and Packaging Design
FADD-411, 412, 413 3-D Computer Graphics
FADP-320 Color
FADP-321, 322, 323 Illustration
FADP-411, 412, 413 Drawing and Painting
FADP-511, 512, 513 Drawing and Painting
FADR-411, 412, 413 Printmaking
FADR-511, 512, 513 Printmaking
FADS-411, 412, 413 Sculpture
FSCC-251, 252, 253 Ceramics I
FSCG-251, 252, 253 Glass I
FSCM-251, 252, 253 Metalcrafts I
FSCT-251, 252, 253 Textiles I
FSCW-251, 252, 253 Woodworking I
PPHG-207, 208, 209 Still Photography
Art History: select two courses
FSCF-300 History of Design
FSCF-310 History of Crafts
FSCF-320 History of Art Criticism
FSCF-330 Philosophy in Art
FSCF-340 Symbols and Symbol Making
FSCF-350 Asian Art
FSCF-360 18th and 19th Century Art
FSCF-370 20th Century Art
FSCF-390 Selected Topics

The credit requirements are:

	Qtr. Cr.
Required Craft Major	96
Required Professional Electives	12
Open Electives	6
Liberal Arts	50
Art History	18
Creative Sources	6
	188

Double Crafts credit requirements are:

	Qtr. Cr.
Required Crafts (2) Major	93
Required Professional Electives	12
Open Electives	6
Liberal Arts	50
Art History	18
Creative Sources	6
	185

College of Graphic Arts and Photography

Dr. E.C. Mclrvine, Dean

The College of Graphic Arts and Photography encompasses the School of Photographic Arts and Sciences, the School of Printing Management and Sciences and the Center for Imaging Science.

The School of Photographic Arts and Sciences was established in 1930 with a two-year course for the training of technicians for the photographic industry. It now offers undergraduate programs leading to the bachelor of science degree in biomedical photographic communications; a BS degree in film and video; a BS degree in photographic processing and finishing management; a BS degree in technical photography and a BFA degree in professional photographic illustration with major options in advertising photography, photojournalism, or photography as a fine art. A program jointly offered with the College of Business leads to a BS degree in photographic marketing management. Graduate programs lead to an MFA degree in imaging arts with three areas of concentration: photography, computer animation and museum studies. More than 800 students are enrolled from nearly every state and many foreign countries.

In 1937 the Institute absorbed the Empire State School of Printing with the object of establishing advanced technological education in printing and the graphic arts.

The School of Printing Management and Sciences offers programs leading to a BS degree in printing with many options for specialization. The BS program in newspaper operations management provides graduates who can synthesize the new technologies into the newspaper technical department and provide long-range management planning to this important segment of the printing industry. The program in printing systems combines printing and industrial or electrical engineering, and prepares graduates for optimizing operating conditions in the complex printing establishment.

The BS degree in printing and applied computer science further expands the scope of the school's offerings. The school also offers three master of science degrees: graphic arts systems, graphic arts publishing, and printing technology. Over 400 degree candidates are enrolled in the School of Printing Management and Sciences, with students from almost every state and many foreign countries.

The Center for Imaging Science was established at RIT in 1985 in response to a growing need for highly qualified imaging scientists. However, programs in imaging science are not new to RIT. The center was created from the former photoscience program.

RIT offers the only imaging science undergraduate program in the country. Students who choose this program will study the application of physics, computer science, chemistry and mathematics to the formation, recording and perception of images. They will learn about the design of imaging systems, the evaluation of the images produced and the application of those systems to a broad range of careers in industry, business and government.

Students may concentrate in digital image processing, remote sensing, photographic chemistry, optics, image evaluation or color appearance and technology. Theory and practical applications in preparation for a career following graduation are the cornerstones of the program.

Resources

The college's many specialized laboratories and wide range of equipment make it the most complete of any degree-granting institution in the fields of photography, printing or imaging science.

Students in the School of Photographic Arts and Sciences have 190 darkrooms and 50 studios at their disposal. The School of Printing Management and Sciences has over $40 million worth of equipment in 25 laboratories. The Center for Imaging Science is housed in a new $8.5 million facility equipped with six classrooms, a lecture hall, 55 offices, research facilities and several laboratories including labs in photographic chemistry, digital imaging, holography, emulsion coating and optics. The Munsell Color Science Laboratory and the Remote Sensing Laboratory also are located there.

The faculty members have been carefully selected on the basis of their teaching effectiveness and ability to relate well with the students. They are also individuals who are educationally qualified and have had extensive professional experience and training in the graphic arts, photographic industries and imaging science.

The establishment of five distinguished professorships highlights this qualification of the college's teaching staff. The Paul and Louise Miller Distinguished Professorship in Newspaper Operations Management in the School of Printing Management and Sciences emphasizes the importance placed on education for persons entering the rapidly changing newspaper industry. The Melbert B. Cary, Jr. Professorship emphasizes the school's continued involvement in typography and design.

The Richard S. Hunter Professorship in Color Science was established to meet academic and industry needs for more clearly defined color measurement and specification criteria from which further knowledge might be ascertained. The Munsell Color Laboratory complements the professorship and supports efforts to further define color measurement in all areas of academic and industry endeavor. Together they have established RIT as a unique center for color science, technology and appearance in the United States. The Wiedman Chair in Medical Imaging supports research and study in this new discipline. The James E. McGhee Professorship highlights photographic processing and finishing, as well as the photographic marketing and management areas.

Rochester is the world center of research and development in photography, is a city well-known for quality printing, and is becoming a leader in the new field of imaging science. It is an ideal environment for students in photography, printing or imaging science since they have access to a faculty which is close to progress in these fields and, through guest lectures, field visits, and meetings of scientific and professional organizations, they can personally meet many of these leaders in research and development.

RIT's Wallace Memorial Library is rich in both photography and graphic arts publications, and the cooperation of the International Museum of Photography at the George Eastman House (IMP/GEH) and the library of the Kodak Research Laboratories make available one of the largest collections of reference materials for these fields to be found anywhere.

The Melbert B. Cary, Jr. Graphic Arts Collection, contains more than 8,000 volumes of rare books illustrating the past and present of fine printing.

Plan of education

The college seeks to prepare men and women to be professionally competent in their chosen areas and to have an appreciation and understanding of our cultural heritage and democratic institutions. Depending on their program, they may also take courses in business, science, computers or fine arts. Most undergraduate students will need to complete a physical education requirement to nurture the complete individual. (Refer to page 200 for particular requirements.) Although the primary concern of the college itself is with science and technology and the occupational aspects of life, it requires that every student take courses in communication, the humanities, and the social and natural sciences. These form an integrated program of liberal education in the College of Liberal Arts and require from one-quarter to one-third of the student's time.

The college operates on the quarter plan, each quarter being 11 weeks in length. Many classes are available during the summer.

Some programs of the college include a senior thesis or research project as a requirement for the bachelor's degree. This involves independent study and research on a subject chosen by the students and approved by their advisors. The thesis or project provides the student with the opportunity to make a detailed study'of particular interest. It often requires extensive reading, thus making the student more conversant with the literature and, where laboratory research is involved, the student acquires experience in the design of experiments, the conduct of research, and the writing of technical reports. A number of these reports have been presented at meetings of scientific and professional societies and printed in appropriate journals.

Course descriptions

For a complete outline of courses offered at RIT, please request the Course Description Catalog from the Admissions office.

Transfers

Many programs in community, junior and technical colleges prepare students for transfer into our programs. Every effort is made to accept the maximum amount of credit.

Degrees and requirements

BS, BFA, MS and MFA degrees and a Ph.D. are awarded through the college. Requirements for the bachelor's degrees are described on the following pages. Requirements for master's degrees and the Ph.D. are described in the *Graduate Bulletin.*

Cooperative education

Some students in the college participate in cooperative education experiences or internships. In this way students obtain practical work experience in an area related to their chosen field of interest. This work experience is part of the student's career exploration and provides not only practical experience which can be related to course work, but also an opportunity to observe and perform work directly related to the student's major. This experience should help the student develop a greater insight into his or her chosen field and provide a record of practical experience which may increase the student's opportunities for placement and more rapid career advancement upon graduation.

Admission at a Glance: College of Graphic Arts and Photography

General information on RIT's admission requirements, procedures and services is included in detail on pages 176-177 of this bulletin.

The School of Photographic Arts and Sciences, the School of Printing Management and Sciences, and the Center for Imaging Science are included in this college.

The college is internationally known for its excellence and the contributions of its graduates to the world of communication. Faculty members are experts in their fields and students work in laboratories with equipment of unsurpassed quality and variety. Students develop their creative abilities as well as technical competence.

Biomedical Photographic Communications—Prepares students for a photographic career working with allied health teams in hospitals; medical, veterinary or agricultural research centers; and other health institutions. Students can qualify for entry-level employment after the second year. BS candidates will have the educational background necessary to apply for registration as a biological photographer. The professional electives offered in the third and fourth years allow flexibility with specialization achieved through professional concentration courses. Degrees granted: AAS—2 year; BS—4 year.

Film/Video—Features an introduction to the disciplines of film, video and animation with advanced work in either film or video. The curriculum emphasizes production. Short periods of outside professional experience are encouraged, usually during the summer. The program is intended to acquaint students with film, video and animation as creative media and to develop the skills of production. Degrees granted: AAS—2 year; BS—4 year.

Imaging and Photographic Technology—Prepares students for entry into any of a variety of positions in the field of scientific/technical photography, as distinct from providing highly specialized training for a specific position—although a sequence of six concentration electives is included in the third and fourth year. Career opportunities include both picture-making positions (such as scientific photography, photographic instrumentation, technical illustration, audiovisual production, and photographic testing) and non-picture-making positions (such as technical writing, quality control, technical representative, sales, product development and testing, applied research, laboratory supervision, and management). Two paid co-op work experiences (normally scheduled during the summer following the second and third years) are included in the BS degree program. Degrees granted: AAS—2 + years; BS—4 year.

Imaging Science—Students learn of the application of physics, chemistry, and mathematics to imaging systems; of the application of imaging and photographic processes to science and technology. Course content is comparable to that of engineering programs—mathematics, physics, and chemistry of radiation-sensitive systems, optics and image formation. Degrees granted: AAS—2 year; BS—4 year.

Newspaper Operations Management—Prepares students for careers in technical management for newspaper and related industries by developing appreciation of tactics and strategies for evaluating and controlling production problems. Incorporates engineering approaches to problem solving. This leads to careers such as vice president of operations, publisher, technical quality control or technical sales and service representative. Degree granted: BS—4 year.

Photographic Processing and Finishing Management—Students develop a thorough knowledge of and familiarity with photographic laboratory production techniques and procedures, including process and product quality assurance, supervisory and training methods, controlling business and marketing functions, and a broad base in humanities. Degree granted: BS—4 year.

Printing—Prepares students for careers in printing management by developing an appreciation of aesthetic qualities of good printing and application of science and engineering in graphic arts. Theory and practice in management and communication skills are taught. Degrees granted: AAS—2 year; BS—4 year.

Printing and Applied Computer Science—Prepares students for entry positions in systems analysis, production control, engineering, marketing support, customer training, and product design. These lead to careers in production management, director of computer technology, and operations manager. Degree granted: BS—5 year.

Printing Systems—Prepares students for careers that emphasize measurement and control techniques, problem solving and optimization of operating conditions in the industrial technology environment in the printing industry. Favorable transfer credit arrangements can normally be made for students previously enrolled in engineering or math/science-based programs. Degree granted: BS—5 year.

Professional Photographic Illustration—After two years of photography in the general BFA program at RIT, a student enters one of the following three major options: advertising photography, photojournalism, or fine arts photography. In these areas students learn photographic skills to solve visual communication problems. Students develop innovative and individualized responses to visual problems and are expected to become sensitive to contemporary graphic design. These lead to a broad range of career options that call for a background in aesthetics, technical skills, and the ability to solve visual problems with imagination and originality. Degrees granted: AAS—2 year; BFA—4 year.

Program	Required High School Subjects	Desirable Elective Subjects	Two-Year College Programs
Advertising Photography	2 years any mathematics 1 year any science	Art courses	Applicant must have completed an associate's degree program, or the equivalent of two years of college, with a major in photography (completion of minimum of 30 quarter credits of photography) plus completion of studio art courses (minimum of 12 quarter credits); liberal arts (24 quarter credits); and art history (9 quarter credits). The student must also complete the 10-week intensive summer course PPHL-300, BFA Photography, with a C grade or better. The student must also make up two courses: Materials and Processes of Photography and History and Aesthetics of Photography. Portfolio required.
Biomedical Photographic Communications	2 years any mathematics, Biology	Additional mathematics and chemistry	Associate degree in biomedical photography or previous college work in audiovisual with strong emphasis in photography and biology.
Film/Video	2 years any mathematics 1 year any science	Art courses	Total of 98 quarter credits including 24 credits in liberal arts, 12 credits in science or mathematics, 8 credits in acting and stagecraft, 9 credits in film history and 45 credits equivalent to RITs PPHF-201,202,203 (Film I), PPHF-210,310 (Mat. & Process of the Moving Image). PPHF-311,312,313 (Video I) and either animation (8 cr.) or scriptwriting (6 cr.). Portfolio required.
Fine Art Photography	1 year any mathematics and 1 year any science.	Art and art history courses, Computers Creative writing	Applicants must have completed an associate degree program, or equivalent, with 30 quarter credits (20 semesters) in photography, 12 (8 semesters) in studio arts and 24 (16 semesters) in liberal arts. History and Aesthetics of Photography is a requirement which can be taken in the third year, or during summer.
Imaging and Photographic Technology	2 years any math; 1 year any science	Additional mathematics and science	Total of 96 quarter credits, including 9 quarter credits in college mathematics. 24 quarter credits in liberal arts, 24 quarter credits in black-and-white and color photography, one year of college physics and one year of college chemistry.
Imaging Science	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Physics and/or Chemistry	Additional physics; Additional mathematics	Applicants who wish to enroll in the Imaging Science summer transfer program need the following previous course work: one year of calculus, one year of chemistry to include organic chemistry, one year of calculus-based physics and nine quarter credit hours in liberal arts. A "C" grade in the summer PIMG-220 course is necessary to enroll as an Imaging Science Sophomore in the fall quarter.
Newspaper Operations Management	Elem. Algebra; Trigonometry, or Inter. Algebra; Physics or Chemistry; one year science preferred.	Experience with school publications, graphic communications, business, art, and desktop publishing or printing courses.	Associate's degree including a wide range of courses in liberal arts, a year of college mathematics, college chemistry and physics, and courses in business, printing management, computers and others. Considered on an individual basis, students should contact the department.
Photographic Processing and Finishing Management	Elem. Algebra; Plane Geom. or Inter. Algebra; Chemistry or Physics	Additional mathematics and science	Due to a liberal selection of professional electives, transferring at the end of two years is easily accomplished for photography and business majors. Others should contact program faculty for evaluation of credit.
Photojournalism	2 years any mathematics 1 year any science	Art courses	Applicant must have completed an associate's degree program, or the equivalent of two years of college, with a major in photography (completion of minimum of 30 quarter credits of photography) plus completion of studio art courses (minimum of 12 quarter credits); liberal arts (24 quarter credits); and art history (9 quarter credits). The student must also complete the 10-week intensive summer course PPHL-300, BFA Photography, with a C grade or better. The student must also make up two courses: Materials and Processes of Photography and History and Aesthetics of Photography. Portfolio required.
Printing	Elem. Algebra and Inter. Algebra; 1 year science; trigonometry, chemistry or physics preferred	Experience with school publications, graphic communications, business, art, and desktop publishing or printing courses.	Associate's degree including wide range of courses in liberal arts, college mathematics, college chemistry and physics, and courses in business, management, computers and printing. Considered on an individual basis; student should contact the department.
Printing and Applied Computer Science	Elem. Algebra; Inter. Algebra; Trigonometry; Plane Geometry; Physics or Chemistry	Additional mathematics and science, computers	Applicants encouraged to apply for transfer from math/science based programs in computer sceince, engineering, math/science transfer. All others considered on an individual basis.
Printing Systems	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Physics and Chemistry	Additional mathematics, science, computers	Applicants encouraged to apply for transfer from math/science based programs in computer science, engineering, math/science transfer. All others considered on an individual basis.

'Four years of English are required in all programs, except where state requirements differ.
tPortfolio must consist of a series of ax 10 black-and-white photographs, an 8 or 16mm film, a video tape, or a written work that demonstrates creativity in the English language.

School of Photographic Arts and Sciences

Elaine O'Neil, Director

The program offerings of the School of Photographic Arts and Sciences are designed to prepare students for photographic and other imaging career fields. The studies in photographic arts involve both technical and creative experiences for visual problem solving. In the science and technology divisions of the school, emphasis is placed on the physical principles of imaging, and studies cover image evaluation, unconventional imaging applications, computer applications as well as other high technology areas. All first-year BFA students in photography and students in biomedical photographic communications and technical photography are required to have their own hand-held small or medium format camera and a professional light meter.

Students have the opportunity to supplement their course work with participation in internships, field trips, presentations by guest speakers, departmental student organizations and other related activities.

Degrees offered

Department of Applied Photography: BFA degree in professional photographic illustration (advertising photography and photojournalism options)—Owen Butler, chair

Department of Biomedical Photographic Communications: BS degree in biomedical photographic communications—Michael Peres, chair

Department of Film/Video: BS degree in film/video—Malcolm Spaull, chair

Department of Fine Art Photography: BFA degree in professional photographic illustration, fine art photography option; MFA degree in imaging arts—Ken White, chair

Department of Imaging and Photographic Technology: BS degree in imaging and photographic technology —Andrew Davidhazy, chair

Department of Photographic Processing and Finishing Management: BS degree in photographic processing and finishing management—James Rice, chair

Graduate programs

The School of Photographic Arts and Sciences offers: MFA in imaging arts with three areas of concentration: photography, computer animation and museum studies. This degree is described in the *Graduate Bulletin,* available through the Admissions Office.

Summer session

The School of Photographic Arts and Sciences offers a wide selection of photographic courses in the Summer Session. These range from beginning photography courses to those requiring a substantial photographic background. For detailed information write the associate director of the School.

Memberships

The School of Photographic Arts and Sciences maintains memberships in a number of professional organizations: American Management Association, American Society of Training and Development, Association of Professional Color Laboratories, College Art Association, Biological Photographic Association, National Microfilm Association, Ophthalmic Photographic Society, Professional Photographers of America, Society of Motion Picture and Television Engineers, Society of Photographic Scientists and Engineers, Society for Photographic Education, University Film Association.

Requirements for admission

All applicants for admission must meet the general requirements for admission to the Institute. The requirements for admission to the School of Photographic Arts and Sciences vary with the program.

The Institute prefers not to be arbitrary in the establishment of admission criteria and therefore will look at all factors in combination, such as college board scores, high school records, records of achievement, letters of recommendation, and especially the student's written statement of educational objectives.

Transfer admission

Transfer credits from accredited institutions are evaluated on a course by course basis. Transfer credits for photography courses are awarded on the basis of a portfolio in addition to course work with a grade of "C" or better. The portfolio will be reviewed by the department chairperson. (Portfolio guidelines are available upon request through the Office of Admissions.)

Articulation agreements are also in effect with approximately 20 other colleges and universities. An articulation agreement specifies the number of transfer credits that are acceptable from the other institution into our photography programs.

Due to pre-requisites and scheduling conflicts, transfer students should expect to have light schedules during at least the first year of their enrollment at RIT.

Summer transfer programs

Students who meet the requirements for course work and portfolio work may be accepted into one of several summer transfer programs. The summer transfer programs are 10-week sessions of intensive study for the purpose of bringing students to a second or third year technical level in their photography programs. Descriptions of the requirements for each program and year level are indicated below.

Second-year transfer credit requirements:

Film/Video
Normally, a total of 36 credits, including 24 acceptable credits of liberal arts, an acceptable science course (12 credits), plus two summer courses in film (18 credits) as follows:
Motion Picture Workshop I, 9 credits, 5 weeks
Motion Picture Workshop II, 9 credits, 5 weeks
These courses will substitute for:
PPHF-201, 202, 203 (15 credits)
Materials and Processes of the Moving Image PPHF-210 (2 credits)
The remaining required courses in the first year:
Creative Processes I, II, PPHF-551, 552
Play Production I, II (8 credits) must be made up during the second and third years of the program.

Imaging and Photographic Technology
Normally, a minimum of 34 credit hours of which there are 4 credits in a college algebra course; 6 credits in introductory calculus; 12 credits in liberal arts; and 12 credits of photography or a mix of photography and additional mathematics or science. The students must also complete the 10-week intensive summer courses PPHG-200 Photography I and PPHT-210 Materials and Processes of Photography with a "C" grade or better.

Applicants may submit a transcript of college courses completed and request a transfer credit audit. Transfer credit will be given for Photography I only on the basis of an acceptable comprehensive portfolio and satisfactory completion of an appropriate college photographic course or evidence of appropriate photographic work experience.

Advertising Photography
Photojournalism
Normally, a minimum of 30 quarter credits of which there are 6 credits of design, 12 credits of liberal arts, and 12 credits of photography or photography and studio art. The student must also complete the 10-week intensive summer courses PPHG-200 Photography I, PPHL-206 Creative Problems and PPHL-207 Intro to Color Photography with a "C" grade or better.

Third-year transfer credit requirements:

Fine Art Photography
After successfully completing one year in RIT's BFA foundation program, or one year at an accredited college with an acceptable portfolio (RIT summer transfer course may be required), the student may major in fine art photography in the second, third and fourth years.

Advertising Photography
Photojournalism
Normally an applicant must have completed an associate degree or equivalent of two years of college with a major in photography (completion of a minimum of 30 quarter credits of photography) plus completion of studio art courses for a minimum 12 quarter credits; liberal arts for a total of 24 quarter credits; and art history courses for a total of 9 quarter credits. The student must also complete the 10-week intensive summer course PPHL-300 BFA Photography with a "C" grade or better. The student must make up the course Materials and Processes of Photography and History and Aesthetics of Photography. Portfolio required.

Entry into Advertising Photography or Photojournalism via the submission of a portfolio to earn transfer credits for photographic courses
If a student has completed two or more years of intensive study in photography at an accredited school and has earned a 3.0 (B) average, he or she may submit a portfolio for evaluation by the BFA faculty. A list of the requirements for submission of the portfolio may be obtained from the Office of Admissions, RIT, One Lomb Memorial Drive, P.O. Box 9887, Rochester, New York 14623.

Biomedical Photographic Communications

Michael Peres, Chairperson

The biomedical photographic communications program is designed to prepare students for a photographic career working with allied health teams in hospitals; medical, veterinary or agricultural research centers; and other health institutions. The biomedical photographer can be involved in all areas of still imagery, as well as film and video.

The first-year courses introduce basic principles and theories, as well as practical experience with photographic equipment and processes. Medical and biological subject matter are included in these first-year practical experiences.

The second year continues to prepare the student with courses in photomacrography, photomicrography and other specific studies required for this career. The courses are integrated to prepare the student for an internship in a medical or scientific facility. The completion of the summer internship is required for the associate degree in biomedical photography.

The junior and senior years include electives in advanced photomacrography and photomicrography, filmmaking, television, advanced color printing, and others selected in consultation with the advisor. Flexibility is provided to allow students to explore many areas of photography. The professional concentration courses in the senior year encourage students to research a photographic area specific to their career direction.

The Biological Photographic Association, the certifying and registering professional organization in the biomedical photography field, has cooperated in the preparation of criteria and in program development. Thus the RIT program can provide the educational background to form the basis for qualifying to become a Registered Biological Photographer (RBP) after the student enters the profession.

Yr.	BIOMEDICAL PHOTOGRAPHIC COMMUNICATIONS	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPHB-201,202,203 Biomedical Photography I	6	6	6
	PPHT-211,212,213 Materials and Processes	3	3	3
	PPHB-211 Survey of Biomedical Photography			1
	SCLG-301 Medical Terminology	3		
	SBIG-211,212 Human Biology		4	4
	•Liberal Arts (Core)	4	4	4
	tPhysical Education	0	0	0
2†	PPHB-301,302,303 Biomedical Photography II	5	5	5
	PPHT-311 Color Photography/Design	4		
	PPHT-312 Color Printing/Theory		4	
	PPHB-331,332,333 Preparation of Biomedical Visuals	3	3	3
	•Liberal Arts (Core)	4	4	8
	tPhysical Education	0	0	0
	TSummer Quarter Internship for 10 weeks in a medical setting			
3	ICIC-413 AV Production for Bio. Comm	4		
	PPHB-401,402 Advanced Photography in Bio. Comm		4	4
	"Professional Electives	3-4	3-4	3-4
	'"Science Electives	3-4	3-4	3-4
	•Liberal Arts (Concentration)	4	4	4
	Summer Internship (Optional)			
4	PPHB-501,502,503 Photographic Concentration	4	4	4
	Business Electives	4	4	4
	"Professional Electives	3-4	3-4	3-4
	•Liberal Arts (Elective)	4	4	4
	•Liberal Arts (Senior Seminar)		2	

†Associate degree awarded upon successful completion of second year and the internship.
"Possible recommended professional electives:
PPHF-201 Stmcturing the Moving Image
PPHG-202 Nanative Film Production
PPRT-591,592,593 Reproduction Photography, Offset Plate Making, Offset Presswork
Electives will be made with the chair's pennission.
'"Options include:
Electron Microscopy
Medical Terminology
Computer courses
Advanced courses in the Biological Sciences
"Selected professional courses may be substituted for 4,8, or 12 credits with written permission of advisor.
'See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Film/Video

Malcolm Spaull, Chairperson

The degree program in film, video and animation is designed for students who recognize the moving image as an expressive force uniquely important to modern life. It will acquaint students with film, video and animation as creative media and develop the skills of production.

The curriculum emphasizes production and short periods of outside professional experience are encouraged, usually during the summer.

Through lectures and laboratories students develop individual skills in moving image communication and learn the aesthetic principles governing the art. Elective courses are offered to students in applied photography, photographic technology and MFA in imaging arts. Other Institute students with a basic knowledge of photography may enroll with the permission of the instructor.

Students typically produce several short films or programs, working through all phases of production: scripting, preproduction planning, budgeting, shooting, sound editing and working with a laboratory. Students combine their learning of visual and sound artistry through hands-on experience with camera and sound equipment. The film, video and animation projects are often designed by individual students. Thus a wide variety of styles and intentions are expressed in the work of the department.

Yr.	FILM/VIDEO	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	NQQT-200 Play Production 1		4	
	PPHF-201,202 Film Production I, II	5	5	
	PPHF-207 Intro, to Portable Video			4
	PPHF-220,221 Creative Processes I, II		2	2
	PPHF-210 Materials & Processes of the Moving Image I	2		
	Non-Photo Elective			4
	•Liberal Arts (Core)	8	4	4
	tPhysical Education	0	0	0
2	"Science	4	4	4
	PPHF-311 Portable Video Production	4		
	PPHF-312 Studio & Documentary Video		4	
	PPHF-324 Introduction to Animation	4		
	PPHF-310 Materials & Processes of the Moving Image II	2		
	•Liberal Arts (Core)	4	4	4
	Production Emphasis			
	PPHF-205 Film History & Aesthetics		3	
	PPHF-434 Advanced Video			3
	Elective			3or4
	Writing/Directing Emphasis			
	PPHF-321,322 Writing for Film & Video I, II		3	3
	PPHF-350 Directing the Actor			3
	Graphics Emphasis			
	PPHF-325 Introduction to Animation II		4	
	PPHF-326 Animation Production			4
	PPHF-206 Film History & Aesthetics			3
	tPhysical Education	0	0	0
3	Non-Photo Elective	4	4	4
	PPHF-411 Visual & Commercial Film Production	5		
	PPHF-410 Materials & Processes of the Moving Image III	2		
	PPHF-204 Film History & Aesthetics	3		
	PPHF-405 Advanced Video			1
	"Liberal Arts (Concentration)	4	4	4
	Production Emphasis			
	PPHF-412 Film Planning & Studio Operations		5	
	PPHF-321 Writing for Film & Video		3	
	PPHF-420 Sound Recording			3
	PPHF-553 Film/Video Workshop			4
	Writing/Directing Emphasis			
	PPHF-412 Film Planning and Studio Operations		5	
	PPHF-205 Film History & Aesthetics		3	
	PPHF-551 Advanced Script Writing			3
	PPHF-413 Film Project with Sound			5
	Graphics Emphasis			
	PPHF-427 Microcomputer Animation I		4	
	PPHF-321 Writing for Film/Video		3	
	PPHF-428 Microcomputer Animation II			4
	Elective			3 or 4
4	Non-Photo Elective			4
	PPHF-541,542 Senior Production I, II	6	6	
	PPHF-543 Post-Production			4
	Electives	3-4	3-4	
	•Liberal Arts (Electives)	4	4	4
	'Liberal Arts Seminar			2

"Recommended Science Electives

ICSA-200Survey of Computer Science	*4cr.*
ICSP-208 Introduction to Programming	*4cr.*
ICSP-210 Program Design and Validation	*4cr.*
SBIQ-289 Contemporary Science-Biology	*4 cr.* (FWS)
SBIB-201,202,203 General Biology	*4cr.*
SCHQ-289 Contemporary Science-Chemistry	*4 cr. (FWS)*
SPSP-289 Contemporary Science-Physics	*4 cr. (FWS)*

•Seepage 116 for Liberal Arts Requirements
tSee page 200 for policy on Physical Education.

Imaging and Photographic Technology

Andrew Davidhazy, Chairperson

The Imaging and Photographic Technology curriculum blends a traditional professional photography program with specialized education in technical, industrial, and scientific imaging applications.

It prepares students for entry into any of a variety of picture-making and non-picture-making positions by providing them with a broad background adaptable to a variety of fields rather than providing highly specialized training for a specific position. The technical skills of the studenfs are complemented by traditional course work in mathematics, computers, science, and liberal arts, including technical writing.

At the same time, however, students develop expertise in a professional or technical field of their choice by taking a sequence of six or more courses in any one of eight areas of concentration.

The picture making aspects of photography are included in all four years of the program, with a transition from a comprehensive course in black-and-white photography through color photography and color printing, audiovisual presentations, and television production. The required technical courses include Photographic Sensitometry, Optics and Chemistry, Color Measurement, Photomacrography-Photomicrography, and High Speed Photography. Also available in the Department are a variety of technical and photographic eiectives such as Holography, Digital Image Processing, Scanning Electron Microscopy, Architectural Photography, Nature Photography, Dye Transfer, and Photoinstrumentation Applications.

In their last two years, students may specialize in a field of concentration such as photographic instrumentation, graphic arts, motion picture and video, still photography, audiovisual, photographic processing and finishing, business and science and engineering. While the core program completed by each graduate is similar, the actual background of the students varies with their choice of concentration area(s).

Another unique feature of the Imaging and Photographic Technology program is that graduates complete at least two required Cooperative Education work blocks prior to graduation.

Yr.	IMAGING & PHOTOGRAPHIC TECHNOLOGY	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	Photographic Technology I			
	PPHT-201,202.203 Photography I	7	7	7
	PPHT-211,212,213 Materials & Processes of Photography	3	3	3
	PPHT-220,221 Survey of Imaging & Photographic Technology . . .	0	0	1
	'SMAM-204 College Algebra	4		
	SMAM-214,215 Introductory Calculus		3	3
	"Liberal Arts (Core)	4	4	4
	tPhysical Education	0	0	0
2	Photographic Technology II			
	PPHT-301 Photographic Sensitometry	3		
	PPHT-302 Technical Photographic Chemistry		3	
	PPHT-303 Photographic Optics			3
	Color Photographic Systems			
	PPHT-311 Color Photography/Design	4		
	PPHT-312 Color Printing/Theory		4	
	PPHT-313 Color Measurement			4
	PPHT-321 Applied Computing for Tech. Photography	3		
	SPSP-211,212,213College Physics	3	3	3
	SPSP-271,272,273 College Physics Lab	1	1	1
	"Liberal Arts (Core)	4	4	4
	TPhysical Education	0	0	0
	Summer Co-op (No.1)****			
3	"'Concentration Eiectives	4	4	4
	Photographic Technology III			
	PPHT-411 Preparation of Visuals	3		
	PPHB-425 Producing Audiovisual Presentations		4	
	PPHT-412 Photomacrography/Photomicrography			3
	PPHF-310M & Pof the Moving Image II	2		
	PPHF-207 Intro, to Portable Video	4		
	ICSA-208 Introduction to Programming			4
	Technical Writing. i	3-4		
	"Liberal Arts (Core/Concentration)		8	4
	Summer: Co-op (No.2)			
4	'"Concentration Eiectives	4	4	4
	Photographic Technology IV			
	PPHT-501 High-Speed/Time-Lapse	3		
	PPHT-502 Introduction to Research	1		
	PPHT-503 Senior Project		3	
	PPHT-504 Survey of Nonconventional Imaging			3
	BBUB-430 Organizational Behavior	4		
	Business Elective			4
	"Liberal Arts (Concentration/Elective)	4	8	4
	"Liberal Arts (Senior Seminar)			2

**Waiver (with credit) by examination. Exemption (without credit) on recommendation of instmctor.*
"Seepage 116 for Liberal Arts requirements.
'"Concentration course credits may vary from 3 to 5, but should total approximately 24. A minimum of 197 quarter credit hours are required for the BS degree.
""Co-op experiences may be scheduled during the school year as well but this may disrupt normal course schedule.
tSee page 200 for policy on Physical Education.
NOTE: Some courses are offered more than once during school year.

Employment and co-op work experience statistics maintained by RIT's Office of Cooperative Education and Placement indicate that cooperative work experience is a definite asset to a graduate of any program.

An employment survey conducted by the School of Photographic Arts and Sciences indicates that there is a need for graduates with photographic technology backgrounds. Recent graduates of this program currently function as photographic technologists or research associates in various industrial, scientific, or business enterprises, as photographic engineers or junior engineers in a number of imaging related disciplines, as technical and sales representatives, technical illustrators, high-speed photographers, and as corporate, industrial, advertising and commercial photographers. Please contact the Department Chairperson for a comprehensive listing.

The Technical Photography Student Association promotes professionalism among students and interaction with the imaging and photographic technology industry. The association regularly invites professionals in the field to RIT for lectures and demonstrations.

Concentration electives (third and fourth years, imaging and photographic technology)

Students in the imaging and photographic technology program may pursue an area of concentration listed below. The areas consist of courses that are periodically reviewed by the department faculty. The concentrations are intended to serve as planning guides. While students may complete all six concentration electives within one area, at least three courses from any one concentration are required to constitute a major concentration area.

Photographic Instrumentation Concentration

Film/Video

Business

Graphic Arts

Photographic Processing and Finishing Management

Audiovisual Communications

Still Photography and Color Printing

Science and Engineering

Photographic Marketing Management

Offered jointly through the McGhee Chair by the College of Business and the College of Graphic Arts and Photography, RIT's program in photographic marketing is the only one of its kind in the country.

This rigorous program is designed to provide students with a thorough knowledge of the photographic process and a solid background in business administration with courses in economics, finance and marketing principles. The combination of work in these two disciplines prepares students for a multifaceted management-level career in photographic business. Opportunities for positions include those in customer service aspects of photofinishing and professional color laboratories and management positions with photographic manufacturers and photographic retailers. As of this printing, this program is being reviewed. For further information, including transfer requirements, contact the College of Business or the College of Graphic Arts and Photography.

Yr.	PHOTOGRAPHIC MARKETING MANAGEMENT, TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	SMAM-225 Algebra for Management Science	4			
	GSSE-301 Principles of Economics I	4			
	BBUM-201 Introduction to the Retail Industry		4		
	SMAM-226 Calculus for Management Science		4		
	GSSE- 302 Principles of Economics II		4		
	ICSA-200 Survey of Computer Science			4	
	BBUA-301 Financial Accounting			4	
	'Liberal Arts (lower division core)	8	4	8	
	‡Physical Education	0	0	0	
2	PPHA-207,208,209 Still Photo I, II. III	3	3	3	
	BBUM-301 Retail Accounting and Merchandise Control . .		4		
	BBUQ-330 Data Analysis	4			
	BBUA-302 Managerial Accounting	4			C
	BBUQ-334 Management Science		4		0
	BBUA-319 Legal Environment of Business	4			0
	BBUB-312 Career Seminar			2	p
	'Liberal Arts (lower division core)		4	4	
	'Liberal Arts (upper division concentration)			8	
	JPhysical Education	0	0	0	
3	PPHT-211,212,213 Materials & Processes of Photography	3	3	3	
	BBUF-441 Corporate Finance		4		
	BBUM-463 Principles of Marketing	4			C
	BBUM-401 Retail Store Operations & Management			4	0
	BBUQ-401 Operations Management			4	0
	BBUB-430 Organizational Behavior			4	p
	'Liberal Arts (upper division concentration or elective)	8	8		
4	BBUQ-505 Information Systems		4		
	BBUB-507 Business Environment	4			
	PPHT-311 Color Photography Design	4			
	BBUM-501 Senior Seminar in Retail Management			4	
	PPHT-312 Color Printing Theory		4		
	PPHM-320 Mechanics of Photographic Hardware I	4			
	BBUB-551 Policy & Strategy			4	
	PPHM-321 Mechanics of Photographic Hardware II		4		
	PPHM-310 Survey of Production Processing & Finishing . .		2		
	Free Electives			4	
	'Liberal Arts (Senior Seminar)			2	

NOTE: Students are expected to complete co-op requirements during the junior and senior years in accordance with specific requirements for their major. General co-op guidelines for the College of Business are discussed on page 41.
"See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Photographic Processing and Finishing Management

James Rice, Chairperson

This curriculum is designed to prepare individuals for management positions in the photographic processing and finishing industry. Students pursuing this course of study will learn: 1) the chemical, sensitometric and optical theory of the photographic process necessary to obtain quality results; 2) production procedures used with automated processing and finishing equipment required for large-scale operations; 3) procedures for setting up and operating a photofinishing laboratory, including training and supervising laboratory personnel and maintaining the equipment; 4) the theory and practice of process control and corrective color printing, including the use of computer programs in these areas; and 5) the business aspects of promoting and selling an economically produced quality product in a competitive market.

Students will spend considerable time in the school's fully equipped color processing and finishing laboratory to gain practical experience with production, quality control, and management techniques. They are also expected to serve a summer internship in an external photoprocessing laboratory.

The career objective of the four-year baccalaureate program is laboratory supervision and management.

As of this printing, this program is being reviewed. For further information contact the department chairperson.

Yr.	PHOTOGRAPHIC PROCESSING AND FINISHING MANAGEMENT	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPHT-211,212,213 Materials & Processes	3	3	3
	SMAM-204 College Algebra and Trigonometry	4		
	ICSA-200 Survey of Computer Science		4	
	PPHT-311 Color Photography/Design	4		
	PPHT-312 Color Printing/Theory		4	
	PPHM-430 Technical Writing			3
	PPHM-204 Orientation to Production Photo Processing & Finishing	1		
	"Liberal Arts (Core)	4	4	8
	tPhysical Education	0	0	0
2	PPHM-301 Film Processing	4		
	PPHM-302 Automated Printing		4	
	PPHM-303 Custom and Professional Finishing			4
	PPHM-313,314,315 Electricity and Electronics	4	4	4
	# Professional Elective	4	4	4
	'Liberal Arts (Core)	4	4	4
	tPhysical Education	0	0	0
3	PPHM-401,402 Photographic Process Control	4	4	
	PPHM-410,411,412 Training and Supervision	4	4	4
	PPHM-420 Applied Statistical Qualty Control			3
	SMAM-319 Data Analysis		4	
	BBUB-430 Organizational Behavior	4		
	'Liberal Arts (Concentration)	4		8
	Summer Internship			
4	BBUA-301 Financial Accounting	4		
	BBUA-302 Managerial Accounting		4	
	PPHM-510 Finishing Lab Operations Management	4		
	BBUM-463 Principles of Marketing			4
	Professional Electives	4	4	4
	PPHM-520 Operation, Care & Maintenance of Photofinishing Equipment		1	
	PPHM-501,502,503 Senior Seminar	0	0	1
	'Liberal Arts (Elective)	4	4	4
	'Liberal Arts (Senior Seminar)			2

'Seepage116forLiberal Arts requirements.
tSee page 200 for policy on Physical Education.
 # Approval of chairman required.

Advertising Photography

Owen Butler, Chairperson
Department of Applied Photography

RIT's program in advertising photography prepares students to express their creativity in the glamorous world of a commercial studio, an advertising agency or in a corporate setting. Whether the subject is a fashion model or a new automobile, RIT students have both the technical and artistic background to create the perfect picture. Graduates receive a bachelor of fine arts degree in professional photographic illustration.

Yr.	ADVERTISING PHOTOGRAPHY (BFA in Professional Photographic Illustration)	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPHL-201,202,203 Applied Photo I	7	7	7
	PPHL-205,206, Creative Problems	3	3	
	PPHL-207 Intro, to Color			3
	FADF-221,222,223 Design for Photo I	2	2	2
	'Liberal Arts (Core)	4	4	4
	fPhysical Education	0	0	0
2	PPHL-311,312,313 Applied Photo II	5	5	5
	PPHA-301,302,303 History & Aesthetics of Photo	3	3	3
	FADF-321,322,323 Design for Photo II	2	2	2
	PPHT-211,212,213 Materials & Processes of Photography	3	3	3
	PPHL-315 Colloquia		1	
	•Liberal Arts (Core)	4	4	4
	tPhysical Education	0	0	0
3	PPHL-441,442,443 Advertising Photography I	5	5	5
	"Photo Eiectives	4	4	4
	FSCF-225,226,227 Art & Civilization	3	3	3
	'Liberal Arts (Concentration)	4	4	4
4	PPHL-541,542,543 Advertising Photography II	5	5	5
	"Photo Eiectives	3-4	3-4	3-4
	PPHL-461 Prof. Operations Management		4	
	"Liberal Arts (Eiectives)	4	4	4
	"Liberal Arts (Senior Seminar)			2

'Seepage 116 for Liberal Arts requirements.
"A list of eiectives is on next page.
tSee page 200 for policy on Physical Education.

Photojournalism

World events today are often etched not by words, but by photographs. RIT's photojournalism program, which leads to a bachelor of fine arts degree in professional photographic illustration, provides the education in both photographic techniques and the artistry of capturing events on film for magazines, newspapers and for independent projects. RIT graduates of this program are well-respected: alumni have won five Pulitzer Prizes in photojournalism since 1980. Although the emphasis is on photography, all students are required to take a journalism course. Students also have the opportunity to explore related disciplines, such as electronic printing and newspaper production.

Areas of concentration
Advertising photography and photojournalism are each flexible enough to provide for the student's particular needs. The first two years are common for advertising photography and photojournalism students. After the second year students plan programs that will fulfill their objectives. With an advisor, a tentative two-year program is planned for available courses that will meet the professional BFA degree requirements.

Yr.	PHOTOJOURNALISM (BFA in Professional Photographic Illustration)	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPHL-201,202,203 Applied Photo I	7	7	7
	PPHL-205,206, Creative Problems	3	3	
	PPHL-207 Intro, to Color			3
	FADF-221,222,223 Design for Photo I	2	2	2
	"Liberal Arts (Core)	4	4	4
	TPhysical Education	0	0	0
2	PPHL-311,312,313Applied Photo II	5	5	5
	PPHA-301,302,303 History & Aesthetics of Photo	3	3	3
	FADF-321,322,323 Design for Photo II	2	2	2
	PPHT-211,212,213 Materials & Processes of Photography	3	3	3
	PPHL-315 Colloquia		1	
	"Liberal Arts (Core)	4	4	4
	TPhysical Education	0	0	0
3	PPHL-416,417,418 Photojournalism I	5	5	5
	"Photo Eiectives	4	4	4
	FSCF-225,226,227 Art & Civilization	3	3	3
	"Liberal Arts (Concentration)	4	4	4
4	PPHL-516,517,518 Photojournalism II	5	5	5
	"Photo Eiectives	3-4	3-4	3-4
	PPHL-461 Prof. Operations Management		4	
	"Liberal Arts (Eiectives)	4	4	4
	"Liberal Arts (Senior Seminar)			2

'Seepage 116 for Liberal Arts requirements.
"A list of eiectives is on next page.
tSee page 200 for policy on Physical Education.

Fine Art Photography

Ken White, Chairperson

If your interests are in art and photography, you should consider fine art photography as your major. Our program is designed to encourage and facilitate your artistic development, sensitivity, and your uniqueness as a visual artist. Our purpose is not to train you for a specific job in photography, but rather to provide a career path that will provide you with a rich potential for growth and change, and for a lifetime of interesting and challenging work in photography and related fields. Students majoring in fine art photography receive the BFA degree in professional photographic illustration.

Career opportunities
Graduates of our fine art photography program have found careers in a variety of areas: exhibiting artists, teachers, picture editors, picture researchers, photographer's representatives, photographic archivists, museum and gallery staff, audiovisual specialists, self-employed photographers, color printers, and film-video artists or animators. Some students choose to pursue graduate work and earn an MFA in imaging arts.

Transfer students
Students in college wishing to transfer into our program can do so if they are studying photography or related imaging arts areas such as painting, graphic design, communication arts, audio visual, film and television. Call or write the chairperson for specific information.

If you would like a personal interview, tour, or an opportunity to visit classes and talk with some of our students, call Ken White, at (716) 475-2616.

Yr.	FINE ART PHOTOGRAPHY (BFA In Professional Photographic Illustration)	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPHL-201,202,203 Applied Photo I	7	7	7
	PPHL-205,206 Creative Problems	3	3	
	PPHL-207 Intro, to Color			3
	FADF-221,222,223 Design for Photo I	2	2	2
	"Liberal Arts (Core)	4	4	4
	fPhysical Education	0	0	0
2	PPHA-313 Introduction to Fine Art Photography	4	4	
	PPHA-301,302,303 History & Aesthetics of Photography	3	3	3
	PPHA-323 Photo Media Survey			3
	ICSA-200 Survey of Computer Science	4		
	Visual Imaging Electives (or Materials & Processes)	3	3-7	3-8
	"Liberal Arts (Core)	4	4	4
	tPhysical Education	0	0	0
3*	PPHA-401,402,403 Photography as a Fine Art I	4	4	4
	FSCF-225,226,227 Art & Civilization	3	3	3
	PPHA 411,412,413 Contemporary Issues	2	2	2
	Visual Imaging Electives	3-4	3-4	3-4
	"Liberal Arts (Concentration)	4	4	4
4	PPHA-501,502,503 Photography as a Fine Art II	4	4	4
	PPHA-525 Archival Photographies: Processing, Display & Storage		4	
	FSCF-380 Contemporary Art	3		
	Visual Imaging Electives	3-4	3-4	7-8
	"Liberal Arts (Electives)	4	4	4
	"Liberal Arts (Senior Seminar)			2

'Students wishing to do so can elect to take their third year oft campus in this country or abroad.
"See page 116 for Liberal Arts requirements.
tSee page200for pohcy on Physical Education.

Center for Imaging Science

Dr. Rodney Shaw, Director

Students in RIT's Center for Imaging Science program study the applications of physics, computer science, chemistry and mathematics to the formation, recording and perception of images. Design of imaging systems, the evaluation of the images they produce and the application of those systems to a broad range of careers in industry, business and government are all part of the imaging science curriculum. Concentrations include digital image processing, remote sensing, photographic chemistry, optics, and image evaluation. In addition, concentrations in color science, appearance, and technology are offered in the Munsell Color Science Laboratory within the Center for Imaging Science. Both theoretical studies and practical application of technologies are integral parts of the Imaging Science program.

The foundation for study in imaging science is grounded in the physical and mathematical sciences. Built on this background are advanced studies in imaging principles, chemistry, optics and optical instrumentation, color science and technology, photometry and radiometry, image microstructure, analysis and evaluation of imaging systems, digital image processing and remote sensing. Career opportunities exist throughout the country in areas such as aerospace technology, office information systems, information handling, microelectronics, scientific instrumentation, graphic arts, and photographic materials and systems. Graduates are employed in industrial and governmental research, marketing and technical representation.

The imaging science faculty are deeply committed professionals who divide their time between teaching and the pursuit of technological advances. Additionally, adjunct faculty members from local industry add their experience to the students' education. The center provides research support and performs contract work for industry and government. This research ensures that students are exposed to the latest developments in this rapidly expanding field.

Yr.	IMAGING SCIENCE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PIMG-231 Survey of Imaging Science	3		
	PIMG-232 Imaging Science Seminar		1	
	PIMG-233 Introduction to Imaging Science			2
	PIMG-241 Intro, to VAX/VMS FORTRAN	2		
	SCHG-211,212 Chemical Principles I, II	3	3	
	SCHG-205,206 Chemical Principles I, II Lab	1	1	
	SCHG-213 Intro, to Organic Chemistry			3
	SCHG-207 Intro, to Organic Chemistry Lab			1
	SPSP-311,312 University Physics		4	4
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	"Liberal Arts (Core)	4	4	4
	•Physical Education	0	0	0
2†	PIMG-351,352 Mathematics and Computation for Imaging Science I, II		4	4
	PIMG-361 Geometrical Optics	4		
	PIMG-362 Physical Optics		4	
	PIMG-345 Interaction Between Light & Matter			4
	PIMG-365 Chemical Fundamentals of Imaging			4
	SMAM-305 Calculus IV	4		
	SPSP-313 University Physics	4		
	SPSP-314 Introduction to Modern Physics		4	
	"Liberal Arts (Core)	4	4	4
	•Physical Education	0	0	0
3	PIMG-461 Radiometry	4		
	PIMG-462 Vision, Color & Psychophysics		4	
	PIMG-463 Macroscopic Imaging Systems Analysis			3
	PIMG-446,447 Statistics I, II		4	4
	SPSP-431 Electronics			4
	Professional Electives	3-6	3-6	3
	"Liberal Arts (Core/Concentration)	8	4	4
4	PIMG-506 Research Practices & Technical Communications	3		
	PIMG-507,508 Sr. Project		3	3
	PIMG-566 Imaging Systems Analysis	3		
	PIMG-567 Quantum Limitations of Imaging Processes		3	
	PIMG-568 Advanced Imaging Systems Analysis			3
	Professional Elective (selected from undergraduate elective list)	credit vanes		
	"Liberal Arts (Electives)	4	4	4
	"Liberal Arts (Senior Seminar)			2

'Seepage 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.
tUpon successful completion of the second year, the associate in applied science degree is awarded.

The Center for Imaging Science offers four programs leading to both undergraduate and graduate degrees: a four-year bachelor of science degree and two master of science programs for students with a bachelor's degree in science or engineering. In addition to the MS degree in imaging science, the center also offers a master of science degree in color science and a Ph.D. in imaging science.

A transfer program is available for the BS program in imaging science. Students with satisfactory credits in mathematics, chemistry and physics may transfer into the program beginning with the second year by taking a transfer program during the Summer Quarter.

Second-year entry transfer credit requirements:
Normally a minimum of 42 quarter hour credits is required to transfer into the Imaging Science BS program at this level. These should include: 8 credits of general chemistry (including lab), 4 credits of introductory organic chemistry, 12 credits in differential and integral calculus, 6 credits in physics, and 12 credits in liberal arts. The student also must complete the summer course, PIMG-220, Introduction to Imaging Science I, with a 'C' grade or better.

Four-year program: Bachelor of Science in Imaging Science
The course content in this program is typical of science and engineering programs. The first two years contain fundamental courses in mathematics, chemistry, and physics. The student simultaneously applies these fundamentals to studies in imaging science. The imaging science core program then continues with courses in radiometry, the structure of images, color and vision, and methods of photo-engineering systems. Third- and fourth-year students select elective courses in imaging and photo-engineering, science and mathematics. A fourth-year undergraduate research project is required.

School of Printing Management and Sciences

Miles F. Southworth, Director

The School of Printing Management and Sciences is the world's largest school specifically dedicated to developing managers, system engineers, sales and marketing personnel, printing production managers, and computer scientists for the newspaper, magazine, printing, packaging, publishing, and related industries. It enjoys this position of leadership because of an involved and dedicated faculty, its up-to-date programs, laboratory facilities which represent the state-of-the-art, and the great number of successful graduates. The school's facilities are unsurpassed, with a world-renowned faculty that teaches all factors in the professional education using more than $40 million of up-to-date equipment in 25 laboratories and 125,000 square feet of physical facilities. An installation of this magnitude is possible only through the outstanding support received from the various printing equipment manufacturers and the printing industry in general. More than 70 courses in printing technology and management are offered in the school. Courses in engineering, computer science, business, mathematics, design, packaging, science and liberal arts are taken in close cooperation with other colleges at RIT.

The School of Printing Management and Sciences offers a complete array of programs that require courses in basic concepts needed in all jobs in the printing industries and allow customized study in other courses to develop individualized talents and interests. The completeness of the professional education is an important feature that differ entiates RIT's programs from those at other colleges.

Scholarship and Financial Aid

Our large number of successful graduates testifies to the value of RIT's printing programs. No student who is interested in attending the School of Printing Management and Sciences should turn away without first discussing the matter with an expert in the RIT Financial Aid Office or RIT Admissions Office.

The school enjoys substantial scholarship support from alumni and industry. More than 55 scholarships are available to School of Printing Management and Sciences students through RIT's Financial Aid Office. They range in size from $100 to full tuition. Some of these awards may be continued beyond one year depending upon the scholastic record. See the financial aid section of this catalog for further information.

The School of Printing Management and Sciences also administers a number of scholarships directly. These are awarded to entering freshmen as well as upperclassmen on the basis of previous performance.

The Education Council of the Graphic Arts Industry offers scholarships. Application should be made by high school students early in their senior year because the scholarships involve competitive examinations. If information is not available in the local high school, the candidates should write to:

Education Council of the Graphic Arts Industry
4515 Forbes Avenue
Pittsburgh, PA 15213

Students who have already completed high school should also contact the Education Council of the Graphic Arts. Many different types of scholarships are available for students pursuing further education in Graphic Arts.

In addition to scholarships and other financial aid, students frequently find part-time employment as student help in various positions throughout the campus. The School of Printing Management and Sciences employs students as laboratory assistants. These positions are filled on the basis of merit, but many of them are restricted to students needing financial aid. Also, part-time work may be available in the Rochester area in private printing firms that employ students and in such RIT affiliated organizations as the RIT Technical and Education Center of the Graphic Arts and RIT Research Cor poration. Finally, in addition to its educational benefits, students frequently take advantage of cooperative education to supplement the funds needed for college.

Cooperative Education

The cooperative work/study program is an important educational feature required in the Printing Systems Program, Printing and Applied Computer Science Program, '.nd the Printing Program, and is strongly advocated in the Newspaper Operations Management Program. Cooperative work/study enlarges and improves a college education by combining formal classroom learning with practical work experience. Its main purpose is educational but in many cases students also use it to help pay the cost of college. RIT maintains an Office of Cooperative Education and Placement to help students find a co-op job or permanent placement with the large number of firms that seek to employ students. This work/study requirement is waived for students with satisfactory prior work experience.

Transfer credits

Transfer students from other colleges and programs are encouraged by granting maximum possible transfer credit. Transfer credit can be arranged directly with individual students or through formal agreements the school has with other colleges. Contact the School of Printing Management and Sciences directly for the most up-to-date information and transfer course recommendations. Telephone 716/475-6045 for further information about transfer credit.

Printing

Prospective students should look at all four of the school's degree programs before making a choice but many will find the flexibility of the Printing degree to be most attractive. Prior to September 1979 the Printing program was the only Bachelor of Science degree program available in the School of Printing Management and Sciences. The school's international reputation was assured as the program attracted students from nearly every state in the union as well as from many other countries.

Since then the school has introduced other programs to meet important and specific industry needs (described on succeeding pages of this catalog). The printing program, however, continues

to attract 80 percent or more of the student population of the School of Printing Management and Sciences. It offers the greatest amount of flexibility in allowing students to customize their programs for the careers they seek.

This program is based on a solid foundation in technical areas important to the printing industry as well as course work in relevant management disciplines. In addition, it makes available many eiectives from the technical or management subject areas which can be chosen according to the individual's career goals. The list of required courses for this program is displayed in a box entitled "Printing."

Career Opportunities and Cooperative Education

This program leads to a wide variety of technical and management positions in printing and related industries. Among these are positions in administration and general management, production control, quality control, sales, estimating, process and plant development, graphic design, and graphic arts research. A variety of positions in commercial printing, packaging, business forms, book, newspaper and magazine publishing industries and in other industries that service the printing industries is available to graduates. Cooperative education and internship experiences are required for all printing majors. A wide range of opportunities is available. In the past, students have been employed by federal agencies, industrial organizations, commercial printers, the publishing industry and service industries for the printing trade. They have been employed in all areas of production, customer service and plant operations. There are no restrictions on geographic location as long as the position is related to the graphic arts area and approved by the school. Students have been employed all over the United States and in for eign countries. Currently, four students each quarter co-op on the Queen Elizabeth II cruise ship employed as printing specialists.

Requirements for Admission/Transfer

Admission requirements include high school graduation from a program including elementary and intermediate algebra and one year of science. Because technology is derived from mathematics and science, it is advisable for students to take as much math as they can beyond requirements as well as chemistry, physics and electronics.

Transfer students are encouraged to apply. The flexibility of the Printing program with its foundation of math, science, management and liberal arts in addition to the required printing coursework lends itself to excellent transfer from many different programs. Contact the School of Printing Management and Sciences (716/475-6045) for recommendations of course work that will maximize transfer credit.

Program of Study

The curriculum includes a broad base of core concepts courses in the first two years followed by maximum flexibility through eiectives during the last two years.

First year printing courses cover the areas of aesthetics, imaging and press. These are supplemented by three mathematics courses that cover material needed in later courses in technology and management, two courses in chemistry and four in liberal arts. The math and chemistry courses specified in the illustrative panel are minimum requirements. Students with good backgrounds in these subjects are encouraged to take higher level courses to enhance their overall education. The liberal arts program is described in greater detail in the part of this catalog devoted to the College of Liberal Arts. In general, it requires courses from a broad spectrum of specified areas in the first two years followed in the junior and senior year by a three-course specialty, three eiectives and a senior seminar.

Second year requires nine printing courses and six courses outside the school. The technology base begun in the first year is extended by concept courses in printing materials, print finishing and distribution, and electronic communications. A management foundation is provided by concept courses in financial controls, management planning (marketing and estimating), and leadership (production and human factors). Students with a strong prefer ence for taking course work in the College of Business may elect alternative courses there in place of these concepts classes. Skills courses are required in computer standard software, technical writing and research skills. All students are required to take three courses in liberal arts and two courses in college physics. They may choose a third course in either physics or economics according to their interests.

Third and fourth years involve mostly elective courses. Seven liberal arts courses and a communication course are required. Students are required to elect a seven-course printing concentration that will consume 33-45% of their elective credits.

Professional Eiectives and Printing Concentrations

During the third and fourth year of the Printing program, each student must complete 62 credits of professional eiectives. To meet this requirement, the student completes a specialized printing concentration and additional eiectives selected from the advanced printing management and technology courses.

The concentration requirement in the printing degree builds a body of in-depth knowledge, a kind of expertise. Each printing concentration consists of seven related courses and allows a student to focus on a specialized career path. In addition, with faculty approval, customized concentrations may be developed. Students work closely with faculty concentration advisors.

A concentration uses less than half the elective credits available in the third and fourth years. The remaining eiectives, almost one-fourth of total degree credits, may be used to study further in a student's area of interest or sample many other available areas. Students, with department permission, take courses from other RIT colleges either as part of their concentration or as eiectives. The School of Printing Management and Sciences, however, offers more than 70 courses in the fields of printing management, aesthetics and technology.

Following is a selected list of elective courses available and a list of printing concentrations.

Printing Eiectives—Printing Management

Intro to Magazine Publishing & Management
Electronic Communication in the Printing & Publishing Industries
Computer Estimating Systems
Legal and Ethical Conduct of Printing Businesses
Marketing in Graphic Arts

Printing Eiectives—Printing Technology

Concepts of Design and Typography
Printing Process Concepts
Pre-Press Imaging
Electronic Composition Systems
Quality Control in the Graphic Arts

Printing Concentrations

Printing Design
Typographic Arts
Electronic Composition Systems
Book Arts
Publishing Arts
Color Reproduction
Quality Control
Flexography Process
Gravure Process
Lithographic Process
Packaging Printing
Print Finishing Management
Screen Process
Financial Accounting
Financial Management
Legal Problems in Graphic Arts
Materials Management
Printing Procedures Analysis
Printing Supervision
Production Management
Sales/Marketing
Small Business Entrepren^urship

Yr.	PRINTING	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPRT-230 Printing Processes Concepts	4		
	PPRT-250 Concepts of Design and Typography		4	
	PPRT-270 Prepress Imaging Concepts			4
	SMAM-225 Algebra for Management Sciences	4		
	SMAM-226 Calculus for Management Sciences		4	
	SMAM-319 Data Analysis			4
	"SMAM-220 Fundamentals of Trigonometry			1
			4	4
	:J:Liberal Arts (Core)	8	4	4
	^Physical Education	0	0	0
2	PPRM-240 Printing Financial Controls BBUA-301 Financial Accounting	4		
	PPRM-260 Printing Planning Concepts %BBUM-463 Principles of Marketing		4	
	PPRM-280 Printing Management Leadership Concepts %BBUB-430 Organizational Behavior			4
	PPRM-261 Standard Software Packages	2		
	PPRT-232 Ink and Substrates	3		
	fPPRM-262,263 Technical Writing I, II		2	2
	PPRT-234 Print Finishing and Distribution		3	
	PPRM-420 Electronic Communications in Prtg/Publishing I			4
	SPSP-211/271,213/273 College Physics I, III & Labs	4	4	
	SPSP-212/272 College Physics II and Lab GSSE-301 or 302 Principles of Economics I or II			4
	Liberal Arts (Core)	4	4	4
	Physical Education	0	0	0
	Co-operative Education: minimum of two quarters required for graduation			
3	GLLC-502 Group Communications & Problem Solving	4		
	fPrinting Concentration and Professional Electives	8	12	12
	Liberal Arts (Concentration)	4	4	4
4	^Printing Concentration and Professional Electives	10	10	10
	Liberal Arts (Elective)-	4	4	4
	Liberal Arts (Senior Seminar)	2		

'Required only for those students lacking Trigonometry.
"Students will be advised which option to choose, based in large part upon the student's professional career objective.
IEach student has to complete at least one printing concentration. A printing concentration consists of seven prescribed courses totaling 21 to 28 credits. The credit hours earned in printing concentration, professional and free electives must total at least 62 quarter credit hours. (Total credits required for this program is 192.)
%SPMS student must be Junior status or above to enroll in these courses. See your advisor for scheduling of courses,
tstudents must satisfy the Writing Competency requirement prior to graduation, either by a grade of "B" or higher in Technical Writing II or by passing the Writing Competency test given each quarter.
'Seepage 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Printing Systems

Walter A. Campbell, Coordinator

Students interested in engineering should consider the printing systems program. Printing systems combines engineering course work with a rigorous preparation for management careers in one of America's largest high tech industries. These careers involve a mixture of high technology and human factors that many people find rewarding and exciting.

Graphic communication reproduction has experienced more changes in technology during the last two decades than during the previous two centuries. Electronics and computers have become important while the importance of chemistry and mechanics has not diminished. Computers are used in both production and management.

Although printing has long been one of America's largest industries, many printing firms are moving into other forms of communications. Those that remain independent need to consider how they fit into graphic communications systems, as well as how to use the new technologies that are available for printing.

Few industries use the variety of processes and alternative techniques that graphic communications reproduction does. Almost every printing operation can be done by hand-craft methods, machine assistance or full automation. Each technique has advantages to offer in particular circumstances. Effective managers need to understand both how and why a particular technological option fits their needs. The printing systems program educates young men and women to meet those challenges and become the shapers of the graphic reproduction industries in the coming decades.

Yr.	PRINTING SYSTEMS	Qtr. Credit Hours		
		FALL	WTR.	SPG.
	A program combining courses in engineering and printing that provides favorable transfer arrangements from math-science based programs.			
1	Professional Electives		14	
	SMAM-251,252,253 Calculus	4	4	4
	SCHG-208,209 College Chemistry	4		4
	"Liberal Arts (Core)	4	8	4
	tPhysical Education	0	0	0
2	PPRM-240 Financial Controls	4		
	PPRM-260 Printing Planning Concepts		4	
	PPRM-280 Printing Management Leadership Concepts			4
	tProfessional Engineering Specialty		4	4
	SMAM-305 Calculus	4		
	SMAM-351 Probability		4	
	SPSP-311,312,313 University Physics	4	4	4
	SPSP-375,376,377 University Physics Lab	1	1	1
	"Liberal Arts (Core)	4		4
	tPhysical Education	0	0	0
		FALL WTR.		SPG. SMR.
3	JProfessional Engineering Specialty	8		12
	"Liberal Arts (Core/Concentration)	8		4
4	tProfessional Engineering Specialty	4		4
	"Professional Electives	4		8
	tTechnical Writing I, II	2		2
	"Liberal Arts (Concentration/Elective)	4		4
5	tProfessional Engineering Specialty			4
	"Professional Electives	10		7
	"Uberal Arts (Elective)	4		4
	"Liberal Arts (Senior Seminar)	2		

‡ **Professional Engineering Specialty courses are the following:**

Yr	Industrial Engineering	Electrical Engineering
2	SMAM-352 Applied Statistics I EIEI-202 Computing for Ind. Eng.	SMAM-306 Differential equations ICSA-220 FORTRAN for Elect. Eng.
3	EIEI-401 Operations Research I EIEI-415 Human Factors I EIEI-420 Work Measurement EIEI-422 Systems & Facilities EIEI-550 Safety Engineering	EEEE-310 Numerical Methods EEEE-351 Circuits I EEEE-352 Circuits II SMAM-328 Engineering Mathematics SMAM-420 Complex Variables
4	EIEI-503 Simulation EIEI-511 Regression Analysis	EEEE-453 Signals & Systems EEEE-534 Intro to Communication
5	EIEI-482 Production Control	EEEE-554 Digital Signal Processing

**Seepage 116 for Liberal Arts requirements.*
tSee page 200 for policy on Physical Education.
"Professional electives must include one course in each of these areas: aesthetics, printing materials, printing finishing, imaging.
tStudents must satisfy the Writing Competency requirement prior to graduation, either by a grade of "B" or higher in Technical Writing II or by passing the Writing Competency test given each quarter.

Career Opportunities and Cooperative Education

Job prospects after graduation include not only positions in the printing engineering specialty areas but also all positions open to any other graduate of the School of Printing Management and Sciences, except for those specializing in art and design. Job prospects further include many in the general fields of electrical and industrial engineering.

Graduates of this program have started their careers in printing with above average salaries. The demand for graduates in the field of printing systems far exceeds the number of graduates from this program.

Cooperative education for at least four quarters is required.

Admission and Transfer Requirements

Students who enjoy mathematics and science courses in high school will find the printing systems program of interest. Applicants must meet admission requirements of the RIT College of Engineering as well as those of the School of Printing Management and Sciences. These include elementary and intermediate algebra, plane geometry, trigonometry, physics and chemistry. Most applicants have four years of high school math.

Transfers into this program from two-year college engineering science programs, math/science transfer programs, or comparable majors are encouraged to apply. Courses that are acceptable for industrial engineering programs are generally acceptable for this program but students without adequate course work in printing may want to take Summer Session courses at **RIT** before beginning the program's third year.

Program of Study

The curriculum in Printing Systems features strong courses in printing, industrial or electrical engineering, mathematics, science and liberal arts. Printing courses provide depth and breadth in technology as well as important studies in managing and working with people. During the second year students begin either industrial engineering or electrical engineering courses.

The industrial engineering courses deal with design and installation of integrated systems of people, materials and equipment. Through these courses printing systems students become expert in understanding and using computers in both manufacturing and management, for example, in plant layout, process development, and control of manufacturing systems with robots and conveyors.

The electrical engineering sequence is selected to provide a sound education in the electronics of printing equipment and transmission systems. Printing equipment manufacturers and very large printing companies have interest in graduates with this electrical engineering background.

Newspaper Operations Management

W. Frederick Craig, Coordinator

The printing and publishing industries are undergoing dynamic changes in technology. Within the newspaper industry changes are particularly drastic, completely altering how things are accomplished. In addition, advances in technology and market penetration of related information-handling systems result in greater competition in the areas of reader interest and advertising appeal. These advances have made it imperative to alter not only the way in which a newspaper is printed and distributed but also the very method by which the information is prepared and processed—perhaps even what will be produced. The earlier distinctions between editorial, advertising and production blur as production becomes a function of advertising and editorial preparation, a direction enveloping previously distinct functions as well. These trends will result in the integration of these departments into a single entity utilizing a computer system to handle, transmit, and process information and then to control production and delivery.

This new approach requires new abilities and expertise of the people who would guide this changing industry. Graduates of the Newspaper Operations Management Program will have to compete with the existing pools of talent and expertise as the functions of production merge with those of other departments.

Yr.	NEWSPAPER OPERATIONS MANAGEMENT	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPRT-230 Printing Processes Concepts	4		
	PPRT-250 Concepts of Design & Typography		4	
	PPRT-270 Prepress Imaging Concepts			4
	PPRM-205,206,207 Newspaper Seminar	1	1	1
	SMAM-225 Algebra for Management Science	4		
	SMAM-226 Calculus for Management Science		4	
	SMAM-319 Data Analysis			4
	‡SMAM-240 Fundamentals of Trigonometry			1
	SCHG-281,282 Chemical Foundations I, II		4	4
	"Liberal Arts (Core)	8	4	4
	Physical Education	0	0	0
2	PPRM-240 Printing Financial Controls OR	4		
	BBUA-301 Financial Accounting PPRM-260 Printing Planning Concepts OR		4	
	""BBUM-280 Principles of Marketing PPRM-280 Printing Management Leadership Concepts OR			4
	""BBUB-430 Organizational Behavior			
	PPRM-261 Standard Software Packages	2		
	PPRT-319 Newspaper Design	3		
	TPPRT-262,263 Technical Writing I, II		2	2
	PPRT-320,330 Newspaper Production I, II		3	3
	SPSP-211/271,213/273 College Physics I, III	4	4	
	SPSP-212/272 College Physics II OR			4
	GSSE-301 or 302 Principles of Economics	4	4	4
	"Physical Education	0	0	0
3	PPRT-232 Ink & Substrates	3		
	PPRT-322 Circulation & Mailroom	3		
	GLLC-502 Group Communication and Problem Solving	4		
	PPRM-420 Electronic Communications/Printing & Publishing I		4	
	PPRT-382 Tone Reproduction & Halftone Analysis		3	
	PPRT-472 Color Separation Systems			3
	PPRM-511 Labor Relations			4
	PPRT-210 Newspaper Presses			3
	Professional Elective	3	6	3
	"Liberal Arts (Concentration)	4	4	4
4	PPRM-515 Legal Problems in Printing & Publishing	4		
	PPRM-520 Systems Planning		4	
	PPRM-514 Newspaper Management			4
	Professional Elective	4	7	4
	"Liberal Arts (Elective)	4	4	4
	"Liberal Arts (Senior Seminar)	2		

'See pege 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.
'"SPMS student must be junior status or above to enroll in these courses. See your advisor for scheduling of courses.
tRequired only for those students lacking Trigonometry.
tstudents must satisfy the Writing Competency requirement prior to graduation, either by a grade of "B" or higher in Technical Writing II or by passing the Writing Competency test given each quarter.

They must be prepared in both the new technology and in the ability to guide existing manpower and management systems through potentially stormy change to a useful and profitable position in the marketplace. The revolution in this industry points to the need for a new person to deal with the technological and managerial problems of such change. This program is intended to fulfill the industry need for such people. As its name implies, the program concentrates on those courses that have been most helpful to graduates particularly interested in careers in newspaper management.

Career Opportunities

The newspaper industry is large, employing nearly 400,000 people with 1,642 daily newspapers and approximately 7,400 weeklies. Average daily circulation is 62,694,816, and it is predicted that newspaper readership will increase between five and 10 percent by the year 2000. Technological advances will continue to revolutionize the newspaper industry. Concerns for the environment, the recycling of newsprint, the solving of people problems, telecommunications, and new laws and regulations will be highly evident.

The graduate with a BS degree in newspaper management has numerous career choices within the newspaper industry. Many young people find entry positions as production assistants, assistant business managers, technical specialists with suppliers and computer specialists. These can lead to positions of production director, director of data processing, operations director, business manager, quality control manager and publishers. All of these positions present a distinct challenge in an industry undergoing a vast technological change."

Requirements for Admission
General requirements for admission are given in the general information section of this bulletin. In addition, it is highly desirable that an applicant have a deep interest in newspaper management, which can be shown by success in working for a daily or weekly newspaper or by a general interest in the mass media.

High school graduation is a requirement for admission along with course work in elementary algebra, trigonometry, intermediate algebra, physics or chemistry. Preference is given to those applicants who have had additional work in mathematics, physics or chemistry. The entrance requirements and general program scope are similar to those in the printing program. It requires course work aimed at the newspaper industry, rather than the printing industry, in general.

Transfer students are encouraged to apply. The flexibility of the program with its foundation of math, science, management and liberal arts in addition to the required printing course work lends itself to excellent transfer from many different programs. Contact the School of Printing Management and Sciences (716/475-6045) for recommendations of course work that will maximize transfer credit.

Program of study
The Newspaper Operations Management Program is a four-year course of study leading to a bachelor of science degree. The program stresses management, engineering, sciences, computer printing technology, along with liberal arts.

Each student must take mathematics, chemistry and physics as detailed in the illustrative panel for this program. Placement will be determined through testing and a review of the student's academic background. Preparatory math courses will be available if need for them exists. Students with strong science and math backgrounds are encouraged to complete high level courses in these areas to enhance their overall education.

Professional electives
Students elect courses to suit their individual interests and objectives and to meet the credit requirements of the newspaper program. Selection is subject to prerequisite requirements and availability of courses.

Printing and Applied Computer Science

Frank Cost, Coordinator

In recent years computers have become widely used in most areas of the graphic arts industry. From typesetting to management information and from inking systems to automated bindery operations, computers in the graphic arts have created a need for personnel with an in-depth knowledge of both printing and computer science. Recognizing this need, the School of Printing Management and Sciences, in cooper ation with the School of Computer Science and Information Technology, established the printing and applied computer science program for students who want to combine both fields.

Career Opportunities
A survey of employers in the graphic arts industry indicates the strong need for trained printing/computer specialists. As more and more graphic firms adopt computer technology, the need will grow for personnel who can develop and utilize equipment, interpret the graphic arts industry to the computer industry, apply computers to printing processes, manage computer systems, and work with vendors.

Graduates with a BS degree in printing and applied computer science have many career opportunities open to them. These include data processing supervisor; computer system analyst; customer training, marketing support, and sales for computer-based printing equipment manufacturers; and custom software design and development. These positions can lead to management responsibilities as production manager, director of computer technology, and operations manager—all stepping stones to top management opportunities.

The cooperative plan of study is required in the School of Printing Management and Sciences for students choosing this program.

Requirements for Admission/ Transfer
Requirements for admission are given in the general information section of this bulletin. In addition, it is highly desirable that the applicant have a great interest in printing and computers, which can be shown by success in working on a school newspaper or yearbook, by working summers in a printing plant, or by general interest in graphic communications as well as in computers and their applications. High school graduation and course work in elementary algebra, plane geometry, intermediate algebra, trigonometry, physics and/or chemistry is required. Preference is given to those who have had additional work in physics, calculus and computer usage.

Transfer students into this program from two year college computer science, computer science transfer, math/ science transfer programs or other comparable programs are encouraged to apply- Transfer students find that many of their two-year college credits are applicable toward the four-year degree.

Program of Study

The School of Printing Management and Sciences offers a four-year course leading to a Bachelor of Science degree in Printing and Applied Computer Science.

Approximately 20 percent of the course work is in computer science, 30 percent in printing technology and management, 25 percent in math/ science, and 25 percent in liberal arts.

The first-year curriculum of this program and that of the Printing Systems program are practically the same. Therefore, a student may transfer between the programs at that time with no loss of credit.

Professional Electives

Students may elect professional courses in printing or computer science and technology to complete their elective course requirement.

Yr.	PRINTING AND APPLIED COMPUTER SCIENCE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
	A program combining course work in computer science and printing that provides favorable transfer arrangements from math/science-based programs.			
1	PPRT-230 Printing Processes Concepts	4		
	PPRT-250 Concepts of Design and Typography		4	
	PPRT-270 Prepress Imaging Concepts			4
	"PPRM-203 Printing/Computer Seminar	1		
	ICSP-241,242 Programming I,II	4	4	
	ICSP-305 Assembly Language			4
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	•Liberal Arts (Core)	4	4	4
	Physical Education	0	0	0
2	PPRM-240 Printing Financial Control	4		
	PPRM-260 Printing Planning Concepts		4	
	PPRM-280 Printing Management Leadership Concepts			4
	ICSP-243 Programming III	4		
	ICSS-325 Data Organization and Management		4	
	SMAM-305 Calculus IV	4		
	SMAM-265 Discrete Math		4	
	SMAM-351 Probability & Statistics			4
	SPSP-311,312 University Physics I, II		4	4
	fPPRM-262,263 Technical Writing I, II	2	2	
	•Liberal Arts (Core)	4		4
	••Physical Education	0	0	0
		Variable Schedule		
3 4 5	ICSS-420 Data Communications Systems	4		
	ICSS-315 Digital Computer Organization	4		
	SMAM-352 Probability & Statistics	4		
	PPRT-232 Ink & Substrates	3		
	ICSS-521 Intro to Microprocessor Systems	4		
	PPRT-234 Print Finishing & Distribution	3		
	PPRM-420 Electronic Communications in Prtg./Publg. I	4		
	PPRT-500 Quality Control in Graphic Arts	3		
	ICSS-565 Computer Systems Selection	4		
	ICSS-570 Intro Computer Graphics	4		
	PPRM-375 Printing Oper. Measurement and Improvement	3		
	PPRT-444 Web Offset	3		
	Professional Electives	18		
	•Liberal Arts (Core)	8		
	•Liberal Arts (Senior Seminar)	2		
	•Liberal Arts (Concentration)	12		
	•Liberal Arts (Elective)	12		
	Co-op (3 quarters required)	0		

tSee page 116 for Liberal Arts requirements.
ttSee page 200 for policy on Physical Education.
tStudents must satisfy the Writing Competency requirement prior to graduation, either by a grade of "B" or higher in Technical Writing II or by passing the Writing Competency test given each quarter.

College of Liberal Arts

Liberal Education in the Humanities and Social Sciences

Dr. William Daniels, Dean

The College of Liberal Arts provides students with a comprehensive program of liberal education which develops their potential as intellectually aware and responsible human beings. It is the foundation for the student's entire educational experience. This program of liberal education is distinguishable from the student's professional education in that its purpose is not to nurture specifically professional knowledge or skills, but rather each student's capabilities as a thinking, creating, and responsible person.

The program of the College of Liberal Arts, in which all RIT students participate, aims to accomplish the following goals:

—To develop the student's ability to think rationally, to read critically, to speak and write cogently and clearly;
—To develop the student's ability to analyze issues, to question assumptions, to investigate problems, and to seek solutions;
—To develop the student's under standing of aesthetic values and their relevance to life;
—To expand the student's intellectual horizons by acquaintance with the western heritage;
—To develop the student's awareness of how the past invariably affects the present and the future;
—To promote the student's under standing of our society and how it interrelates with and is indebted to other cultures, thereby liberating the student from a narrow provincialism;
—To acquaint the student with knowledge of the basic principles and dynamics of individual and group behavior in the many areas of human interaction;
—To develop the student's understanding of the nature of ethical values;
—To develop the student's awareness of the social, ecological, and ethical consequences of technology, and to foster a sense of responsibility to self and society;
—To develop the student's ability to bring together varied insights and methods of analysis for the purpose of better understanding complex human and social problems.

These goals are fostered throughout a student's education at RIT by the Liberal Arts curriculum, which offers each student the opportunity to acquire these abilities and understandings through courses in the humanities and social sciences. In addition to regular courses a student may engage in independent studies. These are planned by both student and instructor and provide an opportunity for the student to develop initiative and imagination in a flexible program of study.

Included in the college are undergraduate degree programs in criminal justice, social work, economics, and professional and technical communication which are described later in this bulletin. The close involvement of these programs with the humanities and social sciences instruction in liberal arts is an example of what the college is endeavoring to do throughout the curriculum, that is, to demonstrate the interrelation of all fields of learning.

The college also offers the master of science degree in school psychology.

Faculty

The faculty of the College of Liberal Arts is selected from candidates with advanced study in the social sciences and humanities. These men and women are dedicated teachers, who have chosen as their professional goals the provision of rich and meaningful learning experiences for students and continuing growth in their scholarly fields.

The Liberal Arts Curriculum

The curriculum of study in the humanities and social sciences which all RIT students pursue in the College of Liberal Arts may be understood by examining the following chart. Students in the various RIT associate and baccalaureate degree programs complete this entire Liberal Arts curriculum, or a modification of it, as applicable to their particular degree programs. Academic advisors in the College of Liberal Arts and in other colleges of the Institute assist students in interpreting the Liberal Arts curriculum as it applies to their particular degree program.

The curriculum consists of fourteen courses (54 quarter credits) arranged in five groups:

1. English Composition;
2. The core curriculum of six foundation courses in the humanities and social sciences (200-300 course numbers);
3. A disciplinary or interdisciplinary concentration of three advanced courses (400 course numbers);
4. Three advanced eiectives (400 and 500 course numbers);
5. The Liberal Arts Senior Seminar and Project.

Visually, the curriculum may be represented as follows:

In addition to English Composition, the specific **Core** Courses are:

Literature: required

Fine Arts: one required
Fine Arts: Visual Arts
Fine Arts: Musical Arts
Fine Arts: Film Arts

History: one required
History: Modern American
History: Modern European

Philosophy; or **Science, Technology and Values:** one required
Philosophy: Ethics
Philosophy: Critical Thinking
Philosophy: Selected Issues
Science, Technology, and Values

Social **Sciences:** two required
Introduction to Economics
American Politics, or
Ideology and the Political Process
Introduction to Psychology
Foundations of Sociology, or
Cultural Anthropology

Concentration

A concentration is a group of closely related advanced courses from which a student will choose three. The student's liberal education is enhanced by such a concentration in the following ways:

1. Students achieve greater depth in learning because they have, where necessary, taken the prerequisites for these courses and because they benefit from the accumulated depth of the three-course concentration itself.
2. They achieve a kind of "minor" in an area of liberal education.
3. They are able to see cohesion among at least three of their advanced courses.
4. They are able to build on and link new learning to their core courses.
5. They can develop more judgment and understanding in an area of the RIT or college goals.

A concentration is pursued in the third, fourth or fifth year of the baccalaureate programs and can take either of the following forms:

1. Disciplinary Concentration: three related courses in a single discipline leading to an in-depth knowledge of the methods, problems and achievements of that mode of inquiry.
2. Interdisciplinary Concentration: three related courses from different disciplines each one of which speaks to some aspect of a common area, subject, or topic.

A concentration is composed of three courses chosen from the designated list of concentration courses. The limited number of courses qualifying for the concentration increases the frequency with which they will be offered and the flexibility students will have in scheduling and registration.

The Liberal Arts concentrations available to RIT baccalaureate students will be the following.

Disciplinary concentrations

Prerequisites and the specific courses qualifying for each of the following disciplinary concentrations will be determined by the Liberal Arts academic committees responsible for these areas of study. In each case, the student will choose three of the four to eight courses that qualify for the concentration.

The Disciplinary Concentrations available to students are the following:

Language Communications
Economics
American Artistic Experience
History
The Social Impacts of Science and Technology
International Relations
Literature
Philosophy
American Politics
Psychology
Social Change in a Technological Society

Interdisciplinary concentrations

A number of interdisciplinary concentrations are clustered around the goals of the Institute and the college. These concentrations involve in-depth study of a topic or an area representing an important realm of interdisciplinary learning for educated persons. Each of these interdisciplinary concentrations will consist of a number of courses from which a student will choose three. The specific courses composing each concentration will be formulated by faculty working in close collaboration with one another so that the courses of the concentration are closely related.

The interdisciplinary concentrations now available to students are the following:

Environmental Studies
Perspectives on Religion
Women's Studies
Global Studies
Foreign Language/Culture: Chinese, German, Japanese, Spanish
Peace Studies
Minority Relations in the United States

Electives

The opportunity to choose three elective courses provides students with an element of choice in planning their liberal arts program.

Senior seminar and project

The purposes of the Senior Seminar and Project are the following:

- to give senior students the opportunity to prepare papers or projects that call for analysis and synthesis and for the application of their Liberal Arts experience to major issues that may affect their professional careers;
- to provide seminars for all senior students on a general theme;
- to provide an advanced experience of problem-solving and value-clarification.

The Senior Seminar will be designed and implemented on an annual basis by a Seminar Committee of faculty selected a year in advance.

Music at RIT

The College of Liberal Arts sponsors many musical events on the RIT campus, as well as supporting several musical groups. For more information about the many musical groups and activities open to students, please contact the music faculty of the college.

Implementation of the Liberal Arts Curriculum

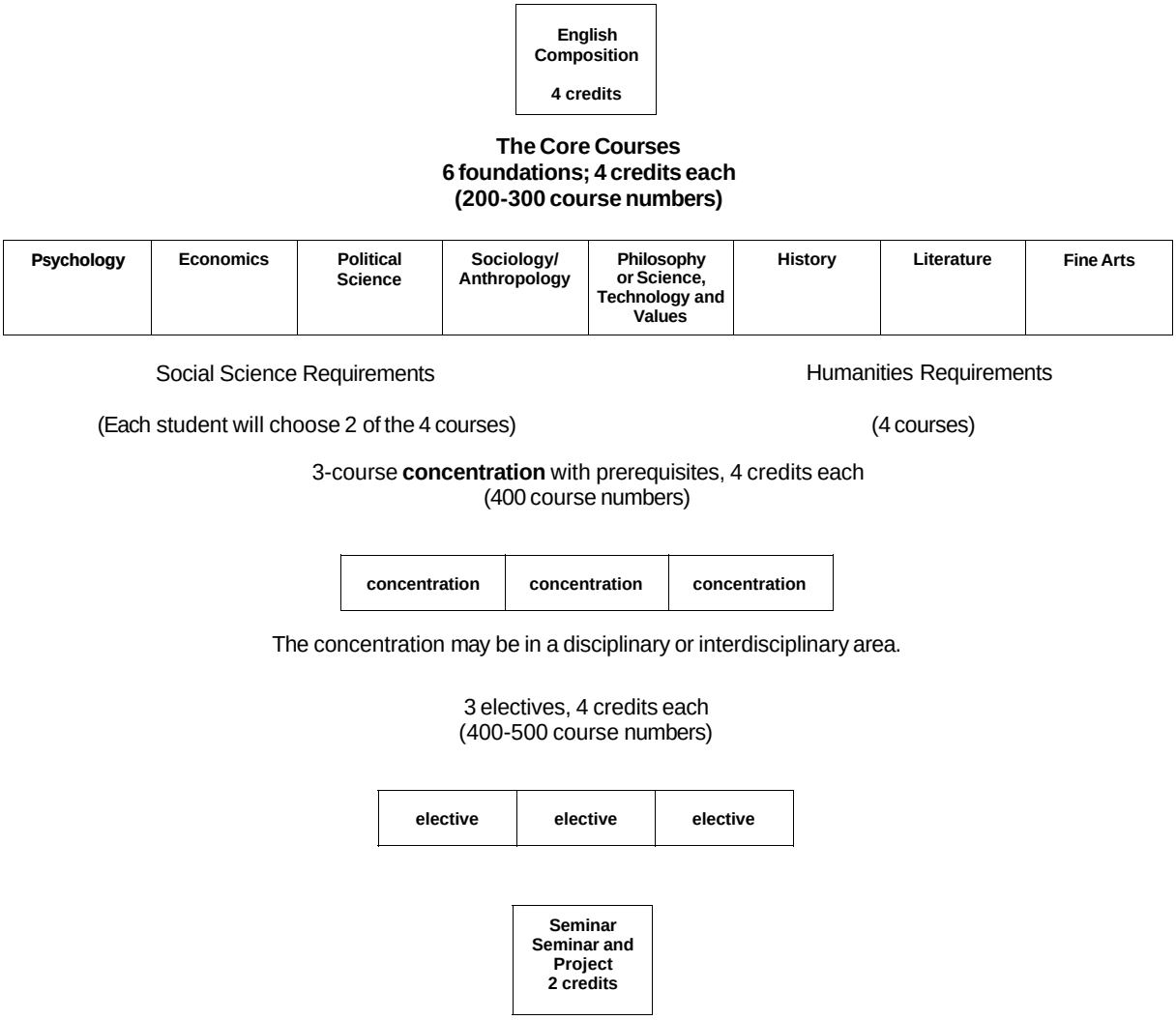
Academic advising

Liberal arts requirements vary within the individual degree programs on campus. Therefore, it is important that students carefully plan their liberal arts program to meet their specific degree requirements. The College of Liberal Arts Academic Advising Office, which is located on the second floor of the liberal arts building, offers assistance in the planning and selection of appropriate liberal arts courses. Staff are available on a daily basis to assist students with their specific needs.

The college also provides a course description handbook with general information about the college and specific information regarding all liberal arts courses. Academic worksheets developed for each specific degree program also are available to help in maintaining records. The handbook and worksheets are available in the College of Liberal Arts Academic Advising Office.

Additionally, those students who are enrolled in liberal arts degree programs are assigned faculty advisors through their specific departments. These advisors counsel students in their degree requirements, answer specific questions regarding field placement, and provide career counseling. Students enrolled in the College of Liberal Arts degree programs are *required* to seek faculty advisement on a quarterly basis. Students arrange appointments with their faculty advisors during regularly scheduled office hours.

The Liberal Arts Curriculum



Part-time students and evening programs and courses

The College of Liberal Arts offers in the evenings many of the upper-division humanities and social science courses required in baccalaureate programs pursued in all colleges of RIT by part-time evening students. These courses are part of the liberal arts curriculum expected of all Institute students pursuing a bachelor's degree and are equivalent to courses required for students completing degrees under the auspices of the College of Continuing Education.

Courses are scheduled one or two nights a week, Monday through Thursday, or on Saturday mornings. Each course is 4 academic quarter credits, except the Senior Seminar, which is 2 credits.

Part-time students also are welcome to register for liberal arts courses offered during day-time hours if their schedules permit.

To register for liberal arts courses on a part-time basis it is not necessary to be enrolled in an RIT degree program. Part-time and evening students are strongly encouraged to contact the Liberal Arts Academic Advising Office (475-6987) or the Liberal Arts Scheduling Office (475-2448) for assistance in selecting and registering for courses. Both offices are located on the second floor of the College of Liberal Arts. The Academic Advising Office is open 9 a.m. to 7:30 p.m., Monday through Thursday and 9 a.m. to 3:30 p.m. on Friday. The Scheduling Office is open 9 a.m. to 4 p.m., Monday through Friday.

Registration

The courses of the College of Liberal Arts are available to students registered in one of the colleges of the Institute as well as to part-time non-matriculated students. Undergraduate degree programs in social work, criminal justice, economics and professional and technical communication are available to students through the College of Liberal Arts as is the technical and liberal studies option, an academic program for students who are in the process of choosing a major.

It should be noted that all courses except the Senior Seminar carry ***four quarter hours ofcred.it.*** Further, all courses meet at least three scheduled class hours each week. The difference between credit hours and class hours is designed to provide for carefully planned and extensive out-of-class assignments and projects. The purpose of this plan is to provide the student

Freshman Admission Requirements **Transfer Admission with junior standing**

Program	Required High School Subjects	Desirable Elective Subjects	Two-Year College Programs
Social Work	English 4 years Algebra 2 years Any Science 1 year	Social Sciences e.g. Psychology Humanities e.g. History Government Economics Languages Additional Science and Math	Junior standing is offered for an associate degree in human services or in another appropriate major. Students may be admitted without the complete high school algebra requirement fulfilled, but will be expected to finish this requirement prior to enrolling in College Algebra, SMAM-204. Holders of liberal arts or other two-year degrees also are admitted to the programs, and transfer credit is given to the fullest extent possible. Transfer students can be given credit for professional courses required in the first two years if they have had comparable course work elsewhere.
Economics	English 4 years Elem. Algebra Plane Geometry Inter. Algebra	Additional Mathematics Science courses Social Science and History courses	Students with associate degrees in business administration or a related area enter as juniors. Maximum allowable transfer credit is given to those who have taken liberal arts or other professional courses elsewhere.
Criminal Justice	English 4 years Mathematics 1 year Any Science 1 year	Social Sciences Humanities e.g. History Government Economics	Students with associate degrees in criminal justice or a related area enter as juniors. Maximum allowable transfer credit is given those who have taken liberal arts or other professional courses elsewhere.
Professional and Technical Communication	English 4 years Mathematics 2 years Science 1 year	Additional Mathematics, Science, History, Social Science, and Communication courses	Holders of liberal arts degrees with appropriate work in English and communication or a student in a technical or scientific field with a demonstrated aptitude for communication.
Technical & Liberal Studies	English 4 years Mathematics 2 years Science 2 years	Additional Social Science, Science Mathematics and Humanities courses	Although occasional transfers are accepted, the focus of Technical & Liberal Studies is on bringing the "undecided students to a degree program choice well before the junior year; junior status can rarely be given to two-year transfers who enter Technical & Liberal Studies.

with opportunities for instructor-guided extended responsibilities beyond those normally found in a regular classroom situation.

The College of Liberal Arts will enroll students who are not currently degree candidates under the Technical and Liberal Studies Option. Individual programs will be developed for each student.

Diploma courses will not normally be used toward the completion of Liberal Arts requirements.

Summer

The College of Liberal Arts offers a number of courses each summer in language and literature, science and humanities, and social science, as well as degree program courses in criminal justice, social work, economics, and communication.

Information concerning summer courses to be offered can be obtained by contacting the college scheduling officer; by requesting the Summer Bulletin from the College of Continuing Education or the Office of Admissions, One Lomb Memorial Drive, P.O. Box 9887, Rochester, New York 14623.

College of Liberal Arts: Degree Programs

General information on RIT's admission requirements, procedures and services is included in detail on pages 176-177 of this bulletin.

The College of Liberal Arts offers bachelor of science degree programs in the following areas: social work, criminal justice, economics, and professional and technical communication, as well as the technical and liberal studies option, an academic and advising program for students who are undecided about which RIT degree program to pursue. The admission requirements for these programs are given below, and each program is described in detail on the pages that follow.

The Criminal Justice Program

Richard Lewis, Program Chairperson

The bachelor of science degree program in criminal justice offers students a broad, well-rounded education with a curriculum designed to prepare them for a wide range of careers in criminal justice, to provide continuing education for those professionals already employed in criminal justice and to offer a strong academic foundation for graduate school.

RIT's approach to the study of criminal justice combines theoretical perspectives with practical experience. As students study in the areas of crime, criminal behavior and social control mechanisms, the emphasis is on problem-solving techniques based on the rapidly growing body of research in the field, as well as students' own guided research.

The program is unique in its broad core curriculum, the scope of professional course offerings and an intensive field experience, where students blend knowledge gained in required and elective courses with a career-oriented internship.

Career planning
Upon acceptance into the Criminal Justice Program, each student is assigned a faculty advisor who assists in formulating career goals and planning a field of study in accordance with those goals.

Through core courses, students are exposed to the widest possible range of perspectives from which to view crime and the nature of criminal justice services, thus broadening their career options.

During the junior and senior year, with faculty guidance, students select professional electives in a specific area of interest from those offered within the program, within the college, or in any of eight other colleges in the Institute. Criminal justice faculty offer concentrations in criminology, law enforcement, law corrections and security. Other concentrations, planned according to individual career goals, may include courses in computer science, management, photography, liberal studies and social work. The variety of opportunities available in the expanding field of criminal justice is reflected in the broad selection of professional electives allowed by the program.

Career opportunities
The majority of criminal justice students seek employment after completion of the BS degree and are pursuing careers throughout the country in criminal justice and related fields that include the following: **law enforcement** (U.S. deputy marshal, U.S. secret service, and police officers and administrators on the state, county and local levels); **corrections** (probation and parole officers, institutional correctional officers, counselors and administrators—adult and juvenile); **industrial and retail security; court administration; counselors and administrators in youth and adult service agencies; academy training officers; crime control planning; program evaluation, and research.**

Some students go directly to graduate schools after graduation; others take graduate courses while employed and/or seek advanced degrees to increase their opportunities within their chosen criminal justice area or to facilitate career change. Most often, criminal justice graduates further their education in the areas of law, administration, social work or business.

Pre-law study
The criminal justice curriculum prepares students for law school by combining a broad liberal arts background with intensive study in criminal justice practice and theory. Students work closely with a faculty advisor in selecting appropriate professional and liberal arts electives. During their senior year, pre-law students spend 10 weeks, 30 hours per week as interns working with established attorneys in the office of the district attorney, public defender, or state attorney general, a private law firm, or in any number of public or privately funded organizations dealing with litigation. Annually, the Pre-Law Association, comprised of interested students from throughout the Institute, publishes student research papers in **Legal Research at RIT.**

Field experience
During the senior year, students have the opportunity to choose an internship from a number of agencies and organizations in the areas of law, law enforcement, institutional and non-institutional corrections, courts, juvenile advocacy and counseling programs and security. For one quarter (10 weeks), 30 hours per week, students work under an agency field supervisor and, at the same time, attend a Field Seminar and a class in Planning and Change with peers who are doing field placements in other agencies. Placements are individualized in accord with a student's career objectives.

The faculty
All members of the faculty in the Criminal Justice Program hold advanced degrees, have had professional experience in criminal justice, have evidenced teaching ability and are committed to continuing professional growth in their areas of expertise. Faculty offices are conveniently located, and the faculty spend many non-teaching hours in their offices with an open door policy in order to assist students with personal problems as well as academic advising.

Faculty members regularly supervise individual students who are doing well in their course work and have an interest in independent study projects. Projects may vary from one quarter credit hour to eight quarter credit hours.

The student body
Criminal justice students are admitted as freshmen or as transfer students. Many who enter as juniors hold two-year degrees in criminal justice, but others make this career decision after one or two years in a liberal arts or other program. The criminal justice curriculum is flexible enough to accommodate transfer students from a wide variety of academic and technical programs. Maximum credit is offered for courses where the grade is "C" or higher.

Principal field of study
For students matriculated in the Criminal Justice Program, the principal field of study includes all courses offered in the Criminal Justice Program (designated as GCJC). Students not maintaining a 2.0 cumulative grade point average in the principal field of study are subject to academic probation or suspension according to Institute policy. Students must have a 2.0 cumulative average to be eligible for field experience.

Professional elective options
The following list of professional electives is illustrative of those offered periodically within the Criminal Justice Program. A student selects professional elective courses with the advice of his/her faculty advisor.

One of the strengths of the program is that students may elect to take professional electives from other designated colleges in the Institute and are thus able to develop a concentration in a related professional area applicable to their career goal.

Professional elective options:
Criminal Justice
Corrections
- Constitutional Law
- Legal Rights of Convicted Offenders
- Correctional Administration
- Social Control of Deviant Behavior
- Counseling in the Criminal Justice System
- Alternatives to Incarceration
- Sentencing Process

Criminology
- Organized Crime
- Social Control of Deviant Behavior
- White Collar Crime
- Victimless Crime
- Computer Crime
- Women and Crime

Law
- Introduction to Para-Legal
- Constitutional Law
- Legal Rights of Convicted Offenders
- Social Control of Deviant Behavior
- Evidence
- Court Administration
- Comparative Criminal Law
- Sentencing Process
- Victimless Crime
- Seminar in Law

Law Enforcement
- Administrative Concepts of Law Enforcement
- Organized Crime
- Investigative Techniques
- Constitutional Law
- Civil Disobedience and Criminal Justice
- White Collar Crime
- Evidence
- Police Community Relations
- Victimless Crime

Security
- Organized Crime
- Investigative Techniques
- White Collar Crime
- Physical Security and Safety
- Retail Security
- Computer Crime
- Security Management
- Seminar in Security

Professional elective options:
Related professional areas
With the approval of the faculty advisor, a student may select an additional professional elective concentration from courses offered within the College of Liberal Arts or in any of the other colleges of the Institute. Many students develop special concentrations in accounting, computer science, management, or social work.

BS DEGREE IN CRIMINAL JUSTICE

Required first and second year courses	Required third and fourth year courses
GCJC-201 The Criminal Justice System	GCJC-401 Scientific Methodology
GCJC-203 Criminology	GCJC-411 Seminar in Corrections
GCJC-207 Corrections	GCJC-526 Seminar in Law Enforcement
GCJC-303 Law Enforcement in Society	GCJC-528 Etiology of Crime
GCJC-204 Public Administration	GCJC-403 Field Experience
GCJC-301 Concepts of Criminal Law	GCJC-404 Field Experience Seminar
GCJC-304 Judicial Process	GCJC-541 Research Methods in Criminal Justice
GCJC-309 Juvenile Justice	GCJC-514 Planning & Change
English Composition	3 Liberal Arts Eiectives
Literature	3 Liberal Arts Concentration Courses
Fine Arts	1 Liberal Arts Senior Seminar
History	
1 of the following Science & Humanities:	Required Eiectives taken throughout 4 years
Science, Technology and Values	
Philosophy	
2 of the following Social Sciences:	8 Professional Eiectives
Economics — Psychology	2 Non-designated Eiectives
Sociology/Anthropology	2 Open Eiectives
Political Science	
2 Science	
2 Mathematics	
1 Computer Science	
6 Physical Education Courses	

• With the exception of the Liberal Arts Senior Seminar, which receives 2 quarter credit hours, and Physical Education, for which no credit Is given, courses carry 4 quarter credit hours.

The BS Degree Program in Social Work

Helen Wadsworth, Program Chairperson

RIT's social work program, established in 1971, provides an innovative humanistic program and a strong, socially conscious faculty set against the background of one of the most technologically current educational institutions in the country, with a state-of-the-art computer network available to all students.

Accredited by the Council on Social Work Education, the baccalaureate social work program prepares students for entry into beginning-level social work practice in public and private settings offering assistance to individuals, families, groups, and the community.

The education of the social worker addresses the needs of the urban and rural population; the young and the elderly; majority and minority groups; the poor; the infirm; the handicapped; the family or individual in crises; and persons with special problems such as learning disabilities, alcoholism and mental health problems. The profession is committed to change for the better and the improvement of the human experience.

Course work is organized around five areas: knowledge of social programs, policy processes and the professions; professional practice methodology and skills; professionally supervised field instruction in a social agency; a wide-ranging liberal arts education in the humanities and social sciences, particularly in the areas of human behavior and the social environment; and research and evaluation of practice.

RIT's program in social work is known for an unusually wide selection of professional courses and a full-time intensive field instruction internship. Each social work student is assigned a faculty advisor to assist with academic planning and career guidance throughout the course of study.

We believe that social workers have a dual role in the process of social change; they direcdy serve the needs of individuals, families, groups and communities and they work on behalf of clients to effect change in policies, legislation and broad social issues.

Personal growth
The social work curriculum encourages personal growth as an essential aspect of professional growth. In various courses students learn to increase their own self-awareness, to define their values, to understand and respect the values of others, and to develop the personal and professional strengths necessary to successful practice.

Curriculum
RIT's social work program is one of the strongest in the country and is distinctive in many ways. We offer students a curriculum that emphasizes the application of course content to the primary minority subcultures confronted by social workers: Blacks, Hispanics and disabled people. Similarly, the curriculum deals with discrimination against people based on race, color, gender, age, creed, ethnic or national origin, disability, political or sexual orientation.

The social work curriculum aims to develop an understanding of society and of people's needs. Students learn how the institutions of society contribute toward resolving problems and may, sometimes, aggravate them.

Social work students take a sequence of courses that introduces them to the concepts of social work practice and teaches fundamental skills needed to work successfully with individuals, families, groups, and the community to solve problems and resolve conflict. Opportunities for "hands-on" practice are available throughout the four-year curriculum. RIT's program has a strong focus on research skills, the appropriate use of computers in analyzing data from social work practice, and exploration of the effects of information technology on social problems.

In addition, students become well-grounded in human behavior and the social environment from psychological, sociological and biological perspectives. This gives them an understanding, on which they can base their social work practice, of how people develop and interact with their environments.

Social work program and deafness: a unique opportunity
The location of the National Technical Institute for the Deaf (NTID) at RIT provides a special opportunity for students and faculty in the social work program. Because of the close relationship with NTID, RIT's social work program offers an unsurpassed education in dealing with deafness, in preparing deaf students for social work careers, and in increasing sensitization and responsiveness of future professionals, hearing and deaf, to the needs of disabled persons.

This unique feature of our program offers both deaf and hearing students the opportunity to study the applications of social work practice to the needs of deaf persons.

Professional Electives
Elective courses available to social work students offer them knowledge about and preparation for work in the areas of: family violence, children's services, family services, alcoholism and substance abuse, services to those who are deaf, mental health, legal social work, and services to the elderly.

Career and placement focus
Like all programs at RIT, our focus is on careers. We prepare students to enter direcdy into meaningful and rewarding positions in governmental and voluntary social agencies. RIT's achievement in job placement and in preparing students for graduate education is outstanding.

Graduates of the social work program receive advanced standing at over half the graduate schools of social work in the country. This means they can complete a two-year MSW program in only one year of study.

Most graduates have found their RIT field placement experiences to be extremely helpful in making career decisions and in obtaining jobs. In addition, the resources of RIT's Center for Cooperative Education and Placement are available to all of our students. These services include career counseling, assisting with resumes, compiling job listings, arranging on-campus interviews, mailing letters of reference, and keeping a job resource library.

The older student
Older students and those returning to study after being away from the classroom for awhile find our program especially accommodating, challenging and rewarding. Faculty advisors, many of whom have returned to school in the middle of their careers, are sensitive to the special pressures of returning students and the opportunities open to them. For example, in field placements they make every effort to match the degree of challenge with the skills of each particular student.

Transfer students
Transfer students are evaluated and given credit for previous education wherever it is most appropriate. Articulation agreements exist with several colleges.

Transfer students with two-year degrees in human services or related programs, are given credit for their studies, and can expect to complete the social work program in two years.

Field instruction
Field instruction is an important part of the program. During the senior year, students complete an internship in a social agency. Supervised by a professional social worker and supported with integrated academic courses, they learn to apply the knowledge and skills acquired in the classroom.

During two academic quarters, students spend 30 hours per week in a social agency or program. There is an option for field placements of four quarters that carry agency stipends.

RIT social work students have an <pportunity to provide direct services to clients during their field placements. Some have become involved in family support counseling, advising pregnant adolescents, helping children with emotional problems, intervening on behalf of clients in Family Court and in the attorney general's office, and working with people who abuse alcohol and other substances.

As an alternative some students have preferred to work in the planning and funding of social programs, evaluating program effectiveness and measuring the quality of services, organizing communities to bring about change in local problems, educating the public on a broad social issue, or researching a carefully coordinated social work effort.

In field placement each student is taught by a social worker in the agency and is supervised by a faculty member. Each week, students in field placement meet on campus to evaluate experiences and to assess their development of professional skills.

Yr.	BS DEGREE IN SOCIAL WORK: FOUR-YEAR CURRICULUM	Qtr. Credit Hour*		
		FALL	WTR.	SPG.
1	0516-212 Self-Awareness in the Helping Role	4		
	0516-216 Introduction to Social Welfare		4	
	0516-217 Community Services II			4
	05___-21_ Liberal Arts Core: Sociology, Economics, Political Science, Anthropology		4	
	0505-21 Liberal Arts Core: Fine Arts			4
	0504-33 Liberal Arts Core: Literature	4		
	05___-21_ Liberal Arts Core: Phil., or Sci. Tech. Society		4	
	0507-493 History of Social Discrimination			4
	0514-210 Liberal Arts Core: Psychology	4		
	0507-30_ Liberal Arts Core: History	4		
	0502-220 Liberal Arts Core: English Composition		4	
	One Liberal Arts Elective			4
	'Physical Education	0	0	0
2	0516-210 The Professional Social Work Role	4		
	0516-302 History of Social Wefare	4		
	0516-305 Structure & Function of Social Wefare		4	
	One Professional Elective			4
	0515-_ .Cultural Diversity		4	
	Two Science Requirements		4	4
	0516-455 Human Behavior and the Social Environment			4
	0514-440 Childhood and Adolescence	4		
	0514-442 Adulthood and Aging		4	
	Two Liberal Arts Electives	4		4
	'Physical Education	0	0	0
3	0516-405 The Family from a Social Work Perspective		4	
	0516-435 Computer Applications to SW Research			4
	0516-456 Group Theory in Social Work	4		
	0516-465 Assessing Community Needs			4
	0516-475 Interviewing and the Helping Relationship			4
	Two Professional Electives	4	4	
	College Math	4		
	0540-361 Statistics for the Social Sciences		4	
	Three Liberal Arts Concentration Courses	4	4	4
4	0516-505 Assessment and Problem Solving	4		
	0516-506 Field Instruction I	5		
	0516-527 The Supervisory Process	4		
	0516-535 Advanced Social Work Research	2		
	0516-550 Social Intervention		4	
	0516-551 Field Instruction II		5	
	0516-560 Managing Community Services		4	
	0516-540 Evaluation of Practice		2	
	0516-595 Policy and Planning Processes			4
	0516-598 Professional Seminar			4
	One Professional Elective			4
	0520-501 Liberal Arts Senior Seminar			2

 # Full-time placement In a social work agency
' See page 200 for policy on Physical Education.

"We feel that a closely supervised educational experience in the field is critically important to the development of professional social workers," says Michael Stone, coordinator of Field Placement for the social work program. "Much care and attention is given each student in choosing an appropriate agency, one that will provide a challenge and will result in professional growth."

The program works with more than 100 agencies to ensure that students' internships will relate to their career goals. In recent years, students have been placed in agencies such as the following:

Alternatives for Battered Women
Board of Cooperative Educational Services
Center for Youth Services
DePaul Mental Health Services
Fairport Central Schools
Family Services of Rochester
Genesee Hospital
Hillside Children's Center
Monroe County Association for the Hearing Impaired
Monroe County Department of Social Services
Family Team
Child Protective Team
Rochester Center for Independent Living
Rochester School for the Deaf
Saint Joseph's Villa
Substance Abuse Intervention Services for the Deaf

Senior field placement stipends
Social work students entering their senior field instruction have the option of completing the required 20-week placement in an agency, or of accepting a 12-month placement which carries with it a minimum or agency stipend. The RIT Financial Aid Form must be filed prior to April 15. This program is especially attractive for minority students and all students with severely limited financial resources. Students must spend at least their junior year in the RIT social work program to qualify for this stipend.

New social work learning laboratory
Established in the fall of 1987, the Social Work Learning Laboratory provides RIT students with unique opportunities to learn intervention skills by direct observation of colleagues through two-way viewing facilities and by videotaped feedback of their own practice. The laboratory also houses IBM, Macintosh, and VT220 computers for student use. They function both as microcomputers for specialized social work software and as terminals connected to the RIT VAX/VMS network for accessing word processing, conferencing, statistical analysis, electronic mail, intracampus visual phone, and interuniversity communication programs. Students routinely submit assignments to social work courses via computer mail; consult each other about group projects; schedule appointments with faculty; type, edit and finely polish term papers; and assist social agencies in analyzing data on their services to clients. The laboratory also contains up-to-date information on all social work programs in the country at the undergraduate and graduate levels and on social work career opportunities around the country.

Bilingual opportunities
The social work curriculum offers students the flexibility of acquiring skills in a second language, if they choose. The most popular and easiest to acquire is sign language with deaf individuals since students participate in the living laboratory of integrated education during the entire time they are at RIT. Increasingly valuable as a second language for social workers is Spanish. Students can acquire proficiency in Spanish through choosing an appropriate liberal arts concentration or electives. Either of these options prepare the graduate to seek bilingual social work positions.

Graduate Education: courses and opportunities
In 1986 RIT began offering graduate social work courses at the Henrietta campus for the School of Social Work at the State University of New York at Buffalo (SUNYAB). These courses cover most of the first year of the two-year MSW program of SUNYAB, and are designed for the student who does not have a baccalaureate preparation in social work.

BS in Economics program

pr. Michael Vernarelli, Program **Chairperson**

The BS in economics degree emphasizes the quantitative analytical approach to dealing with economic problems in both the private and public sectors. This emphasis provides students with marketable skills and the intellectual foundation for career growth. The main feature which distinguishes the BS in economics from other, traditional economics degrees is that our curriculum prepares students for the world of work by developing communication, computer, and management skills in addition to economic reasoning and quantitative abilities. Students in the program are involved in a wide variety of management and analytical positions both in co-op and after graduation.

Yr.	BS DEGREE IN ECONOMICS	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	GSSE-301,302 Principles of Economics I, II	4	4		
	GECN-310 Managerial Economics			4	
	SMAM-225,226 Algebra and Calculus for Management Science				
	OR				
	SMAM-251,252 Calculus I, II	4	4		
	BBUA-301,302 Financial and Managerial Accounting . .		4	4	
	ICSS-200 Survey of Computer Science			4	
	'Liberal Arts (Core)	8	4	4	
	Education	0		0	
2	GECN-405 Monetary Analysis and Policy	4			
	GECN-410 Applied Econometrics I		4		
	GECN-411 Applied Econometrics II			4	
	BBUQ-330 Introduction to Data Analysis	4			C
	ICSA-210 Program Design and Validation		4		O
	ICSA-208 Introduction to Programming	4			O
	GLLC-440 Human Communication			4	p
	"Liberal Arts (Core)	4	4	4	
	Science Requirement		4	4	
	tPhysical Education	0		0	
3	GECN-450 Intermediate Microeconomic Theory	4			
	GECN-451 Intermediate Macroeconomic Theory		4		
	GECN-460 Mathematical Methods for Economics			4	
	BBUQ-334 Management Science	4			C
	BBUF-441 Corporate Finance		4		0
	GSSP-448 Industrial Psychology				0
	OR				p
	GSSS-443 Sociology of Work			4	
	Professional Electives	4	4	4	
	"Liberal Arts (Concentration)	4	4	4	
4	GECN-510 International Trade and Finance	4			
	GECN-520 Industrial Organization		4		
	GECN-550 Seminar in Applied Economics			4	
	GLLC-444 Technical Writing	4			
	GLLC-402 Conference Techniques		4		
	Professional Elective			4	
	"Liberal Arts (Electives & Senior Seminar)	6	4	4	

'Seepage *116 for Liberal Arts requirements.*
tSee page 200 for policy on Physical Education.

Curriculum

Students take rigorous and challenging required courses which are specifically designed to develop the ability to apply economic analysis to real world problems. Required communication courses enhance the student's ability to communicate in oral and written form. The business courses which are part of the program include accounting, finance, and management science. Quantitative analytical skills are developed by a course sequence including computer science, mathematics and statistics.

Professional electives which allow students to pursue advanced study in their individual areas of interest are available through the program. Along with finance, marketing, mathematics, statistics, or computer science, are many other possibilities, limited only by the student's creativity in designing a personalized program of study.

Study environment

The economics faculty serve as mentors who are readily available to enhance students' personal and professional growth. Students in the program have the opportunity to work as research assistants for the faculty, learning about research techniques using a hands-on approach. Students working as research assistants receive a stipend.

Cooperative education

Students in the economics program have the option of participating in co-op at RIT and may be placed with financial institutions, brokerage houses, government offices, and large corporations. Co-op can be taken during any quarter after the sophomore year including summer.

Opportunities for graduates

Graduates with a BS in economics are prepared for a wide variety of entry-level positions in management and quantitative analysis. Students are further prepared for graduate study in economics, business or law.

Requirements for the BS in economics degree

Students earning a BS in economics will be required to complete 182 credit hours of course work. The 182 credit hours include 40 credit hours of required economics courses in the College of Liberal Arts. The 10 required economics courses constitute the student's principal field of study. Students must maintain a 2.0 average for all Institute work and a 2.0 average in the principal field of study. Those students not maintaining the minimum grade point will be subject to academic probation or suspension according to Institute policy.

Professional and Technical Communication

Dr. Diane Hope, Program Chairperson

The BS in professional and technical communication combines education in the theory and practice of spoken, written and visual communication with extensive instruction in one of RIT's existing professional or technical programs. Students in this program develop practical communication skills grounded in sound theoretical knowledge along with a working familiarity with the central concepts and processes of a particular professional/technical field.

Graduates of the program are qualified to serve a number of different functions as communication specialists within a specific professional area. Their career opportunities are numerous and varied. The degree also prepares students for graduate work in communication and other related fields.

Need for the program

Numerous surveys and studies highlight the importance of effective communication in the technical and specialized world of business and industry. Today, employees use communication skills more than any others in their jobs, and the use of these skills becomes more frequent and more important with increasingly responsible positions. As knowledge becomes more technical and specialized, there is a growing need to communicate this knowledge to wide and diverse audiences. As communication media make the world more interdependent, there is need for college graduates not only skilled in how to communicate but equipped with a theoretical understanding of the principles of communication and the changing contexts in which those principles can be applied.

In addition to their work in the theory and practice of communication, totalling 76 quarter credits (52 required credits and 24 elective credits), students also take 28 quarter credits in another professional or technical discipline (professional core). So far, the program includes professional core areas in business, computer science, photography, science, and printing.

An additional option is available to students with special study and career interests. Please note that approval for an Individually Designed professional core must be obtained from the academic advisor and from the program chairperson.

Their course work in the professional core gives the students sufficient familiarity with the vocabulary and methodologies of that field to communicate both with specialists within the field and with the general public about the work of specialists. Studies and discussions with employers indicate that this ability to communicate specialized knowledge to non-specialist audiences will become even more important in the future.

The program includes two quarters of cooperative education, which gives students an opportunity to apply knowledge gained in class to a work situation in business or industry. RIT's considerable experience with cooperative education indicates that cooperative education deepens the students' knowledge of their field, allows them to determine their suitability for a particular kind of position, and increases chances for an advantageous placement upon graduation.

The program combines the liberal arts education expected of RIT undergraduates with a thorough education in communication and substantial exposure to a professional core. Therefore, graduates of the program will possess knowledge of practical applications that will enhance their employability and their effectiveness in their jobs.

Curriculum

The following curriculum description displays the course distribution by academic area. The chart indicates the sequence for the required courses in the program.

Required communication courses (52 total credit hours)
Foundations of Communication
Human Communication
Effective Speaking
Conference Techniques
Writing and Thinking
Mass Communications
Persuasion
Theories of Communication
Visual Communication
Technical Writing
Professional Writing
Research Methods I and II
Senior Thesis in Communication

Other Required Courses (52 total credit hours)

	Credit hours
Professional Core	28
Science	8
Math	8
Computer Science	4
Statistics or Math or Science	4

Communication Electives (24 total credit hours; four credit hours a course)
Liberal Arts (54 total credit hours)

Communication electives

Students in the program are required to take six communication electives, including at least one writing elective. Electives include the following:

GPTC-320 Small Group Communication
GPTC-322 Interpersonal Communication
GPTC-324 Interviewing
GPTC-332 Newswriting
GPTC-336 Creative Writing
GPTC-415 Organizational Communication
GPTC-420 Advanced Public Speaking
GPTC-425 Teleconferencing Communication Management
GPTC-432 History of English Language
GPTC-435 Public Relations
GPTC-436 Advanced Creative Writing
GPTC-452 Uses and Effects of Mass Media
GPTC-454 Communication and Documentary Film
GPTC-515 Persuasion and Social Change
GPTC-520 Intercultural Communication
GPTC-525 Special Topics in Communication (e.g., Conflict Negotiation; Listening; Nonverbal Communication; History of Public Address; Propaganda)
GPTC-530 Advanced Technical Writing
GPTC-550 Film and Society

The Professional Core

Students in Professional and Technical Communication are required to take one professional core as part of their degree requirements. At present there are five professional core options available. Each is composed of seven courses for a total of 28 credit hours. Following is an outline of the five options. Although prerequisites are required for some of the courses, not all of them are listed here.

College of Business

Basic courses

BBUA-301 Financial Accounting

BBUB-430 Organizational Behavior (prereq.; junior status)

BBUM-463 Principles of Marketing (prereq.; junior status)

Management track

BBUB-438 Business Ethics (prereq. BBUB-430; junior status)

BBUB-455 Human Resources Management (prereq. BBUB-430; junior status)

BBUB-480 Training and Development (prereq. BBUB-455; junior status)

BBUB-490 Entrepreneurship (prereq.; junior status)

Marketing track

BBUM-505 Consumer Behavior (prereq. BBUM-463; junior status)

BBUM-553 Sales Management (prereq. BBUM-463; junior status)

BBUM-555 International Marketing (prereq. BBUM-463; junior status)

BBUM-560 Marketing Communication (prereq. BBUM-463; junior status)

Finance track

BBUA-302 Managerial Accounting (prereq. BBUA-301)

GSSE-301 Principles of Economics

BBUQ-330 Data Analysis (prereq. SMAM-226; ICSA-200)

BBUF-441 Corporate Finance (prereq. BBUA-302; GSSE-301; BBUQ.-330; junior status)

General track

BBUA-319 Legal Environment of Business

BBUM-505 Consumer Behavior (prereq. BBUM-463; junior status)

BBUM-560 Marketing Communications (prereq. BBUM-463; junior status)

BBUB-455 Human Resources Management (prereq. BBUB-430; junior status)

BBUB-490 Entrepreneurship (junior status)

Yr.	BS IN PROFESSIONAL AND TECHNICAL COMMUNICATION	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR
1	GPTC-200 Found, of Communication	4			
	GLLC-220 English Composition	4			
	Survey of Computer Science	4			
	Math: Algebra for Management Science	4			
	GPTC-210 Human Communication		4		
	Liberal Arts: Humanities		4		
	GPTC-230 Writing and Thinking		4		
	Math: Calculus for Management Science		4		
	GPTC-220 Public Speaking			4	
	Liberal Arts: Humanities			4	
	Liberal Arts: Literature			4	
	Liberal Arts: Social Science			4	
2	GPTC-325 Persuasion	4			
	GPTC-310 Conference Techniques	4			
	GPTC-315 Research Methods I	2			
	Communication Elective	4			
	Professional Core	4			
	Science: Human Biology I and Lab		4		
	Liberal Arts: Humanities		4		
	Liberal Arts: Social Science		4		
	GPTC-316 Research Methods II		2		
	Professional Core		4		
	Science: Human Biology II and Lab			4	
	Communication Elective			4	
	GPTC-350 Mass Communications			4	
	Professional Core			4	
	GPTC-499 Co-op				0
3	GPTC-445 Theories of Communication	4			
	GPTC-430 Technical Writing	4			
	Liberal Arts Concentration	4			
	Professional Core	4			
	GPTC-450 Visual Communication		4		
	Liberal Arts Concentration		4		
	Communication Writing Elective		4		
	Professional Core		4		
	GPTC-499 Co-op			0	
4	Liberal Arts Elective	4			
	Communication Elective	4			
	Liberal Arts Concentration	4			
	Professional Core	4			
	GPTC-532 Professional Writing		4		
	Math or Science or Statistics		4		
	Liberal Arts Elective		4		
	Professional Core		4		
	Seminar Seminar		2		
	Communication Elective			4	
	Communication Elective			4	
	Liberal Arts Elective			4	
	Senior Thesis in Communication			4	

" Co-op scheduling is flexible and can be completed whenever requirements are met.

Computer Science

Core courses

ICSS-200 Survey of Computer Science

ICSS-208 Introduction to Programming

ICSS-210 Program Design and Validation

Electives

ICSP-300 Business Applications Using COBOL

ICSP-303 Advanced Business Applications

ICSS-410 Computer Concepts and Software Systems

ICSS-411 Data Communications and Computer Networks

ICSS-483 Applied Database Management

ICSS-525 Assemblers, Interpreters, and Compilers

School of Photographic Arts and Sciences

Imaging and Photographic Technology

Core Courses

PPHT-211, 212, 213 Material and Processes of Photography

PPHM-201, 202, 203 Basic Principles of Photography

Electives (providing prerequisites are met)

PPHT-311 Color Photography/ Design

PPHT-312 Color Printing/Theory

PPHT-341 Introduction to Photography for Publications

PPHT-425 Nature Photography

PPHT-444 Reversal Color Printing

Applied Photography

PPHL-205, 206 Creative Problems

PPHL-437, 438, 439 Visual Communications Workshop

PPHL-207 Introduction to Color

No number assigned History of Applied Photography

No number assigned Studio Practices

Film/Video
PPHF-207, 208 Introduction to Portable Video I and II
PPHF-204, 205, 206 History and Aesthetics of the Moving Image
PPHF-551 Introduction to Film Production
(other courses will be open if not filled by F/V majors)
Fine Arts Photography
PPHA-207, 208, 209 Still Photography
PPHA-313 Introduction to Fine Arts
PPHA-531 Picture Researching
PPHA-561 Semiotics and Photography

College of Science
The mathematics foundation and basic science sequence would depend on what option students would pursue, but students would need to take three mathematics courses (allowed for in the curriculum) and three basic science courses (the curriculum requires two). Students would also take an additional basic science sequence from the list of basic science sequences.

- **Biology**
  SBIB-201, 202, 203 General Biology
  SBIB-205, 206, 207 General Biology Laboratory
- **Chemistry**
  SCHG-211, 212 Chemical Principles I, II
  SCHG-205, 206 Chemical Principles Laboratory
  (SCHG-213) Introduction to Organic Chemistry
  SCHG-207 Introduction to Organic Chemistry Laboratory
- **Physics**
  SPSP-311, 312, 313 University Physics
  SPSP-375, 376, 377 University Physics Laboratory

In addition students would take an additional sequence in one of these sciences.

- **Biology**
  SBIB-304 Botany
  or
  SBIB-340 Ecology
  plus
  SBIB-305, 306 Physiology and Anatomy
- **Chemistry**
  SCHO-231, 232, 233 Organic Chemistry
  SCHO-235, 236, 237 Organic Chemistry Laboratory
- **Physics**
  SMAM-305 Calculus
  SPSP-314 Introduction to Modern Physics
  SPSP-341 Foundations of Scientific Thinking

Printing
Core requirements: 12 credits
PPRM-230 Printing Process Concepts
PPRM-250 Concepts of Design and Typography
PPRM-270 Prepress Imaging Concepts
The remaining 16 credits are chosen in a printing concentration emphasizing Process, Design or Imaging.

Graduation requirements
Students earning a BS in professional and technical communication are required to complete 181-182 quarter credit hours. These hours include 54 hours of liberal education courses in the College of Liberal Arts, 52 hours of required communication courses plus 24 hours of communication electives, 28 credit hours in a professional core, 8 hours of mathematics and 8 hours of a science sequence plus an additional 4 hours of either mathematics or science or statistics as well as 4 hours in computer science. In addition two quarters of co-op must be completed. Students must meet Institute requirements in physical education.

The student's principal field of study is defined as the 14 required communication courses listed on the previous page, the six communication electives chosen from the list on the previous page, and all courses in the student's professional core.

Students in this program may not choose the language concentration to meet the requirements of their 54 hours of liberal arts curriculum.

Students must maintain a 2.0 average for all Institute work and a 2.0 average in the principal field of study.

The Technical and Liberal Studies Option

Dr. Katherine Mayberry, Program Chairperson

Students often are attracted to RIT because of the opportunity to specialize in a career-oriented or technical program beginning with their first year of college. Most freshmen or transfer students have chosen a career area by the time they have been accepted for admission to RIT. Others, however, may be considering a technical, career-oriented education, but want an opportunity to explore several fields before making a decision about a particular career objective.

The major goal of the technical and liberal studies option is to help students formulate an educational career plan or decide on the next steps compatible with their still emerging plans. Such steps might include entering one of RIT's degree programs, applying to another college or university for a program not offered at RIT, or—possibly —deciding to prepare for a career not requiring a college degree.

In addition to sampling introductory and foundation courses in one or more of RIT's departments, full-time technical and liberal studies students enroll for liberal arts courses in the humanities, social sciences, and mathematics. They also take a one-credit seminar, Academic Fields of Study, in which they are exposed to the full array of degree programs offered by RIT.

For example, during the first quarter in the program, a student might enroll in a beginning printing course (such as Typography I or Layout and Printing Design). In order to leave other options open while earning additional college credit, the student might also register for two required liberal education courses (such as History and Introduction to the Visual Arts).

Another student may be fairly certain he or she wants to be either an accountant or a scientist, but needs further information about these fields in order to consider goals and values more thoroughly. After academic advising he or she may decide to spend a year in the technical and liberal studies option, sampling both accounting and science courses.

Depending upon available classroom space and students' academic readiness, technical and liberal studies students may sample courses in any major area represented by RIT departments, although possibilities for exploration in art, crafts, engineering and photography are very limited.

Students who select this option must, of course, meet standards and requirements of the RIT schools and colleges to which they might eventually apply. Some additional time may be necessary to complete degree requirements because the technical and liberal studies student has spent time in preliminary exploration.

Of the 12 courses that a student would take during three quarters in the technical and liberal studies option, however, at least nine would be required in any RIT baccalaureate degree program. Therefore, the maximum "loss of time," no matter what the student's final program choice, will not be too severe.

Each student will be assisted by a faculty academic advisor. The dean of the college also will work directly with any student who has special difficulties in selecting a career path and degree program.

After one academic year (one to four quarters), each student may reasonably anticipate:

—A clearer basis for making a decision regarding long-range career plans;
—Credit for courses which would most likely apply to RIT degree programs or to programs at other colleges;
—Assistance in matriculating in the curriculum of the student's choice at RIT, provided that relevant standards and requirements are met and that space in the program is available.

By special permission a student may enroll for portions of this program on a part-time basis.

College of Science

Dr. John D. Paliouras, Dean

Undergraduates in the College of Science receive an unusual education, one that emphasizes the applications of science and mathematics in the professional world while still providing a comprehensive liberal arts education in the humanities and social sciences. The College of Science curricula, under the direction of our faculty members, reflect modern trends in the applications of science and mathematics while preparing students for graduate study, as well as immediate employment in business, industry, and the allied health professions.

Our emphasis is on the practical aspects of science and mathematics as found in science and computer laboratories; we are career oriented. At the same time we recognize the value of the social sciences, English composition, literature, history, philosophy, and fine arts for the intellectual enrichment of our students. In addition to technical competence, many of the skills acquired through the study of these liberal arts subjects are required by employers for promotion and career advancement.

Faculty and research

The College of Science has an ideal size and philosophy to provide a quality education. We have nearly 90 faculty members in the sciences, health professions, and mathematics. All our faculty members are committed to the education of undergraduate students; most hold the Ph.D. degree. They provide a variety of faculty expertise, so a student is likely to find a faculty member with similar interests to act as a mentor and friend.

Our faculty members are dedicated teachers who also practice their professions outside of the classroom in research and other professional activities. Our undergraduate students are encouraged to work with faculty members as they pursue their research. A number of joint student-faculty research projects have resulted in publication in professional literature.

Facilities and resources

The College of Science was built in 1968. In addition to an auditorium and nine classrooms, there are 22 teaching laboratories and 16 research laboratories that provide space for laboratory course work and student research projects. Some of the facilities within the building have specialized purposes. For example, we have a laser-optics laboratory, an animal care facility, a diagnostic imaging laboratory, a plasma etching laboratory, three greenhouses, an electronics laboratory, a nuclear magnetic resonance laboratory, and an electron microscope center. All of these facilities are used by undergraduate students.

The Chemistry Library, located on the third floor, is a favorite student study area and houses some of the chemistry library collection. The RIT Wallace Memorial Library has a large collection of books and journals in science, mathematics, and health care fields.

State-of-the-art computer facilities are available to all students at RIT. This is a valuable resource for College of Science programs that use the computer as a tool in the applications of mathematics, health-related work, and science.

Academic advising

Each student who enrolls in a College of Science program is assigned an academic advisor who provides counsel on course selection, advice about careers, and information about RIT services. Most of our faculty members serve as academic advisors. It is not unusual for a College of Science major to have several friends among the faculty who help with academic, career, and personal questions.

Undeclared major

The student who has decided upon a specific major field will indicate a choice when applying for admission to RIT and, upon admittance to the Institute, will be enrolled as a candidate for a degree in that field.

Many high school students, however, don't know which major they prefer. We encourage such students to come to RIT if they have a strong interest in science and mathematics.

A student may apply to RIT's College of Science as an Undeclared Science major without designating a specific major. The undeclared science option allows a student to postpone a definite commitment to a particular major in science or mathematics without any loss of time toward a degree. This option has been attractive to quite a few first-year students.

Below is a typical distribution of courses for the undeclared science option. The program covers a number of introductory college-level courses in science and mathematics and can be tailored to meet a student's interests. An academic advisor assists the student in selecting courses and identifying a major field of interest in which to enroll.

Prior to the end of the first year, the student should decide upon a specific major and then enroll as a candidate for a degree. Most students in our undeclared science option find the decision is easily made after only a quarter or two of course work.

Yr.	UNDECLARED SCIENCE OPTION	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	"SBIB-201,202,203 General Biology Lec	3	3	3
	SBIB-205,206,207 General Biology Lab	1	1	1
	•SCHC-251,252,253 General Chemistry Lec. I, II, III	3	3	3
	SCHA-261,262,263 Intro, to Chemical Analysis I, II, III	3	3	3
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	"SPSP-311,312 University Physics I, II		4	4
	SPSP-375,376 University Physics Lab I, II		1	1
	"Liberal Arts (Core)	4	4	4
	•Physical Education Electives	0	0	0

'Any two of these three in a given quarter.
"Seepage 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Our graduates

The best way to evaluate college programs is to look at the success of the graduates. In recent surveys of our graduates, more than 90% responded that they are employed in a field related to their degree and more than 90% expressed satisfaction with their work.

Employers of our graduates report that they have good preparation for employment in business and industry and, because of their work experience, immediately fit into their jobs with a high degree of initiative and seriousness of purpose.

About one-fourth of our graduates enter graduate or professional school after graduation. We have found that they do exceedingly well. Many find that, because of their laboratory and co-op experience, they can move into their graduate research projects more easily than their classmates.

The cooperative plan

In our cooperative education plan (co-op), a student alternates quarters of paid work with quarters on campus in academic study for two or three years. Co-op employment experience in a student's field of study has many advantages.

Through co-op, students often gain insights that help them with classroom work. Co-op gives students a chance to find out what working in their chosen fields is really like. Acquiring practical experience that is valuable in getting a job or into graduate school after graduation is another benefit of co-op. Income from this work-study program enables students to obtain a high quality education at a cost often comparable to a public education.

Although co-op is not required in any of our programs, many students elect this five-year plan, which works as follows. RIT's school year is divided into four 11-week quarters: Fall, Winter, Spring, and Summer. Students in the five-year co-op programs in biology, biotechnology, applied mathematics, applied statistics, computational mathematics, biomedical computing, and physics programs attend classes during the fall, winter, and spring of their first two years. During the last half of the second year, the student works with the Office of Cooperative Education and Placement in obtaining a co-op position. At the beginning of the third year the student begins alternating quarters of work and study, as shown in the accompanying diagrams. Some students are on the A-block schedule and others on the B-block. Students in the five-year chemistry, biochemistry, and polymer chemistry co-op plans follow the same kind of schedule, except that their co-op experience could start as early as the summer of the first year.

Cooperative Schedule for Five-Year Program in Biology, Biotechnology, Mathematics, Statistics, and Biomedical Computing

Year		Fall	Winter	Spring	Summer
land 2		RIT	RIT	RIT	Vacation
3 and 4	A	RIT	Work	RIT	Work
	B	Work	RIT	Work	RIT
5	A	RIT	Work	RIT	–
	B	Work	RIT	RIT	-

Cooperative Schedule for Five-Year Chemistry, Polymer Chemistry and Physics* Programs

Year		Fall	Winter	Spring	Summer
1		RIT	RIT	RIT	Vacation/Work
2,3	A	RIT	Work/RIT*	RIT	Work
and 4	B	Work	RIT	Work	RIT
5*	A	RIT	Work	RIT	-
	B	Work	RIT	RIT	-

'Physics majors ordinarily ere all on A-block, and 2nd year students attend classes winter quarter.

The internship plan

Students in the medical technology, nuclear medicine technology, and diagnostic medical sonography (ultrasound) programs do not participate in co-op. Instead these students spend three years on campus in academic work and then gain invaluable clinical experience during the fourth year at a clinical training site.

The transfer plan

Students with associate's degrees in a comparable program from other educational institutions normally can expect to transfer at the junior year level. Transfer credit is granted for those studies which parallel Institute courses in the curriculum for which admission is sought.

Transfer students applying for a program at RIT similar to their previous college study are expected to present an accumulative average of "C" or above. Students making significant program changes will be evaluated on the probability of their success in the new program with the grades earned in previous study only a part of the criteria.

It is also RIT policy to grant credit by examination, in lieu of course credit, for subjects that parallel the objectives and content of courses for which advanced credit is being sought. Contact the director of admissions for policy and procedures.

Graduate degrees

The College of Science offers master of science degrees in chemistry and clinical chemistry. A master of science in materials science and engineering is offered jointly by the College of Science and the College of Engineering.

Premedical studies

A student interested in entering a professional school of medicine, dentistry or veterinary science after completing a baccalaureate degree may enroll in any BS program in the College of Science and combine that program's course requirements with what we call the premedical core (see chart on next page). The premedical core is a set of courses required for admission to most medical, dental, and veterinary schools in the United States. These courses should be completed by the end of the third year or prior to the time the student expects to take the MCAT, DAT, VAT, or other admissions tests required for entrance to a professional school.

The way in which program requirements are combined with the premedical core courses varies according to the program in which a student is enrolled (see chart below). Our biology and chemistry (biochemistry option) program requirements already include the premedical core courses. Our biotechnology, chemistry, polymer chemistry, biomedical computing, medical technology, nuclear medicine technology, and diagnostic medical sonography degree programs contain some of the premedical core courses, and the remainder can be elected within the program with careful scheduling. The programs in the Mathematics and Physics departments do not contain many of the premedical core courses. A student in one of these programs (applied mathematics, computational mathematics, applied statistics, or physics) will need to take course credits beyond the number required for a degree. This could be accomplished by taking courses during one or two summers. Advanced placement credit from high school may reduce the additional time needed. Again, careful scheduling and early planning will reduce the difficulties.

Each student who is interested in Premedical Studies is assigned an academic advisor who assists the student in selecting and scheduling course work. In addition, our Premedical Advisory Committee provides counsel and guidance on how to apply to a professional school and coordinates the application process. Students graduating from the College of Science have gained admission to medical, dental, and veterinary schools throughout the country. Others have gone on to schools of podiatry, optometry, and osteopathy, and our Premedical Advisory Committee is ready to assist students with these interests as well. However, till students considering Premedical Studies should remember that acceptance at a professional school is highly competitive and is entirely the decision of that school.

We believe very strongly that all students in our program should commit themselves to developing the greatest competency possible in the discipline in which they are enrolled. It is important, therefore, that students interested in Premedical Studies realize that, while their career objectives may include a professional school after graduation, they should select a program to which they are prepared to make a sincere and major commitment as an undergraduate student. This approach will increase a student's career options upon graduation.

PREMEDICAL CORE

Biology	**1 year**	**With laboratory**
Chemistry	**2 years**	**General Chemistry, 1 year** **Organic Chemistry, 1 year** **(both years with laboratory)**
Physics	**1 year**	**With laboratory**
English	**1 year**	

Note: In addition to these courses, which are required by virtually all medical schools, additional courses in mathematics, psychology/behavioral sciences, or biology may be required by specific schools. The admissions requirements of each medical school are published and may be obtained from the Premedical Advising Committee.

COMBINING YOUR PROGRAM'S REQUIREMENTS WITH THE PREMEDICAL CORE COURSES*

If you major in:	**You will need to take the courses required for your major, plus:**
Applied Mathematics	
Applied Statistics	
Biology	**None**
Biomedical Computing	**Elect one year of organic chemistry**
Biotechnology	**Elect one year of physics**
Chemistry	**Elect one year of biology**
Chemistry (Biochemistry Option)	**None**
Computational Mathematics	"
Diagnostic Medical Sonography	**Elect one year of general chemistry and one year of organic chemistry**
Medical Technology	**One quarter organic chemistry lab**
Nuclear Medicine Technology	**Elect one year of organic chemistry**
Physics	"
Polymer Chemistry	**Elect one year of biology**

'Some rearrangement of the typical pattern of course work within a program may be necessary.
"Course credits beyond the usual 12 quarters needed to complete degree requirements are necessary.
Call the College of Science, 716-475-2485, for more information.

Admission at a Glance: College of Science Programs

General information on RIT's admission requirements, procedures and services is included in detail on pages 176-177 of this bulletin.

Undergraduate programs in the College of Science are offered in the fields listed below. Graduates of these programs receive a bachelor of science degree and are prepared for professional employment in their respective fields or entry into graduate studies.

The typical course schedules shown on the following pages illustrate the requirements for a degree. Some course variations and additional course work are usually possible. Students should consult with an academic advisor before registering for any courses.

Course descriptions
For a complete outline of courses offered at RIT, please request the Course Description Catalog from the Admissions office.

Applied Mathematics—Graduates qualify for positions in high-tech industry, governmental agencies and business, as well as for graduate study. A combination of mathematics and computer courses together with electives in math-related areas greatly enhances employment opportunities. Degree granted: AS—2 year; BS—4 or 5 years, depending on co-op.

Applied Statistics—Because American industry is very interested in quality control, reliability analysis and statistical forecasting, graduates of this program find easy entry into industrial or business environments, or into graduate study for an advanced degree. Degree granted: AS (Applied Mathematics)—2 year; **BS**—4 or 5 years, depending on co-op.

Biology—Prepares students for occupations in research laboratories, food and agriculturally related industries, the pharmaceutical industry and environmental organizations. Graduates may pursue advanced degrees in the medical professions or in biological disciplines. Degree granted: AS—2 year; BS—4 or 5 years, depending on co-op.

Biomedical Computing—Graduates are prepared for positions in medical and industrial laboratories, software companies, and hospital computer departments working with scientists, physicians, and other health professionals on clinical or medical research projects. Degree granted: BS—4 or 5 years, depending on co-op.*

Biotechnology—Graduates are prepared to work in research and industrial processes involving genetic engineering, monoclonal antibodies and industrial fermentation technologies or may pursue graduate degrees in molecular biology, genetics, microbiology, biochemistry and immunology. Degree granted: BS—4 or 5 years, depending on co-op.*

Chemistry—Graduates qualify for positions in several fields of chemistry including professional industrial work in processing and laboratory operations research and experimental work, supervision of technical projects, managerial positions and graduate study. Degree granted: AS—2 to 3 years; BS—4 or 5 years, depending on co-op.

Computational Mathematics—A strong core of nine high-level computer science courses is integrated into an applied mathematics curriculum. Graduates, who are in great demand, usually take positions which are very computer oriented. Degree granted: AS (Applied Mathematics)—2 year; BS—4 or 5 years, depending on co-op.

Diagnostic Medical Sonography (Ultrasound)—Prepares students in abdominal, obstetrical and gynecological ultrasound scanning procedures used in clinical and research settings. Baccalaureate option—three years at **RIT** and one year of clinical internship. Certificate option—four courses and one year of clinical internship. Degree granted: BS—4 year*; Certificate—1 ½ year.

Medical Technology—Prepares students for employment in hospital, industrial, pharmaceutical or research laboratories. Students spend three years at **RIT** and one year in an approved hospital internship. Degree granted: BS—4 year.*

Nuclear Medicine Technology— Prepares students to use small amounts of radioactive materials in scanning and other medical procedures to assist physicians in the diagnosis and treatment of diseases. Requires three years at RIT and one year of clinical internship. Degree granted: BS—4 year.*

Physics—Graduates find employment opportunities with industrial, academic, and government institutions, or pursue graduate study in physics or in such areas as biophysics, geophysics, atmospheric science, imaging science, and industrial and business administration. Degree granted: AS—2 year; BS—4 or 5 years, depending on co-op.

Polymer Chemistry—Graduates qualify for positions in industry and governmental agencies. Opportunities in this rapidly growing field are available in basic and applied research, management and graduate study in chemistry and materials science. Degree granted: AS (Chemistry)—2 to 3 years; BS—4 or 5 years, depending on co-op.

'Students in these programs may receive an AS in General Science.

Freshman Admission Requirements Transfer Admission

Program	Required High School Subjects*	Desirable Elective Subjects	Some Recommended Course Work
Applied HaMumaMM nwlmmaucB **Computational** llalhaiwllw Malrxmralrcs **Aooliad** oiauSuCS	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Chemistry or Physics**	**Physics or Chemistry; additional mathsmatic8**	**Differential, integral, and multivariate calculus; differential equations; matrix and linear algebra; discrete mathematics; laboratory science courses; FORTRAN, PASCAL, or Modula-ll and other computer science courses.**
Biology	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Biology; Chemistry**	**Physics; additional mathematics; Computer Science**	**General biology and other biology courses, general chemistry, organic chemistry, calculus**
Biomedical Computing	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Biology**	**Physics; Chemistry; additional mathematics; Computer Science**	**General biology, general chemistry, calculus, FORTRAN and other computer science courses, human anatomy and physiology**
Biotechnology	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Biology; Chemistry**	**Additional mathematics; Computer Science; Physics**	**General biology, microbiology, genetics, general chemistry, organic chemistry, calculus**
^kamlahu WwiTllouy **Chemistry (Biochemistry Option)**	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Chemistry**	**Physics; additional mathematics**	**General chemistry, organic chemistry, quantitative analysis, calculus, physics (calculus-based)**
Medical Technology	**Bern. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Biology**	**Physics or Chemistry**	**General chemistry, general biology, general physics, mathematics, organic chemistry, human anatomy and physiology**
IAIABV llaiilnlw **nucioar MwicinB Technology**	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Biology; Chemistry**	**Additional science and mathematics**	**General biology, human anatomy and physiology, general chemistry, organic chemistry, general physics, mathematics**
Diagnostic Medical Sonography	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; 2 years lab science**	**Additional mathematics and science**	**General biology, human anatomy and physiology, chemistry, general physics, mathematics**
DKIMIM rlywCB	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Physics orChemistry**	**Chemistry or Physics; additional mathematics**	**Physics (calculus-based), modem physics, general chemistry, calculus, differential equations, computer programming**
Polymer Chemistry	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Chemistry**	**Physics; additional mathematics**	**General chemistry, organic chemistry, quantitative analysis, calculus, general physics**
Undeclared 8cience Option	**Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Lab science**	**Physics; Chemistry; Biology or additional mathematics**	**Not applicable**

"Four years of English are required in all programs, except where state requirements differ.

Biology Program

G. Thomas Frederick, Ph.D.,Head

The Department of Biology offers programs leading to the AS and BS degrees in biology.

Graduates receiving the BS degree find rewarding positions in occupations related to the life sciences, including biomedical research laboratories, the pharmaceutical industry, food and agriculturally related industries and environmental organizations. The program also prepares students for the pursuit of degrees in the medical professions as well as graduate degrees in a variety of biological disciplines.

Requirements for the BS degree in biology

The student must meet the minimum graduation requirements of the Institute as described on page 171 of this bulletin. In addition, the program requires the successful completion of a total of 60 quarter credit hours in biology. A required core of courses comprises 45 quarter credit hours in biology (General Biology, Introduction to Co-op, General Ecology, Botany, Introductory Microbiology, Genetics, Biology Seminar, one course in zoology, one course in physiology and Biological Writing). The remaining 15 hours are selected from biology eiectives.

Additional requirements for the BS degree in biology include a minimum of six courses in chemistry including three in general analytical and three in organic chemistry. A minimum of three courses in physics, one course in computer science, three courses in mathematics including two calculus and one statistics course, and one course to introduce the student to cooperative education are also required.

For more information on AS and BS degree requirements, contact the head of the Department of Biology.

Specialization areas

In conjunction with a faculty advisor, individual student programs can be established to meet personal goals and career objectives. Because these areas are designed around the common core curriculum, the student has the added advantage of being prepared for alter nate career goals, should the situation arise. The following specialization areas are available at RIT:

Yr.	BIOLOGY, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SBIB-201,202,203 General Biology Lecture	3	3	3
	SBIB-205,206,207 General Biology Laboratory	1	1	1
	SCHG-215,216,217 General Analytical Chemistry Lecture	4	3	3
	SCHG-225,226,227 General Analytical Chemistry Laboratory	1	1	2
	SMAM-214,215 Introduction to Calculus	3	3	
	ICSA-200 Survey of Computer Science			4
	"Liberal Arts (Core)	4	4	4
	‡Physical Education Eiectives	0	0	0
2	SBIB-340 General Ecology	4		
	SBIB-304 Botany	4		
	SCHO-231,232,233 Organic Chemistry Lecture	3	3	3
	SCHO-235,236,237 Organic Chemistry Laboratory	1	1	1
	SMAM-309 Statistics			4
	Biology Eiectives		4	4
	'Liberal Arts (Core)	4	8	4
	tPhysical Education Eiectives	0	0	0
		VARIABLE QUARTERS		
3" 4 5	SBIB-350 Molecular Biology	4		
	SBIB-370 Biological Writing	2		
	SBIB-404 Introductory Microbiology	5		
	SBIB-421 Genetics	4		
	SBIB-550 Biology Seminar	2		
	SPSP-211,212,213 College Physics Lecture	9		
	SPSP-271,272,273 College Physics Laboratory	3		
	Zoology Elective	4		
	Physiology Elective	4		
	Biology Elective	8		
	"Liberal Arts (Concentration)	12		
	"Liberal Arts (Eiectives)	12		
	"Liberal Arts (Senior Seminar)	2		
	Institute-wide Eiectives	15		

'See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.
"Course scheduling varies

1. Biological Research. This program, which includes a variety of courses such as toxicology, radiation biology, animal surgery, histology, electron microscopy and tissue culture, leads to employment in laboratories engaged in pure and applied biological research or in clinical and medical research.

2. Pre-professional. Students interested in careers in medicine, dentistry, veterinary science, optometry and podiatry can satisfy the requirements for admission to professional schools by majoring in biology at RIT. Elective courses would include comparative anatomy, surgical techniques, histology, toxicology, radiation biology, electron microscopy, virology, antibiotics and chemotherapy, and parasitology.

3. Post-graduate. A student achieving the BS degree in biology at RIT will have the essential prerequisites for entry into most universities offering advanced degrees in biological sciences. Eiectives such as independent study and undergraduate research can further enhance preparation for graduate programs.

4. Microbiology. This is similar to the biological research program, but emphasizes microbiological aspects that lead to careers in clinical laboratories, in food and drug quality control and in wastewater and sewage treatment facilities.

5. Environmental Science. This track prepares students for careers in ecological research and management in areas such as conservation, field biology and environmental toxicology. Students may pursue terrestrial, freshwater and marine science options.

6. Medical Technology. It is possible for a student to complete a BS degree program in biology in four years and complete internship and examination requirements for medical technology certification in the fifth year. The arrangement provides the student with a variety of options: a career as a medical technologist or a research technician, or entry into graduate or professional training.

Biotechnology Program

G. Thomas Frederick, Ph.D., Head

The Department of Biology offers a program leading to the BS degree in biotechnology. This undergraduate program is one of only a few such programs in the United States.

Students learn the modern techniques and applications of genetic engineering, monoclonal antibodies, industrial fermentation, molecular biology, genetics (general, microbial and viral), plant and animal cell and tissue culture, biochemistry and cell physiology.

Graduates of the program are prepared for employment as technologists and assistant scientists in industrial and academic research laboratories in the field of biotechnology. Industries that employ biotechnologists include those involved in pharmaceuticals, agriculture, chemistry, food production and energy. The program also prepares students for entrance into advanced degree programs in biotechnology or related areas.

Requirements for the BS degree in biotechnology

The student must meet the minimum graduation requirements of the Institute as described on page 187 of this bulletin. In addition, the program requires the successful completion of 69 quarter credit hours in biology (General Biology, Introduction to Biotechnology, Tissue Culture, Plant Cell and Tissue Culture, Molecular Biology, Introductory Microbiology, Immunology, Hybridoma Techniques, Genetics, Plant Physiology, Microbial and Viral Genetics, Cell Physiology, Industrial Microbiology, Genetic Engineer ing, Topics in Biotechnology, and Biological Writing.

Additional requirements include general and analytical chemistry, organic chemistry, two courses in biochemistry, analytical chemistry separations, two courses in calculus, one in statistics and one in computer science.

For information on AS and BS degree requirements, contact the head of the Department of Biology.

Yr.	BIOTECHNOLOGY, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SBIB-201,202,203 General Biology Lecture	3	3	3
	SBIB-205,206,207 General Biology Laboratory	1	1	1
	SBIB-250 Introduction to Biotechnology		1	
	SCHG-215,216,217 General Analytical Chemistry Lecture	4	3	3
	SCHG-225,226,227 General Analytical Chemistry Laboratory	1	1	2
	SMAM-214,215 Intro, to Calculus	3	3	
	SMAM-309 Statistics			4
	"Liberal Arts, (Core)	4	4	4
	tPhysical Education Electives	0	0	0
2	SBIB-445 Tissue Culture	4		
	SBIB-446 Plant Tissue and Cell Culture		4	
	SBIB-350 Molecular Biology			4
	SCHO-231,232,233 Organic Chemistry Lecture	3	3	3
	SCHO-235,236,237 Organic Chemistry Laboratory	1	1	1
	ICSA-200 Survey of Computer Science	4		
	SCHA-312 Analytical Chemistry-Separations Lec			3
	SCHA-319 Analytical Chemistry-Separations Lab			1
	"Liberal Arts (Core)	4	8	4
	tPhysical Education Electives	0	0	0
		VARIABLE QUARTERS		
3*	SBIB-310 Plant Physiology	4		
4	SBIB-370 Biological Writing	2		
5	SBIB-402 Immunology	3		
	SBIB-403 Cell Physiology	4		
	SBIB-404 Introductory Microbiology	5		
	SBIB-407 Microbial/Viral Genetics	4		
	SBIB-417 Industrial Microbiology	4		
	SBIB-421 Genetics	4		
	SBIB-442 Hybridoma Techniques	2		
	SBIB-450 Genetic Engineering	5		
	SBIB-579Topics in Biotechnology	3		
	Biology Electives	4		
	Biochemistry Electives	6		
	"Liberal Arts (Concentration)	12		
	"Liberal Arts (Electives)	12		
	"Liberal Arts (Senior Seminar)	2		
	Institute-wide Electives	8		

**Course scheduling varies.*
"Seepage 116 for Liberal Arts requirements.
tSee page200 for policy on Physical Education.

Chemistry Programs

Gerald A. Takacs, Ph.D., Head

The Department of Chemistry offers programs leading to the AS and BS degrees in chemistry, the BS degree in chemistry (biochemistry option), the BS degree in polymer chemistry, and the MS degree in chemistry.

Chemistry

The five-year cooperative program in chemistry leads to the bachelor of science degree and has been approved by the Committee on Professional Training of the American Chemical Society. The program prepares graduates for positions in the several fields of chemistry, including professional industrial work in processing and laboratory operations, research and experimental work, supervision of technical projects, and managerial positions. A substantial fraction of graduates continue their education for advanced degrees in chemistry or pursue careers in pharmacy, medicine and dentistry.

The chemistry program allows for flexibility in the type and number of chemistry and Institute-wide elective courses taken by the student. For example, it is highly recommended that students take the undergraduate chemistry research courses as Institute-wide elective credits. The program also provides students with the option of planning an elective concentration in complementary fields such as photoscience, business, graphic arts, audio visual communications, biology, criminal justice, engineering, environmental studies, packaging science, printing, computer science, physics or mathematics. Students may also elect to complete the BS degree requirements in a traditional (non-cooperative) four-year program.

Yr.	CHEMISTRY* (ACS CERTIFIED), TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SCHC-200 Chemical Safety	1		
	SCHC-230 Intro, to Co-op Seminar	i		
	SCHC-251,252,253 General Chemistry I, II, III	3	3	3
	SCHA-261,262,263 Intro, to Chemical Analysis	3	3	3
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	ICSA-205 Computer Techniques		3	
	'Liberal Arts (Core)	4	4	8
	$Physicai Education Electives	0	0	0
		FALL WTR.		SPG. SMR.
2	SCHA-3111nstrumental Analysis	3		
	SCHA-318 Instrumental Analysis Lab	1		
	SCHA-312 Separations Techniques			3
	SCHA-319 Separations Techniques Lab			1
	SMAM-305 Calculus IV	4		
	SCHO-431 Organic Chemistry I			3
	SCHO-435 Preparative Organic Chemistry I Lab			2
	SPSP-311,312 University Physics	4		4
	SPSP-375,376 University Physics Lab	1		1
	"Liberal Arts (Core)	4		4
	tPhysical Education Electives	0		0
3	SCHC-301 Elements of Chemical Research	1		
	SCHP-340 Intro, to Physical Chemistry	3		
	SMAM-306 Differential Equations	4		
	SPSP-313 University Physics			4
	SPSP-377 University Physics Lab			1
	SCHO-432,433 Organic Chemistry II, III	3		3
	SCHO-436 Preparative Organic Chemistry II Lab	2		
	SCHO-437 Systematic ID of Organic Compounds III Lab			2
	SCHP-441 Physical Chemistry I (Thermodynamics)			3
	SCHP-445 Physical Chemistry I Lab			1
	GLLC-530 German I			4
	•Liberal Arts (Core)	4		
	JPhysical Education Electives	0		
4	SCHP-442 Physical Chemistry II (Quantum)	3		
	SCHP-446 Physical Chemistry II Lab	1		
	SCHP-443 Physical Chemistry III (Kinetics)			3
	SCHP-447 Physical Chemistry III Lab			1
	SCHC-401 Chemical Literature	2		
	SMAM-331 Matrix Algebra	4		
	SCHI-762 Inorganic Chemistry I			3
	GLLC-531 German II	4		
	'Liberal Arts (Concentration/Elective)	4		8
	"Institute-wide Elective			3
5	SCHI-763,764 Inorganic Chemistry II, III	3		3
	SCHA-711 Advanced Instrumental Analysis	3		
	SCHA-720 Advanced Instrumental Analysis Lab	2		
	Chemistry Electives	3		3
	'Liberal Arts (Concentration)			4
	•Liberal Arts (Senior Seminar)	2		
	"Institute-wide Electives	4		4

"Seepage 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.
"SCHC-541, -542, -543, Chemistry Research may be used as Institute-wide electives and are highly recommended.

Biochemistry option

The biochemistry option is an exciting variation of the chemistry program available to students who have an interest in combining the life and health sciences with a chemistry degree. Students pursuing this option take a year of genera] biology in addition to a typical chemistry curriculum during the first two or three years. During the upper-class years, students in the biochemistry option take a substantial core of biochemistry courses, physical chemistry, chemical literature, liberal arts, and elective courses in biology, biotechnology, and clinical sciences.

Employment opportunities for chemistry graduates with the biochemistry option exist in the chemical, pharmaceutical, agricultural, forensic, and rapidly expanding biotechnological fields. Graduates also are well-prepared to enter advanced degree programs in biochemistry, medicine, dentistry, and veterinary medicine.

Yr.	CHEMISTRY BS (BIOCHEMISTRY OPTION)	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SCHC-200 Chemical Safety	1		
	SCHC-230 Intro, to Co-op Seminar	1		
	SCHC-251,252,253 General Chemistry I, II, III	3	3	3
	SCHA-261,262,263 Intro, to Chemical Analysis	3	3	3
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SBIB-201,202,203 General Biology	3	3	3
	SBIB-205,206,207 General Biology Lab	1	1	1
	'Liberal Arts (Core)		4	4
	tPhysical Education Electives	0	0	0
		FALL WTR.		SPG. SMR.
2	SCHA-3111nstrumental Analysis	3		
	SCHA-318 Instrumental Analysis Lab	1		
	SCHA-312 Separations Techniques			3
	SCHA-319 Separations Techniques Lab			1
	SMAM-305 Calculus IV	4		
	SCHO-431 Organic Chemistry I			3
	SCHO-435 Preparative Organic Chemistry I Lab			2
	SPSP-311,312 (or SPSP-211,212) Physics	4(3)		4(3)
	SPSP-375,376 (or SPSP-271,272) Physics Lab	1		1
	'Liberal Arts (Core)	4		4
	tPhysical Education Electives	0		0
3	SCHP-340 Intro, to Physical Chemistry	3		
	SCHC-301 Elements of Chemical Research	1		
	SMAM-306 Differential Equations	4		
	SPSP-313 (or SPSP-211,212) Physics			4(3)
	SPSP-377 (or SPSP-273) Physics Lab			1
	SCHO-432,433 Organic Chemistry II, III	3		3
	SCHO-436 Preparative Organic Chemistry II Lab	2		
	SCHO-437 Systematic ID of Organic Compounds III Lab			2
	SCHP-441 Physical Chemistry I (Thermodynamics)			3
	SCHP-445 Physical Chemistry I Lab			1
	"Liberal Arts (Core)	4		4
	Physical Education Electives	0		
4	SCHP-442 Physical Chemistry II (Quantum)	3		
	SCHP-446 Physical Chemistry II Lab	1		
	SCHP-443 Physical Chemistry III (Kinetics)			3
	SCHP-447 Physical Chemistry III Lab			1
	SCHC-401 Chemical Literature	2		
	SCHB-701 Biochemistry	3		
	SCHB-704 Biochemistry-Nucleic Acids			3
	"Liberal Arts (Core)	4		
	"Liberal Arts (Concentration)	4		4
	ICSA-205 Computer Techniques			3-4
5	SCHB-703 Biochemistry-Metabolism	3		
	Science Electives"	3-5		4-10
	Liberal Arts (Electives)	4		8
	GLAI-501 Senior Seminar	2		
	Liberal Arts (Concentration)	4		

'See page 116 for Liberal Arts requirements.
fSee page200 for policy on Physical Education.
"SCHC-S41,542,543 Chemistry Research maybe usedasScience electives and are highly recommended.

Polymer chemistry

Polymer science is one of the increasingly important areas of modern science. The polymer chemistry program, which is one of a handful of such programs in the nation, provides students with a solid background in the traditional areas of chemistry (general, analytical, organic, physical and inorganic) supplemented with advanced courses and intensive laboratory experiences in polymer science. It is highly recommended that students take the under graduate chemistry research courses as Institute-wide eiectives in this program. Because two-thirds of all chemists work with polymers during their professional lives, this program provides the background important for success in many industrial basic and applied research areas and also enables graduates to pur sue further education in chemistry, polymer chemistry, or materials science and engineering.

Requirements for the BS degree

The student must meet the minimum graduation requirements of the Institute as described on page 187 and in addition must complete the requirements contained in the particular program listed herein or its equivalent as determined and approved by the Department of Chemistry.

lb meet the requirements leading to the BS degree approved by the Committee on Professional Training of the Amerian Chemical Society, the student must take specifically designated courses in chemistry and related sciences and must complete a minimum of 187 quarter credit hours.

All students must meet the requirements for the Institute's writing policy, as specified by the Department of Chemistry.

Extended-Day and Part-time Studies in Chemistry

All BS degree options in chemistry and polymer chemistry Eire designed to accommodate part-time students, beyond the associate degree, during day or evening (extended-day) hours. Academic advising is available throughout and the American Chemical Society approved degree is offered at extended-day hours. This option is especially designed for transfer students who work full-time, but it is flexible to meet the needs of any part-time student.

Yr.	POLYMER CHEMISTRY, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SCHC-200 Chemical Safety	1		
	SCHC-230 Intro, to Co-op Seminar	1		
	SCHC-251,252,253 General Chemistry I, II, III	3	3	3
	SCHA-261,262,263 Intro, to Chemical Analysis	3	3	3
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	ICSA-205 Computer Techniques		3	
	"Liberal Arts (Core)	4	4	8
	IPhysical Education Eiectives	0	0	0
		FALL WTR.		SPG. SMR.
2	SCHA-3111nstrumental Analysis	3		
	SCHA-318InstrumentalAnalysisLab	1		
	SCHA-312 Separations Techniques			3
	SCHA-319 Separations Techniques Lab			1
	SMAM-305 Calculus IV	4		
	SCHO-4310rganic Chemistry I			3
	SCHO-435 Preparative Organic Chemistry I Lab			2
	SPSP-311,312 University Physics	4		4
	SPSP-375,376 University Physics Lab	1		1
	"Liberal Arts (Core)	4		4
	tPhysical Education Eiectives	0		0
3	SCHP-301 Intro, to Polymer Technology	2		
	SCHP-340 Intro, to Physical Chemistry	3		
	SMAM-306 Differential Equations	4		
	SPSP-313 University Physics			4
	SPSP-377 University Physics Lab			1
	SCHO-432,433 Organic Chemistry II, III	3		3
	SCHO-436 Preparative Organic Chemistry II Lab	2		
	SCHP-441 Physical Chemistry I (Thermodynamics)			3
	SCHP-445 Physical Chemistry I Lab			1
	"Liberal Arts (Core/Concentration)	4		4
	tPhysical Education Eiectives	0		
		FALL		SPG.
4	SCHC-301 Elements of Chemical Research	1		
	SCHP-442 Physical Chemistry II (Quantum)	3		
	SCHP-446 Physical Chemistry II Lab :	1		
	SCHP-443 Physical Chemistry III (Kinetics)			3
	SCHP-447 Physical Chemistry III Lab			1
	SCHC-401 Chemical Literature	2		
	SCHO-601 Organic Chemistry of Polymers	4		
	SCHP-605 Synthesis of High Polymers Lab	2		
	SCHI-762 Inorganic Chemistry I			3
	SCHP-602 Physical Chemistry of Polymers			4
	"Liberal Arts (Concentration)	4		4
5	SCHP-603 Strue./Prop. Relationships-Potymers	4		
	SCHP-604 Characterization of High Polymers Lab			2
	Chemistry Eiectives	3		3
	"Liberal Arts (Eiectives)	4		8
	"Liberal Arts (Senior Seminar)	2		
	"Institute-wide Eiectives	3		3

"See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.
"SCHC-541, -542, -543, Chemistry Research, may be used as Institute-wide eiectives and are highly recommended.

Mathematics and Statistics Programs

George T. Georgantas, Ph.D., Head

Over the past severed years a growing demand has developed for mathematicians and statisticians with solid computer skills and broad-based quantitative backgrounds and interests. Indeed, mathematical and statistical theory is the basis for many fields of practical application, and employers need people whose education includes mathematics and any of the following: computer science, statistics, chemistry, physics, engineering, or business, to name a few.

The Department of Mathematics has established three BS degree programs in response to these long-term industry needs: applied mathematics, computational mathematics, and applied statistics. Each of these programs has been carefully designed to meet the needs of both students and their potential employers. Constant feedback from industry has enabled the department to continuously update its courses, programs and equipment in order to make sure students are well-trained in current techniques, equipment and applications. Industrial needs and trends are carefully discussed with employers in order to update the curricula, and graduates find that their RIT backgrounds seem tailor-made for their professional careers.

Employment opportunities for students in applied mathematics, computational mathematics and applied statistics are outstanding. Students typically become involved in research, consulting, or using computers to analyze complex physical problems that have been mathematically modeled, or using computers to do statistical analyses.

Examples of co-op and permanent jobs typically obtained by Department of Mathematics majors include the following:

analyst for mathematical modeling
statistician
mathematical statistician
demographics analyst
missile reliability analyst
software designer
scientific programmer
systems analyst
cryptographic mathematician
manufacturing engineering consultant
management science consultant
biological systems analyst
computer modeling consultant
graphics modeling consultant
simulations programmer
reliability analyst
statistical forecaster
robotics software specialist
data base programmer
data analyst
telecommunications analyst
software engineer
marketing analyst
aerospace systems analyst

Students in all three programs enjoy small classes and a low student/faculty ratio, and frequently get to know their teachers outside the classroom. Job opportunities for graduates are plentiful, and the department is proud of its outstanding record in placing students in both co-op and permanent jobs.

Yr.	APPLIED MATHEMATICS, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SMAM-210,211 Freshman Seminar	1	1	
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SMAM-305 Calculus IV			4
	ICSP-241 Programming I - Algorithmic Structures	4		
	ICSP-242 Programming II - Data Structures		4	
	ICSA-220 FORTRAN			4
	Science Eiectives	4	4	4
	'Liberal Arts (Core)	4	4	
	‡ Physical Education Eiectives		0	0
2	SMAM-306 Differential Equations I	4		
	SMAM-351 Probability	4		
	SMAM-352 Applied Statistics I		4	
	SMAM-399 Co-op Seminar		0	
	SMAM-265 Foundations of Discrete Mathematics		4	
	SMAM-338 Series Solutions for Diff. Equations, or SMAM-353 Applied Statistics II			4
	SMAM-331 Matrix Algebra			4
	"Liberal Arts (Core)	8	4	4
	Institute-wide Eiectives		4	4
	:fPhysical Education Eiectives	0	0	0
		FALL WTR.		SPG. SMR.
3	SMAM-437 Computer Methods in Applied Math	4		
	SMAM-432 Linear Algebra	4		
	SMAM-461 Mathematical Modeling			4
	Mathematics Elective	4		8
	'Liberal Arts (Core/Concentration)	4		4
4	SMAM-411,412 Real Variables I,II	4		4
	Mathematics Eiectives	4		
	Applications Minor			4
	'Liberal Arts (Concentration/Electives)	4		8
5	SMAM-531,532 Abstract Algebra I, II	4		4
	Applications Minor	4		4
	'Liberal Arts (Eiectives)	4		4
	"Liberal Arts (Senior Seminar)			2

"See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Applied Mathematics

The applied mathematics program focuses upon the study and solution of problems that can be effectively analyzed through the use of mathematics. Industry has a great need for individuals with this type of education. Students choose a sequence of courses from one of more than 20 application areas that provides them with the knowledge and skills necessary to collaborate on complex problems with scientists, engineers, computer specialists or other analysts. Some application minors are: applied statistics; biology; business; economics; chemistry; electrical; industrial or mechanical engineering; operations research; or imaging science.

Graduates typically are employed in scientific, engineering and business environments, applying their mathematics background in the analysis and solution of real-world problems.

Computational Mathematics

The computational mathematics program prepares students for a mathematical career that incorporates extensive skills in computer science. In this program, much emphasis is given to use of the computer as a tool in solving physical problems that have been mathematically modeled. Graduates of the program often choose positions as mathematical analysts, scientific programmers, software engineers or systems analysts. Job opportunities in private industry and government literally abound in this field!

Yr.	COMPUTATIONAL MATHEMATICS, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SMAM-210,211 Freshman Seminar	1	1	
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SMAM-305 Calculus IV			4
	ICSP-241 Programming I - Algorithmic Structures	4		
	ICSP-242 Programming II - Data Structures		4	
	ICSP-305 Assembly Language Programming			4
		4	4	4
	•Liberal Arts (Core)	4	4	
	tPhysical Education Electives	0	0	0
2	SMAM-306 Differential Equations I	4		
	SMAM-351 Probability	4		
	SMAM-352 Applied Statistics I		4	
	SMAM-265 Foundations of Discrete Mathematics		4	
	SMAM-399 Co-op Seminar		0	
	SMAM-331 Matrix Algebra			4
	ICSP-243 Programming III - Design and Implementation	4		
	ICSS-325 Data Organization and Management		4	
	ICSA-220 FORTRAN Programming for Engineers			4
	Institute-wide Elective			4
		4	4	4
	tPhysical Education Electives	0	0	0
		FALL WTR.		SPG. SMR.
3	SMAM-432 Linear Algebra	4		
	SMAM-467 Theory of Graphs and Networks	4		
	SMAM-461 Mathematical Modeling			4
	ICSS-315 Digital Computer Organization	4		
	Mathematics Elective			4
	Computer Science Elective			4
	"Liberal Arts (Core)	4		4
4	SMAM-411 Real Variables I	4		
	SMAM-511,512 Numerical Analysis I, II	4		4
	Mathematics Electives			4
	Institute-wide Elective			
	"Liberal Arts (Concentration)	4		8
5	SMAM-531,532 Abstract Algebra I, II	4		4
	Mathematics Elective	4		
	Computer Science Elective			4
	"Liberal Arts (Electives)	8		4
	"Liberal Arts (Senior Seminar)			2

"See page 116 for Liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Applied Statistics
The applied statistics program provides the student with a solid foundation in mathematical and statistical principles, experience in the application of statistics, thorough knowledge of computers and statistical software, and the necessary skills to communicate the results of a statistical analysis. The demand for graduates with this type of preparation has been precipitated from the recognition by business, industry and government that a large number of problems can be effectively analyzed and solved through the intelligent use of statistical methodology. Graduates of the program collaborate with specialists in scientific and technical areas with mathematical and statistical analyses of problems.

Transfer programs
Transfer programs are arranged on an individual basis.

Requirements for the BS degree
The student must meet the minimum requirements of the Institute as described on page 187. In addition he or she must complete the requirements contained in one of the particular programs listed here, or its equivalent, as determined and approved by the Department of Mathematics. In conjunction with a faculty advisor, individual student programs will be established to meet particular needs, interests, and goals.

For more information on AS and BS degree requirements, contact the head of the Department of Mathematics.

Yr.	APPLIED STATISTICS, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR	SPG.
1	SMAM-210,211 Freshman Seminar	1	1	
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SMAM-305 Calculus IV			4
	ICSP-241 Programming I -Algorithmic Structures	4		
	ICSP-242 Programming II - Data Structures		4	
	ICSA-220 FORTRAN			4
	Science Eiectives	4	4	4
	'liberal Arts (Core)	4	4	
	•Physical Education Eiectives		0	0
2	SMAM-306 Differential Equations	4		
	SMAM-351 Probability	4		
	SMAM-265 Foundations of Discrete Mathematics		4	
	SMAM-399 Co-op Seminar		0	
	SMAM-352,353 Applied Statistics I, II		4	4
	SMAM-331 Matrix Algebra			4
	SMAM-358 Statistical Quality Control			4
	Institute-wide Elective		4	
	•Liberal Arts (Core)	8	4	4
	•Physical Education Eiectives	0	0	0
		FALL WTR.		SPG. SMR.
3	SMAM-432 Linear Algebra	4		
	SMAM-354 Regression Analysis	4		
	SMAM-355 Design of Experiments			4
	Mathematics Elective			4
	Institute-wide Eiectives	4		4
	'Liberal Arts (Core/Concentration)	4		4
4	SMAM-454 Nonparametric Statistics	4		
	Mathematics Eiectives	4		8
	Institute-wide Elective			4
	'Liberal Arts (Concentration/Electives)			4
5	SMAM-451.452 Mathematical Statistics I, II	4		4
	SMAM-555 Statistics Seminar I	4		
	Mathematics Elective			4
	•Liberal Arts (Eiectives)	4		4
	•Liberal Arts (Senior Seminar)	2		

•Seepage 116 tor Liberal Arts requirements.
tSee page 200 for potcy on Physical Education.

Yr.	PHYSICS, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SPSP-200 Physics Orientation	2		
	SPSP-311,312 University Physics I, II		4	4
	SPSP-371,372 University Physics Lab I, II		1	1
	SMAM-251,252,253 Calculus I, II, III	4	4	4
	SCHG-211,212 Chemical Principles I, II	3	3	
	SCHG-205,206 Chemical Principles I, II Lab	1	1	
	SPSP-317 Computational Phys with FORTRAN Applications			4
	'Liberal Arts (Core)	8	4	4
	•Physical Education Electives	0	0	0
2	SPSP-313 University Physics III	4		
	SPSP-373 University Physics Laboratory III	1		
	SPSP-314 Introduction to Modern Physics		4	
	SPSP-315 Introduction to Semiconductor Physics			4
	SPSP-321 Introduction to Laboratory Techniques		4	
	SPSP-374 Modem Physics Laboratory			1
	SMAM-305 Calculus IV	4		
	SMAM-306,307 Differential Equations I, II		4	4
	Technical Elective	3		
	"Liberal Arts (Core)	4	4	4
	Physical Education Electives	0	0	0
	(Free Elective, optional)			(3-4)
3	SPSP-401,402 Intermediate Mechanics	4		4
	SPSP-415 Thermal Physics	4		
	SPSP-431 Electronic Measurements I			4
	SPSP-480 Theoretical Physics I			4
	Liberal Arts (Concentration)	4		4
	"Liberal Arts (Concentration/Elective)	- 4		
4	SPSP-411,412 Electricity and Magnetism	4		4
	SPSP-421 Experimental Physics I	3		
	SPSP-455 Optical Physics	4		
	SPSP-522 Introduction to Quantum Mechanics			4
	Institute-wide Elective	4		
	"Liberal Arts (Senior Seminar)			2
	"Liberal Arts (Concentration/Elective)			4
5	SPSP-501 Theoretical Physics II, or SPSP-432 Computer Interfacing	4		
	SPSP-531 Solid State Physics	4		
	SPSP-550 Physics Seminar	1		
	Physics Elective (400-500 level)			4
	Free Elective	4		
	"Liberal Arts (Electives)	4		4
	(Free Elective, optional)			(3-4)

"Seepage 116 for Liberal Arts requirements.
tSee page 200 lor policy on Physical Education.

Physics Program

Arthur Z. Kovacs, Ph.D., Head

The Department of Physics offers programs leading to the AS and BS degrees in physics.

The BS degree in physics is a five-year program with cooperative work experience. Graduates with this degree find employment opportunities with industrial, academic, and government agencies, or continue their education in MS or Ph.D. programs in physics or physics-related areas, such as biophysics, geophysics, atmospheric science, imaging science, and engineering.

Requirements for the BS degree in physics

The student must meet the minimum graduation requirements of the Institute as described on page 187 and in addition must complete the requirements contained in the program shown here or its equivalent as determined and approved by the Department of Physics. In conjunction with a faculty advisor, individual student programs will be established to meet particular needs, interests, and goals. A planned elective concentration in another field such as biology, chemistry, mathematics, computer science, business, or imaging science is possible.

For information on AS and BS degree requirements, contact the Head of the Department of Physics.

Allied Health Sciences Programs

John M. Waud, Ph.D., Head
Kristen M. Waterstram-Rich, B.S., CNMT, Academic Coordinator

The Department of Allied Health Sciences includes programs of study in biomedical computing, medical technology, and two medical imaging technologies: diagnostic medical sonography (ultrasound) and nuclear medicine technology. Each is designed to prepare students for entry into careers in the health sciences. Graduates find employment opportunities in hospitals and clinics, in industry, and with many governmental agencies. Some continue their education in graduate and professional schools.

Biomedical Computing Program

John M. Waud, Ph.D., Acting Program Director

RIT's biomedical computing BS degree curriculum is one of only a few similar programs in the United States. It was developed by the College of Science and the School of Computer Science because of the increasing use of computers in biomedical research and the health industry. Students receive training in the basic sciences, medical sciences and computer science with emphasis on clinical and laboratory applications. This array of courses provides graduates with the ability to communicate with medical personnel and trains them to use computers for the solution of clinical problems, laboratory analyses, medical information systems, and medical research.

Students are strongly encouraged to obtain experiential biomedical computing education by participation in the cooperative education program (co-op). The program allows students to alternate quarters in school with quarters in paid employment during their last three years. Co-op allows students the opportunity to practice new skills in real-life situations and to test their chosen field before making a lifelong commitment. The experiences they acquire not only make their education more relevant, but also make them more valuable to prospective employers.

Students consult with faculty advisors in order to tailor their academic programs to individual career goals. Upper level electives are used to prepare graduates for specialized employment opportunities within biomedical computing, for graduate school in the sciences or computer science, or for post-graduate professional school.

Yr.	BIOMEDICAL COMPUTING, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	ICSA-200 Survey of Computer Science	4		
	ICSP-241 Programming!-Algorithmic Structures		4	
	ICSP-242 Programming II - Data Structures			4
	SCLB-201 Intro, to Biomedical Computing		1	
	SBIB-201,202,203 General Biology Lec	3	3	3
	SBIB-205,206,207 General Biology Lab	1	1	1
	SCHG-215,216,217 General & Analytical Chemistry Lec	4	3	3
	SCHG-225,226,227 General & Analytical Chemistry Lab	1	1	2
	"Liberal Arts (Core)	4	4	4
	tPhysical Education Electives	0	0	0
2	ICSP-243 Programming III - Design & Implementation		4	
	ICSP-305 Assembly Language Programming	4		
	ICSA-220 FORTRAN			4
	SCLG-301 Medical Terminology	3		
	SBIB-305,306 Physiology&Anatomy		5	5
	SMAM-251,252 Calculus 1, II	4	4	
	"Liberal Arts (Core)	4	4	8
	tPhysical Education Electives	0	0	0
		FALL WTR.		SPG. SMR.
3	ICSS-315 Digital Computer Organization	4		
	ICSS-325 Data Organization & Management			4
	SMAM-309 Elementary Statistics			4
	SCLM-432 Biology Laboratory Techniques	4		
	SPSP-311,312 University Physics	4		4
	SPSP-375,376 University Physics Laboratory	1		
	"Liberal Arts (Concentration)	4		4
4	SPSP-331 Electricity & Electronics			4
	Computer Science Electives	4		4
	Chemistry Electives	3		3
	"Liberal Arts (Concentration/Elective)	4		4
	Program Elective	4		
5	Program Electives	8		8
	•Liberal Arts (Electives)	4		4
	"Liberal Arts (Senior Seminar)			2

•Seepage 116 for Liberal Ms requirements.
(Seepage 200 for policy on Physical Education.

Requirements for the BS in biomedical computing

The student must meet the minimum graduation requirements of the Institute as described on page 187 and in addition must complete the requirements contained in this program or its equivalent as determined and approved by the Department of Allied Health Sciences. Transfer students may be required to take additional course work, depending on the program they attended at their previous school. Specific requirements will be determined for each transfer student by the department.

For information on AS and BS degree requirements, contact the head of the Department of Allied Health Sciences.

Medical Technology Program

James C. **Aumer,** M.S., C(ASCP), Program Director
Linda **Myers,** B.S., MT(ASCP), Clinical Coordinator

The medical technology program prepares students for employment in hospital laboratories, industrial, medical or research laboratories and pharmaceutical companies. As medical technologists they will perform analyses which aid in the diagnosis and treatment of disease. They must be able to carry out complex test determinations, operate sophisticated instrumentation, and detect and correct errors. The program leads to a bachelor of science degree and meets all requirements of the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

Students enrolled in the medical technology program attend classes at RIT during the fall, winter and spring quarters for three years. During the third year, students take a concentration of clinically oriented courses which will prepare them for their hospital experience. In the fall quarter of their third year they apply to hospital schools of medical technology that are approved by the Committee on Allied Health Education and Accreditation (CAHEA). They will then spend their fourth academic year at the hospital that accepts them as an intern for clinical training in medical technology. While at the hospital, the student will receive additional course work as well as practical experience in each of the laboratory areas: hematology, microbiology, chemistry, and immunohematology.

The medical technology program is affiliated with Rochester General Hospital and St. Mary's Hospital in Rochester, with Millard Fillmore Hospital in Buffalo, and with the Boston Veteran's Administration Medical Center as well as the Albany Medical Center Hospital. Students may, however, seek admission to any approved hospital for their clinical experience.

Upon successful completion of the hospital experience, the bachelor of science degree is awarded. The student is then eligible to take a national registry examination for certification as a medical technologist.

Yr.	MEDICAL TECHNOLOGY, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SBIB-201,202,203 General Biology Lec	3	3	3
	SBIB-205,206,207 General Biology Lab	1	1	1
	SCHG-215,216,217 General & Analytical Chemistry Lec	4	3	3
	SCHG-225,226,227 General & Analytical Chemistry Lab	1	1	2
	SCLM-210MedicalTechnologySeminar	1		
	SMAM-204 College Algebra & Trigonometry	4		
	SMAM-214,215 Intro, to Calculus I, II		3	3
	ICSA-205 Computer Techniques		3	
	'Liberal Arts (Core)	4	4	4
	•Physical Education Eiectives	0	0	0
2	SBIB-305,306 Physiology & Anatomy		5	5
	SCHO-231,232,233 Organic Chemistry Lec	3	3	3
	SCHO-235,236 Organic Chemistry Lab	1	1	
	SPSP-211,212,331 College Physics & Electronics	3	3	4
	SPSP-271,272 College Physics Lab	1	1	
	SBIG-315 Medical Genetics			2
	'Liberal Arts (Core)	8	4	4
	•Physical Education Eiectives	0	0	0
3	SCLM-559 Spec. Topics in Med. Tech	1	1	1
	SCLM-401 Hematology/Immunohematology			4
	SBIB-404 Microbiology	5		
	SCHB-334 Biochemistry	4		
	SCLM-432,433 Clinical Lab Instruments; Clinical Chemistry		4	4
	SMAM-309 Elementary Statistics			4
	SBIB-402 Immunology		3	
	SCLM-405 Diag. Bacteriology and Mycology		4	
	"Liberal Arts (Concentration)	4	4	4
	Biology Elective	4		

BS degree: the fourth year taken at an approved hospital for training medical technologists.

•See page 116 for liberal Arts requirements.
tSee page 200 for policy on Physical Education.

Requirements for the BS degree in medical technology

The student must meet the minimum graduation requirements of the Institute as described on page 187 and in addition must complete the requirements contained in this program or its equivalent as determined and approved by the Department of Allied Health Sciences. Transfer students will be required to complete a minimum of 45 quarter credit hours on campus and to complete all program requirements before beginning the clinical training experience. Specific requirements will be determined for each transfer student by the program director.

For information on AS and BS degree requirements, contact the head of the Department of Allied Health Sciences.

Medical Imaging Technologies

Nuclear Medicine Technology Program

Anna M. Wicks, B.S., CNMT, Program Director
Cheryl Waldman, B.S. CNMT, Clinical Coordinator

The program leading to the BS degree in nuclear medicine technology spans four years, the first three of which are spent on campus. The fourth year consists of clinical training at one or more approved hospitals.

Clinical training in nuclear medicine technology
Students who complete all required courses of the first three years of the program, with a minimum overall and principal field of study GPA of 2.0, are eligible to begin clinical training in August of their fourth year. The first three weeks of training are an intensive introduction to the theory and practice of nuclear medicine technology. Classes during this time are held on the RIT campus, and laboratory sessions take place at Rochester hospitals.

Most of the training is performed in nuclear medicine departments of the program's hospital affiliates. Each student is assigned (subject to the hospital's approval) a particular combination of three hospitals and trains approximately three months in each. The teaching is done primarily by physicians and technologists on the hospital staffs. Student progress and performance is monitored by the RIT nuclear medicine technology coordinator who makes periodic visits to the hospital departments. Readings, problem assignments and project work are an integral part of the student's clinical training. Periodically during each three-month rotation, students return to the RIT campus for lectures and discussions.

The hospital training emphasizes the following areas: (a) radiation safety and protection; (b) patient positioning and nursing procedures; (c) radionuclide imaging and external monitoring; (d) nuclear medicine department administrative procedures.

The RIT nuclear medicine technology program has affiliations with the following Upstate New York hospitals: Syracuse area—Community General Hospital; Rochester area—Strong Memorial Hospital, The Genesee Hospital, Highland Hospital, Rochester General Hospital, Park-Ridge Hospital; Binghamton area—Our Lady of Lourdes Hospital, Wilson Memorial Hospital; Buffalo area—Sisters of Charity Hospital.

Yr.	NUCLEAR MEDICINE TECHNOLOGY, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SMAM-204 College Algebra & Trigonometry	4		
	SMAM-214,215 Intro, to Calculus I, II		3	3
	SCHG-215,216,217 General & Analytical Chemistry Lec	4	3	3
	SCHG-225,226,227 General & Analytical Chemistry Lab	1	1	2
	SBIB-201,202,203 General Biology Lec	3	3	3
	SBIB-205,206,207 General Biology Lab	1	1	1
	"Liberal Arts (Core)	4	4	4
	"Physical Education Electives	0	0	0
2	SCLG-205 Intro, to Diagnostic Medical Imaging	2		
	SPSP-211,212,213 College Physics Lec	3	3	3
	SPSP-271,272,273 College Physics Lab	1	1	1
	SCHG-202 Survey of Organic Chemistry Lec		3	
	SCHG-222 Survey of Organic Chemistry Lab		1	
	SCHG-203 Biochemistry I			4
	SBIB-305,306 Physiology & Anatomy		5	5
	ICSA-200 Survey of Computer Science	4		
	"Liberal Arts (Core)	8	4	4
	"Physical Education Electives	0	0	0
3	SCLG-301 Medical Terminology			3
	SPSP-351,352,353 Radiation Physics	5	5	5
	SBIB-430 Radiation Biology	4		
	SMAM-309 Elementary Statistics		4	
	"Liberal Arts (Concentration)	4	4	4
	Program Electives	3	4	4
4†	SCLN-401 Introduction to Clinical Nuclear Medicine	4		
	SCLN-402 Nuclear Medicine Procedures - Central Nervous System	1		
	SCLN-502 N.M. Procedures - Skeletal System	1		
	SCLN-503 N.M. Procedures - Respiratory System	1		
	SCLN-510 N.M. Procedures - Urinary System	1		
	SCLN-511 N.M. Procedures - Endocrine System		2	
	SCLN-512 N.M. Procedures - Cardiovascular System		2	
	SCLN-513N.M. Procedures - Digestive System		2	
	SCLN-514 N.M. Procedures - Special Studies			1
	SCLN-515 N.M. Procedures - Hematological and In Vitro Studies			1
	SCLN-516 Instrumentation and Computers in Nuclear Medicine		2	
	SCLN-517 Radiochemistry and Radiopharmacology		2	
	SCLN-518 Radionuclide Therapy		1	
	SCLN-519 Radiation Health Safety			2
	SCLN-520 Radioassay			4
	SCLN-521 Review in Nuclear Medicine			2
	SCLN-522 Clinical Nuclear Medicine I	7		
	SCLN-523 Clinical Nuclear Medicine II		7	
	SCLN-524 Clinical Nuclear Medicine III			7

tClinical Internships-Affiliated Hospitals
'See page 116 for Liberal Arts requirements.
"See page 200 for policy on Physical Education.

Requirements for the BS degree in nuclear medicine technology
The student must meet the minimum graduation requirements of the Institute as described on page 187 and in addition must complete the requirements contained in this program or its equivalent as determined and approved by the Department of Allied Health Sciences. In conjunction with a faculty advisor, individual student programs will be established to meet particular needs, interests, and goals. A planned elective concentration in another field such as biology, chemistry, mathematics, computer science, business or general medical imaging is possible.

For information on BS degree requirements, contact the head of the Department of Allied Health Sciences.

Accreditation
The nuclear medicine technology program is accredited through the American Medical Association sponsored Committee on Allied Health Education and Accreditation. Accreditation is granted only to those programs that meet certain established qualifications and educational standards. Programs are periodically evaluated to ensure that these high standards are maintained.

Diagnostic Medical Sonography (Ultrasound) Program

Michael Foss, M.Ed., RDMS, Program Director
Lon E. Bailey, B.S., RDMS, Clinical Coordinator

The diagnostic medical sonography (ultrasound) program offers two options—one leading to a BS degree and the other to a certificate.

The program consists of professional preparation of sonographers with specialty training in abdominal, obstetrical and gynecological ultrasonic procedures. Depending upon their background, professional experience and career goals, graduates may pursue staff, administrative, research, or teaching positions, or continue their education toward an advanced degree.

Requirements for the BS degree in ultrasound
The student must meet the minimum graduation requirements of the Institute as described on page 187, and, in addition, must complete the curriculum requirements listed here or the equivalent as determined and approved by the Department of Allied Health Sciences. The program is a two- or four-year effort, including the one-year clinical internship. Associate degree graduates and registered or certified practitioners from a related health field can earn a BS degree by entering the last two years of the program. Additional course work may be required, depending on the program completed at a previous school.

For information on BS degree requirements, contact the Program Director.

Requirements for the certificate option
The student must meet the Institute requirements as well as the specific requirements listed here. The certificate option is a one-year clinical internship that follows prerequisite course requirements. It is available to associate and baccalaureate degree graduates who are licensed or certified practitioners with two years of experience in a related health field, or the equivalent combination of education and experience.

Clinical training in ultrasound
The clinical internship for both options will be conducted in a consortium of affiliated hospitals in the major medical centers of Rochester, Buffalo, Syracuse and Binghamton. An intensive introduction to ultrasound will be taught during the first month of the internship. Students will then rotate through different hospital sites for their clinical training.

Both certificate and BS degree programs will allow graduates to take the national certifying exam for specialization in abdominal, obstetrical and gynecological ultrasound procedures.

Accreditation
The diagnostic medical sonography program is accredited by the Joint Review Committee on Education in Diagnostic Medical Sonography of the American Medical Association.

Yr.	DIAGNOSTIC MEDICAL SONOGRAPHY, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SBIB-201,202,203 General Biology Lec	3	3	3
	SBIB-205,206,207 General Biology Lab	1	1	1
	SMAM-204 College Algebra & Trigonometry	4		
	SMAM-214,215 Intro, to Calculus I, II		3	3
	Chemistry Electives	4	4	4
	"Liberal Arts (Core)	4	4	4
	•Physical Education Electives	0	0	0
2	SPSP-211,212,213 College Physics Lec	3	3	3
	SPSP-271,272,273 College Physics Lab	1	1	1
	ICSA-205 Computer Techniques	3		
	SCLG-301 Medical Terminology	3		
	SBIB-305,306 Physiology & Anatomy		5	5
	SMAM-309 Elementary Statistics			4
	"Liberal Arts (Core)	4	B	4
	•Physical Education Electives	0	0	0
3	SCLG-205 Intro, to Diagnostic Medical Imaging	2		
	SCLS-412 Ultrasonic Cross-Sectional Anatomy		4	
	SCLS-413 Ultrasound Instrumentation			4
	SCLG-415 Pathophysiology			4
	SBIG-315 Medical Genetics			2
	SPSP-361 Ultrasonic Physics	5		
	Program Electives	4	8	4
	•Liberal Arts (Concentration)	4	4	4
4	SCLS-552 Intro, to Obstetrical Ultrasound	3		
	SCLS-553 Intro, to Gynecologic Ultrasound	3		
	SCLS-556 Abdominal Ultrasound I	3		
	SCLS-570 Clinical DMSI	7		
	SCLS-554 Advanced Obstetrical Ultrasound		4	
	SCLS-557 Abdominal Ultrasound II		3	
	SCLS-560 Seminar I		2	
	SCLS-571 Clinical DMS II		7	
	SCLS-558 Small Parts Ultrasound			3
	SCLS-414 General Vascular Examination			4
	SCLS-561 Seminar II			2
	SCLS-572 Clinical DMS III			7

Yr.	DIAGNOSTIC MEDICAL SONOGRAPHY, CERTIFICATE, TYPICAL COURSE SCHEDULE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
+	SCLG-205 Intro, to Diagnostic Medical Imaging	2		2
	SCLS-412 Ultrasonic Cross-Sectional Anatomy		4	
	SCLS-413 Ultrasound Instrumentation			4
	SCLG-415 Pathophysiology			4
4	SCLS-552 Intro, to Obstetrical Ultrasound	3		
	SCLS-553 Intro, to Gynecologic Ultrasound	3		
	SCLS-556 Abdominal Ultrasound I	3		
	SCLS-570 Clinical DMS I	7		
	SCLS-554 Advanced Obstetrical Ultrasound		4	
	SCLS-557 Abdominal Ultrasound II		3	
	SCLS-560 Seminar I		2	
	SCLS-571 Clinical DMS II		7	
	SCLS-558 Small Parts Ultrasound			3
	SCLS-414 General Vascular Examination			4
	SCLS-561 Seminar II			2
	SCLS-572 Clinical DMS III			7

"Seepage 116 tor Liberal Arts requirements.
tSee page 200 lor policy on Physical Education.

National Technical Institute for the Deaf

Dr. James J. DeCaro, Dean

The National Technical Institute for the Deaf (NTID), a college of Rochester Institute of Technology (RIT), provides deaf students with technological training that leads to meaningful employment in business, industry, government, and education. Created in 1965 by Congress and funded primarily by the U.S. Department of Education, NTID represents the world's first effort to educate large numbers of deaf students within a college campus planned principally for hearing students. NTID's location on a campus designed mainly for hearing students benefits deaf students' academic, personal, social, and communication development.

Nearly 1,100 deaf students from across the United States and several U.S. territories study and reside at RIT. Beginning this year, NTID also will admit qualified international students.

NTID provides RIT's deaf students with technical and professional training in 35 programs offered through its three schools: School of Business Careers, School of Science and Engineering Careers, and School of Visual Communications. An NTID education prepares students for technical careers in areas such as accounting, applied art, data processing, engineering technology, medical laboratory technology, medical record technology, and photo/media technologies. NTID also provides extensive support services for deaf students studying in RIT's other eight colleges.

For hearing students, NTID offers an associate degree in educational interpreting.

Traditionally, 95 percent of NTID graduates find employment in their fields of study.

Admission Requirements

To qualify for admission to RIT through NTID, students must meet certain standards agreed upon by RIT and the U.S. Department of Education. In determining if an applicant qualifies for admission under the sponsorship of NTID, RIT considers these standards:

Special Help
Students should have attended a school or class for deaf students and/or have needed special help because of being deaf.

Hearing Loss
Students must have a hearing loss that seriously limits their chances of success in college without special support services. It generally is agreed that an average hearing loss of 70 decibels (ANSI, 1969) or greater across the 500, 1,000, and 2,000 hertz (Hz) range (unaided) in the better ear is a major handicap to education.

Educational Background
Students' educational backgrounds should indicate the probability that they can succeed in a program of study at NTID or one of the other colleges of RIT. Students who are admitted should have at least an overall eighth-grade achievement level or higher on standardized tests that include language, math, and reading. Examples of appropriate tests are the Stanford Achievement Test, Advanced Battery or the California Achievement Test, Advanced Battery.

A **decision on an application cannot be made without appropriate achievement test scores.** The tests used should be appropriate for deaf students. The Scholastic Aptitude Test (SAT) of the College Entrance Examination Board (CEEB) often is given to deaf students in public high schools. For most students, this test usually is not appropriate because deafness strongly affects language and reading development. Therefore, the reading and language level of the CEEB test often results in meaningless scores for deaf students.

Secondary Schooling
NTID's programs are designed for students who have finished a secondary educational program. Students can be considered for admission before completing a secondary program if their secondary school authorities feel that they will gain more from an NTID program than by remaining in secondary school. Age and personal/social maturity are given special consideration in such situations.

Maturity
To enter one of the academic programs of NTID or one of the other colleges of RIT, students must show they are personally and socially mature, which means they must accept responsibility for themselves and their actions and respect the rights of others. Students' personal references and performance in high school indicate maturity level.

Degrees Offered Through NTID

The academic programs offered through NTID lead to certificates, diplomas, and associate degrees from RIT.

Certificate
Certification at this level requires 45-60 credit hours of technical instruction. These programs allow students to acquire a minimum level of technical skill before entering the work force. In addition to technical courses, students are required to complete a specific number of credit hours, determined by the program of study, in general education and communication courses.

Diploma
Certification at this level requires 90-135 credit hours of technical and general instruction. Students attain a maximum level of technical competency for entry-level positions and minimum exposure in the general education field. In addition to 60-100 credit hours in technical courses, students must complete a specific number of credit hours, determined by the program of study, in general education and communication courses.

Associate in Occupational Studies Degree (AOS)
Certification at this level requires 100-140 credit hours of instruction. These programs permit students, upon completion, to enter their careers directly. In addition to satisfactorily completing technical courses, students must complete 20 credit hours in general education courses and a specific number of credit hours, determined by the program of study, in communication courses.

Associate in Applied Science Degree (AAS)
Certification at this level requires 115-118 credit hours of technical instruction. These programs permit students, upon completion, to enter their careers directly, or, in certain cases, to transfer to upper-division programs at a college of their choice. In addition to satisfactorily completing technical courses, students must complete 20 credit hours in liberal arts courses, nine credit hours in required general education courses, and approximately 20 credit hours in communication courses.

Deaf Students Enrolled in Other RIT Colleges

In addition to NTID's programs, qualified deaf students also may take classes in another RIT college or may enroll in one of the more than 250 professional programs offered through RIT's other eight colleges: Applied Science and Technology, Business, Continuing Education, Engineering, Fine and Applied Arts, Graphic Arts and Photography, Liberal Arts, and Science. This process is called cross registration.

Each RIT college has an affiliated NTID support department that provides services for deaf students, including advising, interpreting, notetaking, and tutoring. For more information regarding support services, see page 190.

Students may choose to enroll in courses taught through the other eight colleges of RIT for several reasons. Students may take selected courses at another RIT college as part of the elective requirements in their NTID programs; complete their programs of study at NTID, then continue their education at another RIT college; enter a program of another RIT college directly from high school; or transfer directly into a program in one of RIT's colleges from another postsecondary program.

Deaf students who wish to enroll in a program in one of RIT's other eight colleges must meet its admission standards. Further, deaf students supported by NTID also must meet NTID admission requirements listed on page 148 and complete the NTID Supplemental Admission Application as well as the standard RIT admission form.

General Education

Learning at NTID and the other colleges of RIT means more than gaining technical skills. NTID's Division of General Education provides students with a range of courses and experiences that help them become independent thinkers, develop personal and social skills, and better understand themselves and their places in the world. General education courses also help students develop a better understanding of their personal values and how they influence attitudes and behaviors; increase their ability for self-direction, lifelong learning, and personal fulfillment; and enhance their skills in all modes of communication.

The division of General Education offers a variety of courses in the social sciences, humanities, and performing arts that provide a sound general education experience for students completing certificates, diplomas, and AOS degrees through NTID. The curriculum also provides preparatory courses for AAS and baccalaureate degree students completing their liberal arts requirements through RIT's College of Liberal Arts.

The division also sponsors an AAS degree in Educational Interpreting as well as an array of educational programs in areas such as wellness, deaf culture, and cross-cultural interactions; freshman year experiences; and minority student programming.

Required Courses
All deaf students enrolled in NTID's certificate, diploma, and associate degree programs are required to take three general education courses:
—Freshman Seminar helps students explore the academic and personal challenges of college life.
—The Job Search Process teaches students many skills they will need to find a job.
—Life After College provides students with information necessary to function on and off the job.

Students pursuing an AOS degree are required to take one general education elective and Human Experience I: An Individual Life, Human Experience II: The Individual and Society, and Human Experience III: The Individual and Technology. These courses explore individual development and how the individual and society influence each other.

Writing Program
The Division of General Education offers a developmental writing course sequence, Written Communication I and II, for students who meet the NTID English requirements for entry into College of Liberal Arts courses. The NTID courses provide additional experience with writing techniques needed for success in the College of Liberal Arts course English Composition. Eligible students must meet with NTID's writing coordinator before registering for these courses.

Liberal Arts Requirements

Deaf students enrolled in AAS or baccalaureate degree programs take required courses in language and literature, behavioral and social sciences, and science and humanities through the College of Liberal Arts. Students can choose between course sections taught by NTID faculty members or course sections taught by College of Liberal Arts faculty members.

Liberal arts courses taught by NTID faculty members are designed especially for deaf students. Instructors use simultaneous communication and provide students with additional study guides and materials so that interpreters and notetakers are not needed.

Liberal arts courses taught by College of Liberal Arts faculty members include both deaf and hearing students. Support services, including academic advising, interpreting, notetaking, and tutoring, are provided to deaf students.

Deaf students are advised to earn a passing grade in English Composition before taking any additional liberal arts courses. Students studying in colleges other than NTID should consult with their program departments about required liberal arts courses.

English Composition Prerequisites
Placement in English Composition is based on the NTID Liberal Arts Placement Test (LAPT). Before registering for English Composition, students must first satisfactorily complete Written Communication II.

Students seeking an AAS degree also are required to take courses in behavioral science, social science, and science and humanities.

Liberal Arts courses taught by NTID faculty members include:

Language, Literature, and Communication
English Composition
Literature

Behavioral Science
Cultural Anthropology
General Sociology
Introduction to Psychology

Social Science
Ideology and the Political Process

Science and Humanities
History: Modern American
Fine Arts/Visual Arts

Communication Skills

Communication skills are critical for success in college, on the job, and in the community. NTID faculty members recognize the need for efficient, effective communication and therefore have established course offerings covering a range of communication styles.

Deaf students are required to take up to 32 credit hours in communication courses, including audiology, English, sign/simultaneous communication, and speech. Students may demonstrate English proficiency by achieving certain test scores or completing certain courses with passing grades. These courses are designed for students who demonstrate need for additional work in English in order to achieve their degree goals.

Pre-Technical Programs

Students who show talent and interest in certain technical programs, but do not have all the necessary skills to begin the program of study, are required to complete a pre-technical year. These pre-technical programs help students build basic skills in English, general education, mathematics, and science before beginning their technical courses. Programs that do not have pre-technical years build basic mathematics, science, and technical skills into their regular curricula.

Special Topics Courses

Students may explore topics of special interest in areas not offered through existing courses. One-five credit hours may be assigned for special topics courses.

Career Exploration

Students who are not ready to select a program following the summer orientation program may participate in Career Exploration. Students who choose Career Exploration are allowed up to three quarters to decide on a program; they must write a plan explaining what they will do each quarter.

The program includes personal counseling; decision-making classes; field trips; sampling of various programs; and interpretation of interest, aptitude, and achievement testing. Career Exploration students also take courses in communication, English, general education, and mathematics.

Transfer from Another Postsecondary School

Students enrolled in other postsecondary educational programs or colleges are encouraged to apply for admission to RIT through NTID if:

—they need support services such as interpreters or tutors to aid them in their college studies, and these services are not available at the schools in which they are or were enrolled.
—they decide to change their programs of study to one that is not offered at the college they currently attend, but is offered by NTID or another college of RIT.
—they have completed a postsecondary program and have decided they want or need additional training. Students may pursue advanced degrees by matriculating into any of RIT's other colleges.

For information about transfer credits, see page 176.

Costs of Attending RIT Through NTID

The total cost of attending RIT under NTID sponsorship includes tuition, room, board, and fees. Because of federal funding, tuition and room charges are less for NTID-sponsored students. Charges to NTID-sponsored students are updated each year. Fixed charges for 1990-91 follow:

Fixed Charges for NTID-Sponsored Students

	Summer Vestibule Program	Fall Quarter	All Other Quarters (per quarter)
Tuition	$556	$1,111	$1,111
Room	325	649	649
Board	315	727	727
Student Fees[1]		122	122
Orientation Fee[2]		40	
Orientation Room and Board Charge[3]		23	
SVP Accident/Sickness Insurance	13		
Accident/Sickness Insurance		160	
	$1,209	$2,832	$2,609

[1] Student fees are required of all full-time students. Fees include: Student Health ($35); Student Activities ($30); Athletic ($5); Student Alumni Union ($50); and NTID Activities ($2).

[2] Charge to cover cost of Fall Orientation Program for new students.

[3] Charge to cover cost of one-day orientation stay that precedes fall quarter registration for new students.

Required laboratory fees, books, and supplies will have an impact on students' costs. NTID costs for laboratory fees vary according to students' fields of study. Per-quarter laboratory fees for the 1990-91 academic year range from $25-$125.

The cost of books and supplies is the students' responsibility. These costs also vary depending on the program of study. Annual costs for books and supplies for the 1990-91 academic year range from $180-$2,200. The academic year includes the fall, winter, and spring quarters.

New students accepted to the Summer Vestibule Program will be charged according to the fee schedule indicated above.

Students on co-op are not charged tuition or fees for that particular quarter, and are charged room and board and residence hall fees only if they live on campus while they work.

All students are required to carry accident and sickness insurance. Students may choose coverage through RIT at a cost of $160 for the 1990-91 year or they may waive the coverage offered through RIT if they provide evidence of other coverage. Waiver cards will be sent to all accepted students during the summer and will be available at registration.

Facilities

A modern academic/residence building complex on the RIT campus is designed to meet the specific needs of deaf students. The Lyndon Baines Johnson Building, NTID's main academic facility, houses laboratories, offices, speech and hearing areas, classrooms, and a 500-seat theater with closed-circuit television. All classrooms are designed to reduce distractions—these rooms have no windows; colors are soft; seats are arranged in a semicircle to allow for good vision from all parts of the room; and projection equipment is located outside the classroom to reduce unnecessary noise.

In academic buildings as well as residence halls, visual emergency warning systems exist. Dorm rooms in Mark Ellingson Hall, Peter N. Peterson Hall, and Alexander Graham Bell Hall also are equipped with strobe light signals.

Television, a basic part of the college's communication network, is used for both education and entertainment. NTID's television system has four viewing channels, and TV monitors are located throughout the building. Two well-equipped studios produce class and self-instruction videotapes as well as captioning for use within the Institute and at other organizations.

Telecommunications

A relay service is available at the NTID Telecommunications Center located in Mark Ellingson Hall, room 1019. Deaf students may use this service to place long-distance in-state calls if using a calling card other than AT&T and out-of-state calls. This service has limited operation hours.

The New York State Relay Service can be used to make calls on campus and both local and long distance calls within New York state. Long distance calls may be placed only by using an AT&T calling card, calling collect, or using third-number billing. This service is available 24 hours every day.

Hearing Aid Shop

Staff members in the Hearing Aid Shop help with necessary hearing aid repairs, show students how to care for aids, make earmolds, and sell hearing aid parts and supplies. "Repair loaner aids" are available for students waiting for a hearing aid evaluation or for those whose hearing aids are being repaired. Students also may set up appointments for audiological assessments, hearing aid checks, and hearing aid evaluations.

Academic Counseling/ Support Services

In addition to services offered to all RIT students, NTID offers deaf students additional counseling services. Career development counselors assist students in getting along better with others, adjusting to college life, gaining self-confidence, and choosing a program of study.

NTID also has communication, general education, mathematics, and physics learning centers that provide specialized academic support for students. For more information about academic counseling services, see page 190.

Personal/Psychological Counseling

NTID's Psychological Services is part of a continuum of personal and social counseling services available at RIT. As a primary resource for mental health crisis intervention, Psychological Services faculty members are available on a 24-hour basis. Crisis intervention services are provided during non-business hours and are provided in collaboration with other campus service providers during business hours.

Psychological Services faculty members provide psychodiagnostic assessments for students and collaborate with teachers and other counselors in interpreting results and implementing strategies for effective psychosocial functioning and academic performance. Direct counseling and psychotherapy are provided for students on a walk-in or referral basis. Some concerns that students may need help in resolving include adjustment to deafness, depression, anxiety, family conflicts, intimate relationships, and personal identity issues.

Psychological Services provides consultations on behalf of student clientele and also shares expertise about mental health and deafness both within the campus community and in the larger local and national communities. For more information, see page 194.

Cooperative Work Experience

A feature of most RIT academic programs, including those offered through NTID, is cooperative (co-op) education that stresses "learning by doing." Almost all NTID programs require a co-op work experience, which introduces students to the world of work. Co-op experiences usually occur during the summer so that students' courses of study are uninterrupted during the school year. The number of co-ops required varies from program to program within NTID.

Placement

Employment of RIT's 2,900 deaf graduates is a high priority. To help ensure that graduates obtain program-related employment, the National Center on Employment of the Deaf (NCED) assigns to each new student an advisor experienced in employment assistance in the different academic concentrations. To help prepare students for obtaining cooperative work experiences and permanent employment, NCED has developed a required course, The Job Search Process.

NCED employment advisors are in contact daily by telephone with potential employers throughout the United States. Such services have contributed to the high employment rate of deaf RIT graduates. Last year, 94 percent of graduates entering the labor force found jobs. Eighty percent of these graduates are employed in business and industry; 15 percent in government; and five percent in education.

Research

NTID faculty members conduct research to help improve the education and communication skills of deaf students on campus. Students are invited to help in research efforts; this sometimes means taking tests and being part of research studies. Researchers sometimes contact graduates to see how well their education has prepared them for work and other aspects of their lives.

Joint Educational Specialist Program

The University of Rochester and RIT jointly sponsor a graduate program designed to improve the quality of education and services available to deaf people. JESP graduates receive master's degrees and are qualified to teach at the elementary and secondary levels.

For more information, contact:
University of Rochester/
River Campus
Director, Joint Educational
Specialist Program
507 Lattimore Hall—GSEHD
Rochester, NY 14627
(716) 275-4009 (Voice/TDD)

School of Business Careers

Dr. Christine M. Licata,
Assistant Dean/Director

Business Careers

Dr. William J. Rudnicki, Chairperson

Employment opportunities in business and industry increase daily. Business Careers programs respond to industry's need for people skilled in operating office equipment, keeping financial records, performing clerical duties, and using computers.

Students may choose a certificate program in Business Occupations and an AOS program in Business Technology as well as diploma and AAS degree programs in Applied Accounting and Office Technologies.

Pre-Technical Program
None

Applied Accounting

This program offers a diploma and an AAS degree and provides graduates with a basic knowledge of office technologies and general and cost accounting systems. Job experience projects familiarize students with data-entry techniques, computer applications, and payroll procedures.

On-the-job Responsibilities
Use computers to maintain and reconcile various financial records, verify business records, and perform other clerical and administrative duties.

Places of Employment
Business, industry, government, and self-employment

Applied Accounting
Diploma Program

Positions for Which Graduates Qualify
Accounts receivable/payable clerk, payroll clerk, general office clerk, file clerk, recordkeeping clerk, and data-entry clerk

Prerequisite
Successful completion of certificate in Business Occupations

Approximate Time
7 quarters, including 1 cooperative work experience

Applied Accounting
AAS Degree Program

Positions for Which Graduates Qualify
Junior accounting technician, cost accounting clerk, accounts receivable/payable clerk, payroll clerk, general accounting clerk, and microcomputer accounting clerk

Prerequisite
Successful completion of diploma in Applied Accounting

Approximate Time
11 quarters, including 2 cooperative work experiences

Yr.	APPLIED ACCOUNTING: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NBTP-101 Orientation to Business	3			
	NBTP-110 Business English		3		
	NBTP-111,112,113 Beginning Typing I, II, III	2	2	2	
	NBTP-211,212, 213 Business Procedures I, II, III	3	3	3	
1		3			
	NTMM-140 Fundamentals of College Mathematics I			3	
	NGGE-100 Freshman Seminar		2		
	NGGE-101 Job Search Process	1			
	Communication		2	2	
		4	4	4	
	Physical Education		0	0	
	NBTA-299 Co-op Work Experience				0
	NBTA-201, 202 General Accounting I, II	3	3		
	NBTA-251 Applied Accounting I			4	
	NBTP-221 Advanced Typing I	3			
	NBTP-284 Fundamentals of Management			3	
	OR				
	NBTP-286 Fundamentals of Marketing			(3)	
	OR				
2	NGGE-147 Law and Society			(2)	
	NBTD-210 Data Processing for Business Occupations		3		
	NTMM-141 Fundamentals of College Mathematics II	3			
	NGGE-102 Life After College			1	
	Communication	2	2	2	
		4	4		
	English Elective			4	
	General Education (optional)		2	(2)	
	Physical Education	0			

Yr.	' APPLIED ACCOUNTING: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NBTP-101 Orientation to Business	3			
	NBTP-111,112,113 Beginning Typing I, II, III	2	2	2	
	NBTP-211, 212,213 Business Procedures I, II, III	3	3	3	
	NBTP-110 Business English		3		
	NTMM-120 Basic Mathematics	3			
1	NTMM-140 Fundamentals of College Mathematics I			3	
	NGGE-100 Freshman Seminar		2		
	NGGE-101 Job Search Process	1			
	Communication		2	2	
		4	4	4	
	Physical Education		0	0	
	NBTA-299 Co-op Work Experience				0
	NBTA-201,202 General Accounting I, II	3	3		
	NBTA-251 Applied Accounting I			4	
	NBTD-210 Data Processing for Business Occupations		3		
	NBTP-221 Advanced Typing I	3			
	NBTP-284 Fundamentals of Management	3			
2	NBTP-286 Fundamentals of Marketing			3	
	NTMM-141,142 Fundamentals of College Mathematics II, III...	3		3	
	Communication	2	2	2	
		4	4		
			2		
	Liberal Arts			4	
	Physical Education	0			
	NBTA-252, 253, 254 Applied Accounting II, III, IV	4	4	4	
	NBTA-260 Applied Accounting Techniques			2	
	NBTA-231, 232 Economics I, II		3	3	
3	NGGE-102 Life After College			1	
	NGGE-147 Law and Society		2		
				2	
	Liberal Arts	4	4	4	
	NBTA-299 Co-op Work Experience				0

Business Occupations

This certificate program combines basic business office skills with an introduction to data-entry concepts.

Places of Employment
Business, industry, government, and schools

Business Occupations
Certificate Program

On-the-job Responsibilities
Type business communications, operate electronic calculators, maintain files, keep basic payroll records, enter and retrieve data on computer terminals, and use electronic mail and basic word processing skills on a personal computer.

Positions for Which Graduates Qualify
General office clerk, file clerk, record-keeping clerk, data-entry clerk, and payroll records clerk

Approximate Time
6 quarters, including 1 cooperative work experience

Yr.	BUSINESS OCCUPATIONS: CERTIFICATE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NBTP-101 Orientation to Business		3		
	NBTP-110 Business English			3	
	NBTP-111, 112, 113 Beginning Typing I, II, III	2	2	2	
	NBTP-211, 212,213 Business Procedures I, II, III	3	3	3	
	NTMM-120 Basic Mathematics	3			
	NGGE-101 Job Search Process	1			
	NGGE-100 Freshman Seminar		2		
	Communication	2	2	2	
		4	4	4	
	Physical Education			0	
	NBTP-299 Co-op Work Experience				0
2	NBTP-221, 222 Advanced Typing I, II	3	3		
	NGGE-102 Life After College		1		
	NGGE-147 Law and Society	2			
	Communication	2	2		
		4	4		
	General Education	2			
	OR				
	Business Elective	(2)			
	General Education		2		

Business Technology

This AOS degree program includes technical coursework in accounting, computers, payroll, general office skills, and word processing/information processing skills.

This is a non-transfer occupational program with primary emphasis on preparation for immediate employment.

Places of Employment
Business, industry, government, and schools

Business Technology
AOS Degree Program

On-the-job Responsibilities
Input, manipulate, and retrieve data; use interaction software, electronic mail, and information processing skills; and use computers to mainframe and reconcile various financial records.

Yr.	BUSINESS TECHNOLOGY: AOS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NBTP-101 Orientation to Business	3			
	NBTP-110 Business English		3		
	NBTP-111, 112,113 Beginning Typing I, II, III	2	2	2	
	NBTP-211,212,213 Business Procedures I, II, III	3	3	3	
	NTMM-120 Basic Mathematics	3			
	NTMM-140 Fundamentals of College Mathematics I			3	
	NGGE-100 Freshman Seminar		2		
	NGGE-101 Job Search Process	1			
	Communication	2	2	2	
		4	4	4	
	Physical Education		0	0	
	NBTP-299 Co-op Work Experience				0
2	NBTA-201,202 General Accounting I, II	3	3		
	NBTA-251 Applied Accounting I			4	
	NBTD-210 Data Processing for Business Occupations		3		
	NBTP-221 Advanced Typing I	3			
	NBTP-284 Fundamentals of Management	3			
	NBTP-301 Word Processing I			4	
	NTMM-141 Fundamentals of College Mathematics II	3			
	NCPN-144 Clear Thinking and Writing		4		
	NCPN-189 Professional/Practical Writing			4	
	Communication		2		
		4			
				2	
	Physical Education		0		
	NBTP-299 Co-op Work Experience				0
3	NBTA-252, 253 Applied Accounting II, III	4	4		
	NBTA-260 Applied Accounting Techniques			2	
	NBTP-286 Fundamentals of Marketing			3	
	NBTP-291 Applied Business Techniques		2		
	NBTP-302 Word Processing II	4			
	NGGE-102 Life After College			1	
	NGGE-147 Law and Society	2			
	NGGE-166,167,168 Human Experience 1, II, III	4	4	4	
	Communication		2	2	

Positions for Which Graduates Qualify
General office clerk, clerk/typist, accounts receivable/payable clerk, payroll records clerk, word processing technician, cost accounting clerk, and microcomputer accounting clerk

Prerequisite
Appropriate English language ability as defined by AOS guidelines for English language skills

Approximate Time
11 quarters, including 2 cooperative work experiences

Office Technologies

This program offers a diploma and an AAS degree. It provides students with opportunities for developing keyboarding skills and experience in producing documents found in typical business offices. The program focuses on up-to-date word processing procedures using a variety of computer hardware and software.

On-the-job Responsibilities
Input, manipulate, and retrieve data; use interactive software, electronic mail, and information processing skills such as word processing, records processing, and database; and perform other office duties.

Places of Employment
Business, industry, government, and schools

Office Technologies
Diploma Program

Positions for Which Graduates Qualify
Clerk/typist, typist, correspondence typist, accounts receivable/payable clerk, general office clerk, file clerk, recordkeeping clerk, data-entry clerk, and payroll records clerk

Prerequisite
Successful completion of certificate in Business Occupations

Approximate Time
7 quarters, including 1 cooperative work experience

Office Technologies
AAS Degree Program

Positions for Which Graduates Qualify
Word processing technician, clerk/typist, typist, correspondence typist, accounts receivable/payable clerk, general office clerk, file clerk, recordkeeping clerk, data-entry clerk, and payroll records clerk

Prerequisite
Successful completion of diploma in Office Technologies

Approximate Time
11 quarters, including 2 cooperative work experiences

Yr.	OFFICE TECHNOLOGIES: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NBTP-101 Orientation to Business	3			
	NBTP-110 Business English			3	
	NBTP-111,112,113 Beginning Typing I, II, III	2	2	2	
	NBTP-211,212,213 Business Procedures I, II, III	3	3	3	
	NTMM-120 Basic Mathematics	3			
1	NTMM-140 Fundamentals of College Mathematics I		3		
	NGGE-100 Freshman Seminar		2		
	NGGE-101 Job Search Process	1			
	Communication		2	2	
		4	4	4	
	Physical Education		0	0	
	NBTP-299 Co-op Work Experience				0
	NBTA-201,202 General Accounting I, II	3	3		
	NBTD-210 Data Processing for Business Occupations		3		
	NBTP-221, 222 Advanced Typing I, II	3	3		
	NBTP-230 Office Technologies Seminar			2	
	NBTP-284 Fundamentals of Management	3			
	NBTP-301 Word Processing I			4	
2	NBTP-286 Fundamentals of Marketing			3	
	OR				
	NGGE-147 Law and Society			(2)	
	NGGE-102 Life After College			1	
	Communication	2	2	2	
	English (optional)	4	4	(4)	
	General Education			2	
	Physical Education		0		

Yr.	OFFICE TECHNOLOGIES: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NBTP-101 Orientation to Business	3			
	NBTP-110 Business English			3	
	NBTP-111, 112,113 Beginning Typing I, II, III	2	2	2	
	NBTP-211,212,213 Business Procedures I, II, III	3	3	3	
	NTMM-120 Basic Mathematics	3			
1	NTMM-140 Fundamentals of College Mathematics I		3		
	NGGE-100 Freshman Seminar		2		
	NGGE-101 Job Search Process	1			
	Communication		2	2	
		4	4	4	
	Physical Education		0	0	
	NBTP-299 Co-op Work Experience				0
	NBTA-201,202 General Accounting I, II	3	3		
	NBTD-210 Data Processing for Business Occupations		3		
	NBTP-221, 222 Advanced Typing I, II	3	3		
	NBTP-230 Office Technologies Seminar			2	
	NBTP-284 Fundamentals of Management	3			
2	NBTP-286 Fundamentals of Marketing			3	
	NBTP-301 Word Processing I			4	
	Communication	2	2	2	
		4	4		
	Liberal Arts			4	
	Physical Education		0		
	NBTP-299 Co-op Work Experience				0
	NBTP-291 Applied Business Techniques			2	
	NBTP-302,303,304 Word Processing II, III, IV	4	4	4	
3	NGGE-102 Life After College			1	
	NGGE-147 Law and Society	2			
	General Education	2		2	
	Liberal Arts	4	4	4	

Computer Careers

Careers working with computers are increasing daily. Computers are an important part of business, industry, and other parts of the economy. Computer careers involve operating computers or writing programs that direct the computer to solve a problem.

Students may choose from certificate, diploma, and/or AAS degree programs in Data Processing.

Data Processing

Dr. Bruce O. Peterson, Chairperson

On-the-job Responsibilities
Certificate and diploma: Work in the computer operations area controlling computers or in a variety of operations-related support areas.

AAS degree: Work as a mainframe operator, full computer operator, remote operator, or basic entry-level programmer trainee. Major concentration is in computer operations.

Places of Employment
Banks, insurance companies, large stores, manufacturing companies, public utilities, government agencies, and other data processing centers

Prerequisite
Grade of C or better in all required technical courses

Data Processing
Certificate Program

Positions for Which Graduates Qualify
Computer operations support positions such as data control, librarian, or peripheral equipment operator

Prerequisites
Successful completion of a sampling experience in the Data Processing area, either through the Summer Vestibule Program or a departmental sampling program

Students with Michigan Test scores lower than 55 or with low mathematics skills may have difficulty in this program

Yr.	DATA PROCESSING: CERTIFICATE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NBTD-100 Introduction to Data Processing	2			
	NBTD-101 Introduction to Business Programming			3	
	NBTD-157 Beginning Computer Operations	1			
	NBTD-158 Beginning Computer Operations Lab	1			
	NBTD-161 Business Computers Systems Facilities			2	
	NBTD-170 Utilities/JCL for Computers		2		
	NBTP-101 Orientation to Business		3		
	NTMM-140,141 Fundamentals of College Mathematics I, II	3	3		
	NGGE-100 Freshman Seminar		2		
	NGGE-101 Job Search Process	1			
	NGGE-102 Life After College			1	
		2		2	
		4	4	4	
	NBTD-299 Co-op Work Experience				0
2	NBTD-125 Data Processing Technical Communications	2			
	NBTD-162 Computer Console Operations	1			
	NTMM-142 Fundamentals of College Mathematics III	3			
		2			
		2			
		4			
	Physical Education	0			

Yr.	DATA PROCESSING: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NBTD-100 Introduction to Data Processing	2			
	NBTD-101 Introduction to Business Programming			3	
	NBTD-125 Data Processing Technical Communications		2		
	NBTD-157 Beginning Computer Operations	1			
	NBTD-158 Beginning Computer Operations Lab	1			
	NBTD-161 Business Computer Systems Facilities			2	
	NBTD-170 Utilities/JCL for Computers		2		
	NBTD-171 Computer Architecture			1	
	NBTP-101 Orientation to Business		3		
	NTMM-140,141 Fundamentals of College Mathematics I, II	3		3	
	NGGE-100 Freshman Seminar		2		
	NGGE-101 Job Search Process	1			
		2	2	2	
		4	4	4	
	NBTD-299 Co-op Work Experience				0
2	NBTD-120 On-Line Processing/Programming	2			
	NBTD-162 Computer Console Operations	1			
	NBTD-230, 231 Business COBOL I, II		3	3	
	NBTD-250 Multiprogramming/Spooling for Operators			2	
	NBTD-251 Multiprogramming/Spooling for Operators Lab			1	
	NBTD-260 System Generation for Operators		1		
	NBTD-261 System Generation for Operators Lab		2		
	NTMM-142 Fundamentals of College Mathematics III	3			
	NGGE-102 Life After College			1	
	Business Elective	3	3	2	
	Communication		2	2	
		4	4		
				3	
	Physical Education	0	0		

Approximate Time
5 quarters, including 1 cooperative work experience

Data Processing
Diploma Program

Positions for Which Graduates Qualify
Computer operator trainee and peripheral equipment operator

Prerequisites
Successful completion of a sampling experience in the Data Processing area, either through the Summer Vestibule Program or a departmental sampling program

Students with Michigan Test scores lower than 55 or with low mathematics skills may have difficulty in this program

Approximate Time
7 quarters, including 1 cooperative work experience

Data Processing
AAS Degree Program

Positions for Which Graduates Qualify
Computer operator and low entry-level business programmer trainee

Prerequisites
Successful completion of a sampling experience in the Data Processing area, either through the Summer Vestibule Program or a departmental sampling program

Students with Michigan Test scores lower than 55 or with low mathematics skills may have difficulty meeting liberal arts requirements and third-year technical course requirements

Approximate Time
11 quarters, including 2 cooperative work experiences

Yr.	DATA PROCESSING: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NBTD-100 Introduction to Data Processing	2			
	NBTD-101 Introduction to Business Programming			3	
	NBTD-125 Data Processing Technical Communications		2		
	NBTD-157 Beginning Computer Operations	1			
	NBTD-158 Beginning Computer Operations Lab	1			
	NBTD-161 Business Computer Systems Facilities			2	
	NBTD-170 Utilities/JCL for Computers		2		
1	NBTP-101 Orientation to Business			3	
	NTMM-140,141,142 Fundamentals of College Mathematics I, II, III	3	3	3	
	NGGE-100 Freshman Seminar		2		
	NGGE-101 Job Search Process	1			
	Communication	2		2	
		4	4	4	
			0		
	NBTD-299 Co-op Work Experience				0
	NBTD-120 On-Line Processing/Programming	2			
	NBTD-162 Computer Console Operations	1			
	NBTD-171 Computer Architecture		1		
	NBTD-230, 231 Business COBOL I, II		3	3	
	NBTD-250 Multiprogramming/Spooling for Operators			2	
2	NBTD-251 Multiprogramming/Spooling for Operators Lab			1	
		3	3		
	Communication		2	2	
		4	4		
	Liberal Arts			4	
		3		3	
		0	0	0	
	NBTD-299 Co-op Work Experience				0
	NBTD-240 Assembler Language Programming		3		
	NBTD-260 System Generation for Operators	2			
	NBTD-261 System Generation for Operators Lab	1			
	NBTD-262 Advanced Operating Systems		2		
3	NBTD-263 Advanced Operating Systems Lab		1		
	NTMM-163 Data Processing Mathematics	3			
	NGGE-102 Life After College			1	
	Business Elective		3		
	Communication	2		2	
	Liberal Arts	4	4	8	
	Technical Elective	3		3	

School of Science and Engineering Careers

Dr. Marie L. Raman,
Assistant Dean/Director

Applied Science/ Allied Health Careers

Frederic R. Hamil, Chairperson

Students interested in science and helping people can combine both interests in an applied science/allied health career. These careers prepare students for employment in medical or health service settings or in research.

Students may choose programs in Medical Laboratory Technology, Medical Record Technology, or Ophthalmic Optical Finishing Technology.

Medical Laboratory Technology

Beverly J. Price, MT (ASCP),
Education Coordinator

Students may choose certificate or AAS degree programs to prepare for careers as histologic assistants or medical laboratory technicians.

Pre-Technical Program
More than 90 percent of students applying for Medical Laboratory Technology programs need to enroll in a pre-technical program, usually lasting three quarters. The program consists of biology, chemistry, communication, English, general education, mathematics, and physical education.

Histologic Assistant
Certificate Program

On-the-job Responsibilities
Perform routine procedures in histology.

Yr.	HISTOLOGIC ASSISTANT: CERTIFICATE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NTSB-107,108,109 MLT Biology I, II, III	4	4	4	
	NTSC-115,116,117 MLT Chemistry I, II, III	4	4	4	
	NTMM-140,141,142 Fundamentals of College Mathematics I, II, III	3	3	3	
PT*	NGGE-100 Freshman Seminar	2			
	NGGE-101 Job Search Process		1		
	Communication	2	2	2	
		4	4	4	
	Physical Education	0	0	0	
	NTSL-101,102 Anatomy/Physiology and Disease I, II	4	4		
	NTSL-111 Basic Histology	6			
	NTSL-115 Electrocardiography		2		
	NTSL-211 Histology II		6		
1	NTMM-170 MLT Mathematics	3			
	NGGE-102 Life After College		1		
	Communication	2	2		
		4	4		
	NTSL-299 MLT Co-op Clinical Experience			0	

*Pre-Technical Requirements

Places of Employment
Hospitals and industrial, private, and research clinical laboratories

Positions for Which Graduates Qualify
Histologic assistant

Prerequisites
MLT Biology I, II, III
MLT Chemistry I, II, III
Algebra II/A, II/B

Approximate Time
7 quarters, including pre-technical program and 1 cooperative work experience

4 quarters, including 1 cooperative work experience, but without pre-technical program

Medical Laboratory Technology
AAS Degree Program

On-the-job Responsibilities
Perform routine medical laboratory procedures in hematology, urinalysis, microbiology, histology, clinical chemistry, bloodbanking, serology, and parasitology.

Clinical Experience
The program includes a 12-week clinical co-op experience during the summer quarter between the first and second years of the program and another affiliated experience during the winter and spring quarters of the second year. To participate in the required clinical experience sessions, students are required to take a physical examination. This may be performed by a family physician or RIT's Student Health Center, where examinations can be performed for a small fee. Students are responsible for their own transportation to clinical experience sites.

Places of Employment
Clinical laboratories of hospitals, private clinics, physicians' offices, industrial clinical laboratories, municipal laboratories, and research clinical laboratories

Positions for Which Graduates Qualify
Medical laboratory technician, clinical chemistry assistant, microbiology assistant, and hematology assistant

Prerequisites
MLT Biology I, II, III
MLT Chemistry I, II, III
Algebra II/A, II/B

Approximate Time
10 quarters, including pre-technical program and 1 cooperative clinical experience

7 quarters, including 1 cooperative clinical experience, but without pre-technical program

Medical Record Technology

Marilyn G. Fowler, R.R.A., Director

Students earn an AAS degree in Medical Record Technology to prepare for careers in health information services.

The medical record technician is able to organize, analyze, and technically evaluate health records; compile and utilize administrative and health statistics; code symptoms, diseases, operations, and procedures to support reimbursement systems; maintain and use health record indexes and storage and retrieval systems; and abstract and retrieve health information for evaluating and planning health care and health-related programs. A medical record technician does not have direct patient contact.

Pre-Technical Program

More than 90 percent of students entering the Medical Record Technology program need to enroll in a pre-technical program that normally is three quarters long.

Courses are determined by each student's skill level, but generally include Biology I, II, III; communication; English or liberal arts; general education; Health Care Organization and Structure; Mathematics (Fundamentals of College Mathematics); physical education; typing; and word processing.

Accreditation

The Medical Record Technology program is accredited by the American Medical Association Committee on Allied Health Education and Accreditation (CAHEA) in collaboration with the American Medical Record Association (AMRA). Graduates may take the professional accreditation examination, and when successful, will be granted certification as Accredited Record Technicians. This certification demonstrates technical knowledge and skill in the profession. Certification supports graduates in employment, promotions, and salary increases. The fee for this examination is determined yearly by AMRA.

Yr.	MEDICAL LABORATORY TECHNOLOGY: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NTSB-107, 108,109 MLT Biology I, II, III	4	4	4	
	NTSC-115,116,117 MLT Chemistry I, II, III	4	4	4	
	NTMM-140, 141,142 Fundamentals of College				
PT*	Mathematics I, II, III	3	3	3	
	NGGE-100 Freshman Seminar		2		
	Communication	2		2	
		4	4	4	
	Physical Education	0	0	0	
	NTSL-101,102 Anatomy/Physiology and Disease I, II	4	4		
	NTSL-111 Basic Histology			6	
	NTSL-121 Urinalysis	2			
	NTSL-122,123 Hematology, Advanced Hematology	4	5		
	NTSL-131 Microbiology I			5	
	NTSL-132 Immunology		3		
1	NTSL-133 Blood Bank Procedures			3	
	NTSL-200 Pre Co-op Seminar		1		
	NTMM-170 MLT Mathematics	3			
	NGGE-101 Job Search Process	1			
	Communication		2		
		4			
	English or Liberal Arts		4	4	
	NTSL-299 MLT Co-op Clinical Experience				0
	NTSL-105 Medical Parasitology			2	
	NTSL-115 Electrocardiography		2		
	NTSL-201, 202, 203 Clinical Chemistry I, II, III	6	5	5	
	NTSL-224 Laboratory Simulation			3	
2	NTSL-232, 233 Microbiology I, II	6	5		
	NGGE-102 Life After College			1	
	Communication	2	2	2	
		4	4	4	
	"Pre-Technical Requirements				

Yr.	MEDICAL RECORD TECHNOLOGY: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NBTP-111,112,113 Beginning Typing I, II, III	2	2	2	
	NTMM-140 Fundamentals of College Mathematics I	3			
	NTSR-106,107,108 MRT Biology I, II, III	4	4	4	
PT*	NTSR-145 Health Care Organization and Structure			4	
	NGGE-100 Freshman Seminar	2			
	Communication	2	2		
		4	4	4	
	Physical Education		0		
	NTSR-111,112 Anatomy/Physiology I, II	4	4		
	NTSR-141,142,143 Medical Record Science I, II, III	5	5	5	
	NTSR-161,162,163 Medical Terminology I, II, III	3	3	3	
	NBTD-213 Applications Software			2	
1	NBTP-221 Advanced Typing I		3		
	NBTP-301 Word Processing I			4	
	Communication	2	2		
	Liberal Arts	4		4	
	Physical Education		0		
	NTSR-299 MRT Co-op Work Experience				0
	NTSR-244,245,246 Medical Record Science IV, V, VI	5	5	5	
	NTSR-251, 252 Pathophysiology I, II		3	3	
	NTSR-264, 265 Medical Terminology IV, V	3		3	
2	NGGE-101 Job Search Process	1			
	NGGE-102 Life After College		1		
		2	2		
	Liberal Arts	4	4	4	
	Physical Education		0		
	* Pre-Technical Requirements				

Medical Record Technology
AAS Degree Program

On-the-job Responsibilities
Prepare medical records for patient care evaluation studies; collect statistical data including coding of diseases, procedures, diagnostic tests, and therapeutic measures; communicate with professionals within and external to the medical field; perform manual or automated storage and retrieval of medical records; prepare and maintain specialized registries; and keep records secure and confidential.

Cooperative Work Experience
The program includes a 10-week work experience during the summer quarter between the first and second years of the program and another work experience during the last quarter of the second year. In order to participate in the required work experience sessions, students are required to take a physical examination. This may be performed by a family physician or RIT's Student Health Center, where examinations can be performed for a small fee. Students are responsible for their own transportation to work experience sites.

Places of Employment
Acute, chronic, and mental health hospitals; specialized medical care, skilled nursing, rehabilitation, and medical clinics; Veterans Administration; research facilities; insurance companies; industry; automated health information centers; AMRA executive offices; medical record consulting firms; and medical record education facilities

Prerequisites
MRT Biology I, II, III
Fundamentals of College Mathematics
Health Care Organization and Structure
MRT Career Exploration

Approximate Time
10 quarters, including pre-technical program and 1 cooperative work experience

7 quarters, including 1 cooperative work experience, but without pre-technical program

Ophthalmic Optical Finishing Technology

Douglas Wachter, Director

An ophthalmic optical finishing technologist makes eyeglasses prescribed by physicians and optometrists. Technologists refine lenses to prescription specifications as ordered by vision care specialists.

Students may choose from certificate, diploma, AOS, and AAS degree programs.

The Ophthalmic Optical Finishing Technology programs include an optical laboratory affiliation in Rochester during one of the academic quarters. A cooperative work experience is taken in students' home areas during the summer quarter between the first and second years in the program. Students are responsible for obtaining their own transportation to these practice sites.

Pre-Technical Program
More than 90 percent of those applying for the Ophthalmic Optical Finishing Technology programs need to enroll in a pre-technical program. The program generally is three quarters long and provides coursework in communication, English, mathematics, and physical education.

Accreditation
Ophthalmic Optical Finishing Technology programs are accredited by the Commission on Opticianry Accreditation. This accreditation recognizes the high standards of program quality provided to NTID students.

Ophthalmic Optical Finishing Technology
Certificate Program

On-the-job Responsibilities
Follow vision care specialists' instructions as written on prescriptions, perform procedures requested by laboratory supervisors to prepare eyeglasses for use, and maintain laboratory and equipment according to industry (American National Standards Institute) standards.

Places of Employment
Wholesale optical laboratories and offices of ophthalmologists, optometrists, and dispensing opticians

Graduates Qualify for Positions Requiring These Skills
Hand-refining, lens heat/chemical treatment, lens blocking, lens dyeing, automatic lens edging, and surfacing

Prerequisites
Fundamentals of College Mathematics
Introduction to Optical Finishing Technology I, II, III

Successful completion of a sampling experience in Ophthalmic Optical Finishing Technology, either through the Summer Vestibule Program or a departmental sampling program

Approximate Time
7 quarters, including pre-technical program and 1 cooperative work experience

4 quarters, including 1 cooperative work experience, but without pre-technical program

Ophthalmic Optical Finishing Technology
Diploma Program

On-the-job Responsibilities
Follow vision care specialists' instructions as written on prescriptions, perform procedures requested by laboratory supervisors to prepare eyeglasses for use, and maintain laboratory and equipment according to industry (American National Standards Institute) standards.

Places of Employment
Wholesale optical laboratories and offices of ophthalmologists, optometrists, and dispensing opticians

Graduates Qualify for Positions Requiring These Skills
Vertometric evaluation, lay-out, hand-refining, lens heat/chemical treatment, lens blocking, surfacing, lens dyeing, stockroom services, and final checking and evaluation

Prerequisites
Fundamentals of College Mathematics
Introduction to Optical Finishing Technology I, II, III

Successful completion of a sampling experience in Ophthalmic Optical Finishing Technology, either through the Summer Vestibule Program or a departmental sampling program

Approximate Time
10 quarters, including pre-technical program and 1 cooperative work experience

7 quarters, including 1 cooperative work experience, but without pre-technical program

Yr.	OPHTHALMIC OPTICAL FINISHING TECHNOLOGY: CERTIFICATE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NTMM-120 Basic Mathematics	3			
	NTMM-140,141 Fundamentals of College Mathematics I, II		3	3	
	NTSF-105,106,107 Introduction to OFT I, II, III	2	2	2	
	NTSP-168 OFT Physics			3	
PT*	NGGE-100 Freshman Seminar	2			
	NGGE-101 Job Search Process			1	
		2	2	2	
		4	4	4	
			2		
	Physical Education	0	0	0	
	NTSF-111,112 OFT Mathematics I, II	3	3		
	NTSF-115,116 Prescription Analysis	3	3		
	NTSF-121,122,123 Optical Finishing Techniques I, II, III	5	5	6	
	NTSF-161,162,163 Optical Finishing				
1	Terminology I, II, III	3	3	3	
	NTSF-399 Independent Study Surfacing	2			
	NGGE-101 Job Search Process	1			
	NGGE-102 Life After College			1	
		2		2	
		4	4		
	NTSF-299 Co-op Work Experience				0

"Pre-Technical Requirements

Yr.	OPHTHALMIC OPTICAL FINISHING TECHNOLOGY: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NTMM-120 Basic Mathematics	3			
	NTMM-140,141 Fundamentals of College Mathematics I, II		3	3	
	NTSF-105,106,107 Introduction to OFT 1, II, III	2	2	2	
PT*		2			
		2	2	2	
		4	4	4	
			2	2	
	Physical Education	0	0	0	
	NTSF-111,112 OFT Mathematics I, II	3	3		
	NTSF-115,116 Prescription Analysis I, II	3	3		
	NTSF-117 Lens Design			3	
	NTSF-121,122,123 Optical Finishing	5	5	6	
	NTSF-161,162,163 Optical Finishing	3	3	3	
1	NTSF-399 Independent Study Surfacing	2			
	NGGE-101 Job Search Process	1			
			2		
		4			
	NTSF-299 OFT Co-op Work Experience				0
	NTSF-224 Optical Finishing Techniques IV	5			
	NTSF-225, 226 Lab Simulation 1, II		5	5	
	NTSF-241 Management of Optical Stockroom Procedures	4			
	NTSF-243 Optical Finishing Inspection/Correction			3	
2	NTSF-251 Optical Finishing Technology Seminar		2		
	NTSP-168 Physics I		3		
	NGGE-102 Life After College			1	
	Communication		2	2	
		4			
	General Education			2	

*Pre-Technical Requirements

Ophthalmic Optical Finishing Technology

AOS Degree Program

On-the-job Responsibilities

Follow vision care specialists' instructions as written on prescriptions, perform procedures requested by laboratory supervisors to prepare eyeglasses for use, and maintain laboratory equipment according to industry (American National Standards Institute) standards.

Places of Employment

Wholesale optical laboratories and offices of ophthalmologists, optometrists, and dispensing opticians

Graduates Qualify for Positions Requiring These Skills

Vertometric evaluation, lay-out, hand-refining, lens heat/chemical treatment, lens blocking, surfacing, lens dyeing, stockroom services, and final checking and evaluation

Prerequisites

Fundamentals of College Mathematics

Introduction to Optical Finishing Technology I, II, III

Successful completion of a sampling experience in Ophthalmic Optical Finishing Technology, either through the Summer Vestibule Program or a departmental sampling program

Completion of NTID English course requirements, California Reading Test score higher than 7.0, and Michigan Test score higher than 55

Approximate Time

10 quarters, including pre-technical program and 1 cooperative work experience

7 quarters, including 1 cooperative work experience, but without pre-technical program

Ophthalmic Optical Finishing Technology
AAS Degree Program

On-the-job Responsibilities
Follow vision care specialists' instructions as written on prescriptions, perform procedures requested by laboratory supervisors to prepare eyeglasses for use, and maintain laboratory and equipment according to industry (American National Standards Institute) standards.

Places of Employment
Wholesale optical laboratories and offices of ophthalmologists, optometrists, and dispensing opticians

Graduates Qualify for Positions Requiring These Skills
Vertometric evaluation, lay-out, hand-refining, lens heat/chemical treatment, lens blocking, surfacing, lens dyeing, stockroom services, and fined checking and evaluation

Prerequisites
Fundamentals of College Mathematics
Introduction to Optical Finishing Technology I, II, III

Successful completion of a sampling experience in Ophthalmic Optical Finishing Technology, either through the Summer Vestibule Program or a departmental sampling program

Completion of NTID English course requirements, California Reading Test score higher than 7.0, and Michigan Test score higher than 55

Approximate Time
10 quarters, including pre-technical program and 1 cooperative work experience

7 quarters, including 1 cooperative work experience, but without pre-technical program

Yr.	OPHTHALMIC OPTICAL FINISHING TECHNOLOGY: AOS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NTMM-120 Basic Mathematics	3			
	NTMM-140,141 Fundamentals of College Mathematics I, II		3	3	
PT'	NTSF-105, 106,107 Introduction to OFT I, II, III	2	2	2	
	NGGE-100 Freshman Seminar	2			
	Communication	2	2	2	
		4	4	4	
	General Education		2	2	
	NTSF-111,112 OFT Mathematics I, II	3	3		
	NTSF-115,116 Prescription Analysis I, li	3	3		
	NTSF-117 Lens Design			3	
	NTSF-121, 122, 123 Optical Finishing Techniques I, II, III	5	5	6	
1	NTSF-161, 162, 163 Optical Finishing Terminology I, II, III	3	3	3	
	NTSF-399 Independent Study Surfacing	2			
	NGGE-101 Job Search Process	1			
	Communication	2			
		4	4		
	NTSF-299 Co-op Work Experience				0
	NTSF- 224 Optical Finishing Techniques IV	5			
	NTSF-225, 226 Lab Simulation I, II		5	5	
	NTSF-241 Management of Optical Stockroom Procedures	4			
2	NTSF-243 Optical Finishing Inspection/Correction			3	
	NTSF-251 Optical Finishing Technology Seminar		2		
	NTSP-168 OFT Physics			3	
	NGGE-102 Life After College			1	
	NGGE-166, 167, 168 Human Experience I, II, III	4	4	4	
	Communication	2	2		

*Pre-Technical Requirements

Yr.	OPHTHALMIC OPTICAL FINISHING TECHNOLOGY: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NTMM-120 Basic Mathematics	3			
	NTMM-140, 141 Fundamentals of College Mathematics I, II		3	3	
	NTSF-105, 106,107 Introduction to OFT I, II, III	2	2	2	
PT*	NGGE-100 Freshman Seminar	2			
		2	2	2	
		4	4	4	
			2	2	
	Physical Education	0	0	0	
	NTSF-111,112 OFT Mathematics I, II	3	3		
	NTSF-115,116 Prescription Analysis I, II	3	3		
	NTSF-117 Lens Design			3	
	NTSF-121, 122, 123 Optical Finishing	5	5	6	
1	NTSF-161, 162, 163 Optical Finishing Terminology	3	3	3	
	NTSF-399 Individual Study Surfacing	2			
	NGGE-101 Job Search Process	1			
		2			
	English or Liberal Arts	4	4		
	NTSF-299 Co-op Work Experience				0
	NTSF-224 Optical Finishing Techniques IV	5			
	NTSF-225, 226 Lab Simulation I, II		5	5	
	NTSF-241 Management of Stockroom Procedures	4			
2	NTSF-243 Optical Finishing Inspection/Correction			3	
	NTSF-251 Optical Finishing Technology Seminar		2		
	NTSP-168 OFT Physics		3		
	NGGE-102 Life After College		1		
	Communication		2	2	
	Liberal Arts	4	4	4	

PT' Pre-Technical Requirements

Engineering Technologies Careers

Students selecting Engineering Technologies careers may choose one of three areas. **Construction Technologies** careers involve participating in the design and construction of buildings, roads, and bridges. **Electromechanical Technology** careers involve working with engineers and researchers to provide technical support for the design, installation, and maintenance of machines using electrical, electronic, and mechanical devices. **Industrial Technologies** careers involve working with systems and special equipment used in industry throughout the country.

Students may choose programs in:
Construction Technologies
Architectural Drafting (Diploma)
Architectural Technology (AAS)
Civil Technology (AAS)

Electromechanical Technology
Electromechanical Technology (AAS)

Industrial Technologies
Industrial Drafting (Diploma)
Industrial Drafting Technology (AOS, AAS)
Manufacturing Processes (Diploma)

Accreditation
The AAS programs in Architectural Technology, Civil Technology, Electromechanical Technology, and Industrial Drafting Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.

C.O.R.E. Year Experience
Most students are required to enroll in the C.O.R.E. (Career Orientation and Exploration) year sequence. This experience lasts three quarters and includes an in-depth sampling of program offerings within Engineering Technologies (Architectural Technology, Civil Technology, Electromechanical Technology, Industrial Drafting Technology, and Manufacturing Processes) as well as coursework in communication, English, general education, and mathematics.

Most students are required to enroll in the C.O.R.E. year sequence (Career Orientation and Exploration). This experience is three quarters in length and includes an in-depth sampling of program offerings within Engineering Technologies (Architectural Technology, Civil Technology, Electromechanical Technology, Industrial Drafting Technology, Manufacturing Processes) as well as coursework in communications, English, general education, and mathematics.

Yr.	C.O.R.E. YEAR EXPERIENCE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NTMM-140,141,142 Fundamentals of College Mathematics I, II, III	3	3	3	
	NGGE-100 Freshman Seminar	2			
	Career Exploration *		1	1	
		2	2	2	
	English "	4	4	4	
	General Education "*		3	3	

'Students choose at least two of the following career exploration courses: NETA-100 (Architectural Technology), NETC-100 (Civil Technology), NETI-100 (Industrial Drafting Technology), NETM-100 (Electromechanical Technology), NETT-100 (Manufacturing Processes). Students must sample a program to be admitted to it.

"Students may be required to register for more than one English course per quarter depending on their entry-level skills.

"'Students are encouraged to start Physics after completing Fundamentals of College Mathematics I. Students may register for Technical Physics I instead of General Education.

Yr.	ARCHITECTURAL DRAFTING: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NETA-110 Construction Terminology	4			
	NETA-111,112,113 Construction Drafting I, II, III	2	2	2	
	NETA-201, 202 Construction Methods I, II		3	3	
	NTMM-142 Fundamentals of College Mathematics III	3			
	NTMM-150,151 Integrated College Mathematics I, II		4	4	
	NTSP-100 Technical Physics I		3		
	NTSP-125 Construction Technology Physics II			3	
	NGGE-100 Freshman Seminar	2			
	Communication *	2	2	2	
		4	4		
	Physical Education	0	0	0	
2	NETA-211,212 Architectural Materials I, II	3	3		
	NETA-220 Principles of Structural Systems			4	
	NETA-221, 222, 223 Architectural Design Drafting I, II, III	4	4	4	
	NETA-224 Construction Computations		2		
	NETA-375 Architectural History			2	
	NETA-376 Building Estimating			2	
	NETA-377 Building Equipment	3			
	NETA-390 Architectural Technology Seminar_		2		
	NETC-241 Mapping I			2	
	NTSP-126 Construction Technology Physics III	3			
	NGGE-101 Job Search Process	1			
	NGGE-102 Life After College			1	
	General Education		2		

'Students who enter this program without the C.O.R.E. year experience will need to take additional English and communication courses.

Construction Technologies

Hugh P. Anderson, Chairperson

Construction Technologies programs teach students the skills related to the design and construction of architectural (buildings) and civil (roads, bridges, etc.) projects. Students may choose a diploma program in Architectural Drafting or an AAS degree program in Architectural or Civil Technology.

Architectural Drafting
Diploma Program

On-the-job Responsibilities
Draw detailed plans of buildings and other structures, working from architects' and designers' notes and sketches; do lettering; make models; and know construction methods and materials.

Places of Employment
Architectural and engineering firms, building materials suppliers, construction companies, and government agencies

Position for Which Graduates Qualify

Architectural drafter

Prerequisites

Fundamentals of College Mathematics
English level: Marginally Qualified

Approximate Time
9 quarters, including C.O.R.E. year experience
6 quarters without C.O.R.E. year experience

Yr.	ARCHITECTURAL TECHNOLOGY: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NETA-110 Construction Terminology	4			
	NETA-111, 112, 113 Construction Drafting I, II, III	2	2	2	
	NETA-201, 202 Construction Methods I, II		3	3	
1	NTMM-150, 151, 152 Integrated College Mathematics I, II, III	4	4	4	
	NTSP-100 Technical Physics I		3		
	NTSP-125 Construction Technology Physics II			3	
	NGGE-100 Freshman Seminar	2			
		2	2	2	
		4	4		
	Physical Education	0	0	0	
	NETA-211,212 Architectural Materials I, II	3	3		
	NETA-220 Principles of Structural Systems			4	
	NETA-221,222, 223 Architectural Design Drafting I, II, III	4	4	4	
	NETA-390 Architectural Technology Seminar		3		
2	NETC-241 Mapping I			2	
	NTMM-201, 202 College Algebra, Trigonometry, and Analytic Geometry I, II	3	3		
	NTSP-126 Construction Technology Physics III	3			
	NGGE-101 Job Search Process	1			
	Liberal Arts		4	4	
	NETA-299 Co-op Work Experience				0
	NETA-340 Planning Project	5			
	NETA-351, 352 Architectural Project I, II		5	5	
	NETA-375 Architectural History			2	
	NETA-376 Building Estimating			2	
3	NETA-377 Building Equipment	3			
	NETC-250 Statics	4			
	NETC-260 Strength of Materials		4		
	NGGE-102 Life After College		1		
		4	4	4	
				1-3	

'Students who enter this program without the C. O. ft £ *year experience will need to take additional English and communication courses.*

Yr.	CIVIL TECHNOLOGY: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NETA-110 Construction Terminology	4			
	NETA-111,112, 113 Construction Drafting I, II, III	2	2	2	
	NETA-201, 202 Construction Methods I, II		3	3	
1	NTMM-150, 151,152 Integrated College Mathematics I, II, III	4	4 .	4	
	NTSP-100 Technical Physics I		3		
	NTSP-126 Construction Technology Physics III			3	
	NGGE-100 Freshman Seminar	2			
		2	2	2	
		4	4		
	Physical Education	0	0	0	
	NETC-211 Surveying and Mapping			6	
	NETC-250 Statics	4			
	NETC-260 Strength of Materials		4		
	NETC-283 Soil Mechanics		4		
	NETC-284 Engineering Materials			4	
	NETC-285 Civil Technology Seminar	2			
2	NETC-290 Programming for Civil Technicians			3	
	NETC-390 Construction Seminar		2		
	NTMM-201, 202 College Algebra, Trigonometry, and Analytic Geometry I, II	3	3		
	NTSP-125 Construction Technology Physics II	3			
	NGGE-101 Job Search Process	1			
			4	4	
	NETC-299 Co-op Work Experience				0
	NETC-311 Sun/eying Projects	3			
	NETC-312 Mapping and Site Design	2			
	NETC-321, 322, 323 Structural Design Drafting I, II, III	4	4	4	
	NETC-340 Fundamentals of Fluid Mechanics	4			
3	NETC-350 Highway Design and Construction		4		
	NETC-385 Principles of Environmental Technology			4	
	NGGE-102 Life After College		1		
	Liberal Arts	4	4	4	
	Technical Elective			1-3	

'Students who enter this program without the C.O.R.E. year experience will need to take additional English and communication courses.

Architectural Technology
AAS Degree Program

On-the-job Responsibilities
Work with architects and engineers to plan construction and remodeling of buildings and other structures, using preliminary drawings, design development drawings, working drawings, presentation graphics, model making, cost estimating, structural planning, and knowledge of construction methods and materials.

Places of Employment
Architectural, engineering, and construction companies; government agencies; and corporate design offices

Positions for Which Graduates Qualify
Architectural drafter, architectural technician, construction engineering drafter, and planning aide

Prerequisites
Fundamentals of College Mathematics
English level: Marginally Qualified

Approximate Time
13 quarters, including C.O.R.E. year experience and 1 cooperative work experience

10 quarters, including 1 cooperative work experience, but without C.O.R.E. year experience

Civil Technology
AAS Degree Program

On-the-job Responsibilities
Use a variety of skills such as drafting, surveying, materials testing and measuring, construction, inspection, report writing, and knowledge of materials and methods used in construction.

Places of Employment
Government agencies; construction companies; engineering, surveying, and architectural firms; oil and steel industries; transportation agencies; and materials testing laboratories

Positions for Which Graduates Qualify
Design assistant, materials laboratory technician, construction inspector, civil drafter, assistant surveyor, and structured drafter

Prerequisites
Fundamentals of College Mathematics
English level: Marginally Qualified

Approximate Time
13 quarters, including C.O.R.E. year experience and 1 cooperative work experience

10 quarters, including 1 cooperative work experience, but without C.O.R.E. vear experience

Electromechanical Technology

Robert A. Moore, Chairperson

A variety of career options are offered through the Electromechanical Technology program. Graduates of this program work with systems and equipment used in many different industries throughout the country.

Electromechanical Technology
AAS Degree Program

On-the-job Responsibilities
Construct and maintain equipment; apply knowledge of mechanical, electronic, and computer principles; service test equipment; and install electromechanical equipment.

Places of Employment
Engineering and manufacturing industries, government agencies, and military laboratories

Positions for Which Graduates Qualify
Research aide, engineering technician, quality control technician, service technician, engineering aide, automated equipment technician, and field service representative

Prerequisites
Fundamentals of College Mathematics
English level: Marginally Qualified

Approximate Time
10 quarters, including cooperative work experience and assuming above prerequisites are satisfied at time of admission

Yr.	ELECTROMECHANICAL TECHNOLOGY: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NETM-101 Basic Drafting 1	2			
	NETM-210 Computer Techniques		4		
	NETM-211 Mechanical Components			4	
1	NETM-213 DC Circuits			5	
	NETM-241 Tool Skills		2		
	NTMM-150, 151, 152 Integrated College Mathematics I, II, III	4	4	4	
	NTSP-100, 135 Physics I, II	3	3		
	NGGE-100 Freshman Seminar	2			
	Communication*	2		2	
		4	4		
	NETM-304 AC Circuits	5			
	NETM-317 Kinematics	4			
	NETM-321 Fluid Power		4		
	NETM-322 Electrical Power Systems			4	
	NETM-368, 369 Electronics I, II		5	5	
2	NTMM-201, 202, 203 Algebra, Trigonometry, and Analytic Geometry I, II, III	3	3	3	
	NGGE-101 Job Search Process	1			
			2		
		4	4	4	
		0	0	0	
	NETM-299 Co-op Work Experience				0
	NETM-171 Digital Systems	4			
	NETM-209 Technical Graphics			2	
	NETM-234 Optical Systems	4			
	NETM-324 Transducers	4			
3	NETM-325 Control Systems		4		
	NETM-327,328 Microprocessor Control Systems I, II		2	2	
	NETM-370 Electronics III	4			
	NGGE-102 Life After College			1	
	Liberal Arts		4	4	
			4	4	

'Students who enter this program without the C.O.R.E. year experience will need to take additional English and communication courses.

Industrial Technologies

Edward A. Maruggi,
Acting Chairperson

Programs in Industrial Technologies involve studies and applications of the systems and special equipment used in industry throughout the country. Students may choose from diploma programs in Industrial Drafting and Manufacturing Processes or associate degree programs (AOS and AAS) in Industrial Drafting Technology.

Industrial Drafting
Diploma Program

On-the-job Responsibilities
Prepare from sketches, drawings, and specifications prepared by others detailed production drawings (manually and using computer-aided drafting equipment) for manufactured products.

Places of Employment
Manufacturing industries, engineering firms, metal-working industries, drafting shops, government agencies, and engineering research firms

Positions for Which Graduates Qualify
Mechanical, electrical, and electro-mechanical drafter; detailer; and CAD operator

Prerequisites
Fundamentals of College Mathematics
English level: Marginally Qualified

Approximate Time
10 quarters, including C.O.R.E. year experience and 1 cooperative work experience

7 quarters, including 1 cooperative work experience, but without C.O.R.E. year experience

Yr.	INDUSTRIAL DRAFTING: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NETI-131,132 Manufacturing Processes I, II		1	1	
	NETI-141,142,143 Basic Technical Drafting I, II, III	3	3	3	
	NTMM-150, 151,152 Integrated College Mathematics I, II, III	4	4	4	
1	NTSP-100,135 Technical Physics I, II		3	3	
	NGGE-100 Freshman Seminar	2			
	NGGE-101 Job Search Process	1			
	Communication	2	2	2	
		4	4	4	
	Physical Education	0	0	0	
	NETI-299 Co-op Work Experience				0
	NETI-151,152 Materials and Processes I, II		3	3	
	NETI-201, 202,203 Technical Drafting I, II, III	5	4	4	
2	NETI-211 Supervised Study in Drafting			1	
	NGGE-102 Life After College			1	
	Communication	2	2	2	
		4	4	4	
	Physical Education	0			

Yr.	INDUSTRIAL DRAFTING TECHNOLOGY: AOS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NETI-131,132 Manufacturing Processes I, II		1	1	
	NETI-141,142,143 Basic Technical Drafting I, II, III	3	3	3	
	NTMM-150, 151, 152 Integrated College Mathematics I, II, III	4	4	4	
1	NTSP-100,135 Technical Physics I, II	3	3		
	NGGE-100 Freshman Seminar	2			
	NGGE-101 Job Search Process	1			
	Communication	2	2	2	
		4	4	4	
	Physical Education	0	0	0	
	NETI-299 Co-op Work Experience				0
	NETI-151,152 Materials and Processes I, II	3	3		
	NETI-201,202,203 Technical Drafting I, II, III	5	4	4	
	NETI-211 Supervised Study in Drafting			1	
2	NTMM-201, 202, 203 Algebra, Trigonometry, and Analytic Geometry I, II, III	3	3	3	
	NGGE-166 Human Experience I			4	
	Communication	2	2	2	
		4	4	4	
	Physical Education	0			
	NETI-299 Co-op Work Experience				0
	NETI-204, 205, 206 Technical Drafting IV, V, VI	3	3	5	
	NETI-213 Statics	4			
	NETI-214 Strength of Materials		4		
3	NETI-215 Mechanisms	4			
	NETI-221, 222 Machine Design I, II		4	4	
	NGGE-167,168 Human Experience II, III	4	4		
	NGGE-102 Life After College			1	
	Physical Education	0	0	0	

Industrial Drafting Technology
AOS Degree Program

On-the-job Responsibilities
Handle normal drafting assignments using drafting standards and engineering terms; gather data and information for engineers; draw layouts of design concepts for new machines, products, and for drafters' use in drawing parts; and use computer-aided drafting equipment.

Places of Employment
Manufacturing industries, engineering firms, drafting shops, government agencies, metal-working industries, and engineering research firms

Positions for Which Graduates Qualify
Mechanical, electrical, and electro-mechanical drafter; mechanical designer; CAD operator; and electro-mechanical designer

Prerequisites
Fundamentals of College Mathematics
English level: Marginally Qualified

Approximate Time
14 quarters, includng C.O.R.E. year experience and 2 cooperative work experiences

11 quarters, including 2 cooperative work experiences, but without C.O.R.E. year experience

Industrial Drafting Technology
AAS Degree Program

An AAS degree prepares students for the same responsibilities as an AOS degree except that the required liberal arts courses prepare students to continue toward a bachelor's degree if they so desire.

On-the-job Responsibilities
Handle normal drafting assignments using drafting standards and engineer ing terms; gather data and information for engineers; draw layouts of design concepts for new machines, products, and for drafters' use in drawing parts; and use computer-aided drafting equipment.

Yr.	INDUSTRIAL DRAFTING TECHNOLOGY: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NETI-131,132 Manufacturing Processes I, II		1	1	
	NETI-141,142,143 Basic Technical Drafting 1, II, III	3	3	3	
	NTMM-150, 151,152 Integrated College Mathematics I, II, III	4	4	4	
1	NTSP-100,135 Technical Physics I, II		3	3	
	NGGE-100 Freshman Seminar	2			
	NGGE-101 Job Search Process	1			
		2	2	2	
		4	4	4	
		0	0	0	
	NETI-299 Co-op Work Experience				0
	NETI-151,152 Materials and Processes I, II		3	3	
	NETI-201,202,203 Technical Drafting I, II, III	5	4	4	
	NETI-211 Supervised Study in Drafting			1	
2	NTMM-201, 202, 203 Algebra, Trigonometry, and Analytic Geometry I, II, III	3	3	3	
		2	2		
		4	4		
				4	
		0			
	NETI-299 Co-op Work Experience				0
	NETI-204, 205,206 Technical Drafting IV, V, VI	3	3	5	
	NETI-213 Statics	4			
3	NETI-214 Strength of Materials		4		
	NETI-215 Mechanisms	4			
	NETI-221,222 Machine Design I, II		4	4	
	NGGE-102 Life After College			1	
		4	4	4	

Yr.	MANUFACTURING PROCESSES: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NETT-131,132,133 Manufacturing Processes I, II, III	4	4	4	
	NETT-139,140 Blueprint Reading I, II	2	2		
	NETT-154 Precision Measurement			2	
1	NTMM-140,141, 142 Fundamentals of College Mathematics I, II, III	3	3	3	
	NGGE-100 Freshman Seminar	2			
	NGGE-101 Job Search Process		1		
	Communication	2	2	2	
		4	4	4	
		0	0	0	
	NETT-299 Co-op Work Experience				0
	NETT-101,102 Basic Drafting I, II*	2	2		
	NETT-134,135,136 Manufacturing Processes IV, V, VI	4	4	4	
	NETT-151 Industrial Materials	3			
	NETT-152 Manufacturing Analysis			3	
	NETT-153,154 Welding I, II*		2	2	
2	NETN-151, 152 Numerical Control 1, II*		4	4	
	NTMM-150,151, 152 Integrated College Mathematics I, II, III	4	4	4	
	NGGE-102 Life After College			1	
		2	2	2	
		4	4	4	
	Physical Education	0			

Technical Electives: Students are required to take a minimum of two of the three courses offered in the winter and spring quarters.

Places of Employment
Manufacturing industries, engineering firms, drafting shops, government agencies, metal-working industries, and engineering research firms

Positions for Which Graduates Qualify
Mechanical, electrical, and electro-mechanical drafter; mechanical designer; CAD operator; and electro-mechanical designer

Prerequisites
Fundamentals of College Mathematics
English level: Marginally Qualified

Approximate Time
14 quarters, including C.O.R.E. year experience and 2 cooperative work experiences

11 quarters, including 2 cooperative work experiences, but without C.O.R.E. year experience

Manufacturing Processes Diploma Program

On-the-job Responsibilities
Set up and operate machine tools such as lathes, drill presses, and milling machines; shape metal into machine parts, following blueprints; and use special instruments to measure and check work.

Places of Employment
Manufacturing industries, metal-working industries, engineering firms, and engineering research firms

Positions for Which Graduates Qualify
Entry-level and apprentice programs: tool and die maker, instrument maker, mold maker, pattern maker, model maker, inspector, machinist, NC operator, and NC programmer trainee

Prerequisite
p_{unc}]a.mentaJs of College Mathematics

Approximate Time
10 quarters, including C.O.R.E. year experience and 1 cooperative work experience

7 quarters, including 1 cooperative work experience, but without C.O.R.E. year experience

School of Visual Communications

Dr. Thomas G. Raco,
Assistant Dean/Director

Applied Art Careers

Dr. John W. Cox, Chairperson

The art field has two major career areas: applied and fine art. Applied artists create art to be used by other individuals or companies for which they work. Fine artists create art to express themselves.

Pre-Technical Program
Some students who want to enter Applied Art programs require a pre-technical program that usually lasts one quarter. Students can meet pre-technical program requirements and take core courses at the same time.

Core Program
Core courses provide basic art experience to prepare students for entry into a program. With the core experience as a basis, students may choose continued studies in either NTID's Applied Art Department or the College of Fine and Applied Arts.

Work Experience
All NTID Applied Art students gain experience with the real world of applied art during the cooperative work experience, which is part of their third-year coursework.

Yr.	APPLIED ART: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NDAR-111,112,113 Basic Design I, II, III	2	2	2	
	NDAR-121, 122, 123, Basic Drawing I, II, III	3	3	3	
	NDAR-141, 142, 143 Career Seminar I, II, III*	1	1	1	
	NDAR-151,152 Computer Graphic Systems I, II		2	2	
	NDAR-161, 162, 163 Media and Processes I, II, III	2	2	2	
	Applied Art Elective"	2			
		2		2	
		4	4	4	
	Physical Education	0	0		
2	NDAR-231, 232, 233 Introduction to Typography I, II, III	2	2	2	
	NDAR-241, 242, 243 Art Survey I, II, III	2	2	2	
	NDAR-261, 262, 263 Traditional/Electronic Layout I, II, III	3	3	3	
	NDAR-271, 272, 273 Production Methods I, II, III	2	2	2	
	NDAR-280 Computer Illustration Methods			2	
		2		2	
		4	4		
	Physical Education		0		
3	NDAR-311,312 Graphic Applications I, II	5	5		
	NDAR-321, 322, 323 Employment Seminar I, II, III*	3	3	3	
	NDAR-330 Graphic Applications/Portfolio Review			5	
	Applied Art Elective"	4	2	2	
	Communication		2	2	

'Career Seminar I, II, III and Employment Seminar I, II, III are substitutes for Freshman Seminar, Job Search Process, and Life After College.

"See next page for Applied Art technical electives; 10 or more elective credits are required.

Yr.	APPLIED ART: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NDAR-111,112,113 Basic Design I, II, III	2	2	2	
	NDAR-121,122, 123 Basic Drawing I, II, III	3	3	3	
	NDAR-141,142,143 Career Seminar I, II, III*	1	1	1	
	NDAR-151,152 Computer Graphic Systems I, II		2	2	
	NDAR-161,162, 163 Media and Processes I, II, III	2	2	2	
	Applied Art Elective"			2	
	Communication	2	2		
		4	4	4	
	Physical Education	0	0		
2	NDAR-231, 232, 233 Introduction to Typography I, II, III	2	2	2	
	NDAR-241, 242, 243 Art Survey I, II, III	2	2	2	
	NDAR-261, 262, 263 Traditional/Electronic Layout I, II, III	3	3	3	
	NDAR-271, 272, 273 Production Methods I, II, III	2	2	2	
	NDAR-280 Computer Illustration Methods	2			
	Applied Art Elective"		2	2	
	Communication	2		2	
		4	4		
	Liberal Arts			4	
3	NDAR-311, 312 Graphic Applications I, II	5	5		
	NDAR-321, 322, 323 Employment Seminar I, II, III*	3	3	3	
	NDAR-330 Graphic Applications/Portfolio Review			5	
	Applied Art Elective"	2	2		
	Communication	2		2	
	Liberal Arts	4	4	4	
	Physical Education	0			

'Career Seminar I, II, III and Employment Seminar I, II, III are substitutes for Freshman Seminar, Job Search Process, and Life After College.

"See next page for Applied Art technical electives; 10 or more elective credits are required.

Applied Art

pjTID Applied Art programs prepare students for technical careers in applied **art.** Students may choose from diploma **or** AAS degree programs in Applied Art.

Applied Art
Diploma and AAS Degree Programs

On-the-job Responsibilities
Use traditional and computer-based methods to produce drawings, layouts, and mechanical art for advertising, sales promotion, public relations, and display purposes; prepare visual materials for brochures, pamphlets, slide
I programs, instructional media, magazine and newspaper advertisements, and posters; prepare artwork for printing; use computer hardware and soft-
l ware, typesetting equipment, photostat cameras, and other applied art studio equipment.

Places of Employment
Advertising agencies; art studios; computer graphics studios; large department stores; manufacturing, printing, and publishing firms; educational institutions; and government agencies

Positions for Which Graduates Qualify
Mechanical artist, computer graphics artist, production artist, and layout
; artist

Prerequisites
Successful completion of a sampling experience in the art area, either through the Summer Vestibule Program or the Career Exploration course offered through the department

Demonstrated skill in the following areas: communication/language, freehand drawing, mathematics, measurement, personal/social skills, program/career information, technical media, two-dimensional design, and work habits. Each competency (skill) has certain activities associated with it. Skill is assessed according to a checklist of specific requirements provided by the department.

Approximate Time
9 quarters

Applied Art Technical Electives	Credi Hour	Prerequisites
Applied Art Photography NDAR-258	2	**None**
Three-Dimensional Applications NDAR-267	2	**None**
Air Brush/Retouching NDAR-277	2	**Basic Design II** NDAR-112 **Basic Drawing II** NDAR-122 **Media/Processes II** NDAR-132
Mechanical Perspective NDAR-284	2	**Basic Drawing I** NDAR-121
Mechanical Drawing Methods NDAR-285	2	**Mechanical Perspective** NDAR-284
Drawing Applications NDAR-287	2	**Basic Drawing III** NDAR-123
Freehand Lettering NDAR-294	2	**Media/Processes I** NDAR-131
Finished Lettering NDAR-295	2	**Freehand Lettering** NDAR-294

Photo/Media Technologies Careers

Jean-Guy Naud, Chairperson

People in photo/media technologies careers usually fit into two categories: those who take photographs and those who perform support functions in a photographic or media production facility. These two areas represent large segments of the industries that use photography, television, and computers as a means of communication. They involve jobs such as developing **film,** making prints and display transparencies, assisting in video production, making special effects slides, and preparing presentation graphics.

Students may choose from diploma and AAS degree programs in Custom Photographic Laboratory Services or Media Production.

Pre-Technical Program
The Photo/Media Technologies Department does not have a pre-technical program. Instead, it offers a common core of courses, lasting two quarters, that enables students to develop basic photographic and media skills. During the second quarter, a special course, Orientation to Photo/Media Careers, is taught. At the completion of that course, students select one of the two options offered by the department: Custom Photographic Laboratory Services or Media Production.

Custom Photographic Laboratory Services

On-the-job Responsibilities
Work in the darkroom developing film by hand and with machines, make color and black-and-white prints, enlarge photographs, and perform custom copy services.

Places of Employment
Custom or commercial color labs and in-house industrial photographic labs

Prerequisite
Completion of Cores I and II with a "C" average in technical courses

Custom Photographic Laboratory Services
Diploma Program

Students concentrate on custom color printing and processing.

Positions for Which Graduates Qualify
Paper processor operator, custom color printer, custom copy camera operator, control chemical mixer, roller transport processor operator, dip and dunk processor operator, and custom color technician

Approximate Time
6 quarters, including Cores I and II

Custom Photographic Laboratory Services
AAS Degree Program

Students concentrate on advanced custom color printing techniques

Positions for Which Graduates Qualify
All diploma positions, plus custom color print inspector/evaluator and advanced custom color printer technician

Approximate Time
10 quarters, including Cores I and II and 1 cooperative work experience

Yr.	CUSTOM PHOTOGRAPHIC LABORATORY SERVICES: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NVPP-101 Introduction to Photo Printing	4			
	NVPP-102 Black-and-White Printing		2		
	NVPP-111 Introduction to Film Processing	2			
	NVPP-112 Rim Processing		2		
	NVPP-121 Introduction to Cameras	2			
	NVPP-122 Introduction to Copy Work		2		
	NVPP-132 Orientation to Photo/Media Careers		2		
	NVPP-142 Introduction to Advanced Photographic Studies*		2		
	NVPP-200 Basic Color Printing			4	
	NVPP-210 Mechanized Processing			2	
	NVPP-220 Print Finishing			2	
	NGGE-100 Freshman Seminar	2			
	Communication	2	2	2	
		4	4		
	Physical Education	0	0		
2	NVPP-201, 202,203 Custom Lab Services 1, II, III	4	4	4	
	NVPP-211,212,213 Integrated Custom Lab 1, II, III	2	2	2	
	NVPP-221 Advanced Black-and-White Printing	2			
	NVPP-222 Introduction to Slide Duplicating		2		
	NVPP-223 Introduction to Color Copy Work			2	
	NGGE-101 Job Search Process	1			
	NGGE-102 Life After College			1	
	Communication	CM	CM TH	2	
	General Education or other elective			2	

'This elective is for students who need to evaluate their interest and readiness for advanced program areas.

Yr.	CUSTOM PHOTOGRAPHIC LABORATORY SERVICES: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NVPP-101 Introduction to Photo Printing	4			
	NVPP-102 Black-and-White Printing		2		
	NVPP-111 Introduction to Film Processing	2			
	NVPP-112 Film Processing		2		
	NVPP-121 Introduction to Cameras	2			
	NVPP-122 Introduction to Copy Work		2		
	NVPP-132 Orientation to Photo/Media Careers		2		
	NVPP-142 Introduction to Advanced Photographic Studies*		2		
	NVPP-200 Basic Color Printing			4	
	NVPP-210 Mechanized Processing			2	
	NVPP-220 Print Finishing			2	
	NGGE-100 Freshman Seminar	2			
	Communication	2	2	2	
		4	4	4	
		0	0	0	
2	NVPP-201, 202,203 Custom Lab Services I, II, III	4	4	4	
	NVPP-211,212,213 Integrated Custom Lab I, II, III	2	2	2	
	NVPP-221 Advanced Black-and-White Printing	2			
	NVPP-222 Introduction to Slide Duplicating		2		
	NVPP-223 Introduction to Color Copy Work			2	
	NGGE-101 Job Search Process	1			
	Communication	2	2	2	
		4	4		
	Liberal Arts			4	
	NVPP-299 Co-op Work Experience				0
3	NVPP-301, 302, 303 Advanced Custom Lab Services I, II, III....	4	4	4	
	NVPP-314, 315, 316 Integrated Custom Lab IV, V, VI	2	2	2	
	NGGE-102 Life After College			1	
	General Education or other elective	2		2	
	Liberal Arts	4	8	4	

'This elective is for students who need to evaluate their interest and readiness for advanced program areas.

Media Production

On-the-job Responsibilities
Make slides, photographic prints, overhead transparencies, videotapes, special effects slides, and presentation graphics.

Places of Employment
Industrial training or media departments, audiovisual production houses, and school or university media centers

Prerequisite
Completion of Cores I and II with a "C" average in technical courses

Media Production
Diploma Program

Students concentrate on developing basic skills in photography, slide production, darkroom techniques, videotape production, and presentation graphics using computers.

Positions for Which Graduates Qualify
Copy technician, special effects slide camera operator, media photography technician, media production technician, and television production technician

Approximate Time
6 quarters, including Cores I and II

Media Production
AAS Degree Program

Students concentrate on all diploma skills, plus advanced skills in special effects slide production, television production, and advanced presentation graphics using computers.

Positions for Which Graduates Qualify
All diploma positions, but at a higher entrance level

Approximate Time
10 quarters, including Cores I and II and 1 cooperative work experience

Yr.	MEDIA PRODUCTION: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	**FALL**	**WTR.**	**SPG.**	**SMR.**
	NVPP-101 Introduction to Photo Printing	4			
	NVPP-102 Black-and-White Printing		2		
	NVPP-111 Introduction to Film Processing	2			
	NVPP-112 Film Processing		2		
	NVPP-121 Introduction to Cameras	2			
	NVPP-122 Introduction to Copy Work		2		
1	NVPP-132 Orientation to Photo/Media Careers		2		
	NVPP-142 Introduction to Advanced Photographic Studies*	2			
	NVPP-241 Presentation Graphics I			3	
	NVPP-261 Media Photo I			3	
	NVPP-290 AV Equipment Applications			2	
		2			
	Communication	2	2	2	
		4	4	4	
		0	0		
	NVPP-242,251 Presentation Graphics II, III	3	3		
	NVPP-262 Media Photo II	3			
	NVPP-271 Videography I		3		
2	NVPP-281, 282, 283 Slide Production I, II, III	3	3	3	
	NVPP-296 Media Program Workshop 1			6	
	NGGE-101 Job Search Process	1			
	NGGE-102 Life After College			t	
		2	2	2	
		4	4		

•This elective is for students who need to evaluate their interest and readiness for advanced program areas.

Yr.	MEDIA PRODUCTION: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	**FALL**	**WTR.**	**SPG.**	**SMR.**
	NVPP-101 Introduction to Photo Printing	4			
	NVPP-102 Black-and-White Printing		2		
	NVPP-111 Introduction to Film Processing	2			
	NVPP-112 Film Processing		2		
	NVPP-121 Introduction to Cameras	2			
	NVPP-122 Introduction to Copy Work		2		
1	NVPP-132 Orientation to Photo/Media Careers		2		
	NVPP-142 Introduction to Advanced Photographic Studies*		2		
	NVPP-241 Presentation Graphics I			3	
	NVPP-261 Media Photo I			3	
	NVPP-290 AV Equipment Applications			2	
	NGGE-100 Freshman Seminar	2			
		2	2	2	
		4	4	4	
		0	0	0	
	NVPP-242,251 Presentation Graphics II, III	3	3		
	NVPP-262 Media Photo II	3			
	NVPP-271 Videography I		3		
	NVPP-281, 282, 283 Slide Production I, II, III	3	3	3	
2	NVPP-296 Media Program Workshop I			6	
	NGGE-101 Job Search Process	1			
		2	2	2	
		4	4		
				4	
	NVPP-299 Co-op Work Experience				0
	NVPP-343,352 Presentation Graphics IV, V	3	3		
	NVPP-372, 373 Videography II, III	3	3		
3	NVPP-384, 385 Slide Production IV, V	3	3		
	NVPP-396 Media Production Workshop II			6	
	NVPP-397 Media Seminar			2-6	
	NGGE-102 Life After College			1	
		8	4	4	

•This elective is for students who need to evaluate their interest and readiness for advanced program areas.

Printing Production Careers

Printing is the process of using ink to transfer images to paper or other materials, including paper in such forms as books, magazines, newspapers, labels, and posters. Printing is one of the world's largest industries, with a growing demand for skilled people to operate the many complex machines. Students are taught hands-on skills incorporating modern printing technology and machinery with the opportunity to specialize in two or more career fields in printing.

Printing Production Technology

Students may choose from certificate, diploma, AOS, and AAS degree programs in Printing Production Technology.

The programs offer individualized training in four areas of offset lithography: electronic composition and paste-up, camera, film assembly and platemaking, and press and finishing.

Printing Production Technology

Certificate, Diploma, AOS, and AAS Degree Programs

On-the-job Responsibilities

Operate computer typesetting equipment, prepare mechanical art, make film originals, operate process cameras, operate photo processing equipment, assemble films, make plates, and operate offset presses and bindery finishing machines.

Places of Employment

In-plant print shops; commercial printing plants; newspapers, book, and magazine printers; and U.S. government printing facilities

Positions for Which Graduates Qualify

Camera operator, paste-up artist, typesetter, desktop publishing operator, keyboard operator, phototypesetter operator, black-and-white stripper, spot color film assembler, process color film assembler, platemaker, duplicator operator, small press operator, and bindery/finishing worker

Yr.	PRINTING PRODUCTION TECHNOLOGY: CERTIFICATE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NVCR-141 Page Creation Methods*	5			
	NVCR-142 Fundamentals of Reproduction Photography*			5	
	NVCR-143 Basic Film Assembly/Platemaking*		5		
	NTMM-120 Basic Mathematics (depending on need)	(3)			
	NGGE-100 Freshman Seminar	2			
		2	2	2	
				2	
		4	4	4	
	General Education		2	2	
	Physical Education	0	0	0	
2	NVCR-144 Basic Litho Duplicator Operations*	5			
	NVCR-170 Production Printing I		2		
	NGGE-101 Job Search Process	1			
	NGGE-102 Life After College		1		
	Communication	2	2		
		4	4		
	General Education	2			

'These are Level I required courses and are not sequential. Each may be taken during any of the first four quarters.

Yr.	PRINTING PRODUCTION TECHNOLOGY: DIPLOMA	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NVCR-141 Page Creation Methods*	5			
	NVCR-142 Fundamentals of Reproduction Photography*			5	
	NVCR-143 Basic Film Assembly/Platemaking*		5		
	NBTP-114 Keyboarding (depending on need)		(2)		
	NTMM-120 Basic Mathematics (depending on need)	(3)			
	NGGE-100 Freshman Seminar	2			
	Communication	2	2	2	
		4	4	4	
	Physical Education	0	0	0	
2	NVCR-144 Basic Litho Duplicator Operations*	5			
	NVCR-269 Level II Printing		5		
	NVCR-270 Level III Printing			5	
	NVCR-170, 269 Production Printing Lab I, II		2	2	
	NGGE-101 Job Search Process	1			
	Communication	2	2		
		4	4		
	NVCR-299 Co-op Work Experience				0
3	NVCR-269 Level II Printing	5			
	NVCR-270 Level III Printing		5		
	NVCR-270 Production Printing Lab III	2			
	NGGE-102 Life After College	1			
	Communication		2		

'These are Level I required courses and are not sequential. Each may be taken during any of the first four quarters.

Prerequisite

Successful completion of a sampling experience in Printing Production Technology, either through the Summer Vestibule Program or a departmental sampling program

Approximate Time

6 quarters for certificate

9 quarters for diploma, including 1 cooperative work experience

10 quarters for AOS or AAS degree, including 1 cooperative work experience

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Yr.	PRINTING PRODUCTION TECHNOLOGY: AOS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NVCR-141 Page Creation Methods*	5			
	NVCR-142 Fundamentals of Reproduction Photography*			5	
	NVCR-143 Basic Film Assembly Platemaking*		5		
	NBTP-144 Keyboarding (depending on need)			(2)	
	NTMM-120 Basic Mathematics (depending on need)		(3)		
	NGGE-100 Freshman Seminar	2			
		2		2	
		4	4	4	
			2		
		0	0	0	
2	NVCR-144 Basic Litho Duplicator Operations*	5			
	NVCR-Level II Printing		5		
	NVCR-Level III Printing			5	
	NVCR-170, 269 Production Printing I, II		2	2	
	NGGE-101 Job Search Process	1			
	NGGE-166 Human Experience I			4	
		4	4		
		2	2	2	
	NVCR-299 Co-op Work Experience				0
3	NVCR-Level II Printing	5			
	NVCR-Level III Printing		5		
	NVCR-270, 271 Production Printing III, IV	2	2		
	NGGE-167,168 Human Experience II, III	4	4		
	NGGE-102 Life After College		1		
				2	
	Printing Elective**	2		10	

'These are Level I required courses and are not sequential. Each may be taken during any of the first four quarters.

"Electives may be taken during any quarter if all prerequisites have been met.

Yr.	PRINTING PRODUCTION TECHNOLOGY: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
1	NVCR-141 Page Creation Methods*	5			
	NVCR-142 Fundamentals of Reproduction Photography*			5	
	NVCR-143 Basic Film Assembly Platemaking*		5		
	NBTP-114 Keyboarding (depending on need)			(2)	
	NTMM-120 Basic Mathematics (depending on need)		(3)		
	NGGE-100 Freshman Seminar	2			
		2	2	2	
		4	4	4	
		0	0	0	
2	NVCR-144 Basic Litho Duplicator Operations*	5			
	NVCR-Level II Printing		5		
	NVCR-Level III Printing			5	
	NVCR-170, 269 Production Printing I, II		2	2	
	NGGE-101 Job Search Process	1			
		2	2	2	
		4	4		
				4	
3	NVCR-269 Level II Printing	5			
	NVCR-270 Level III Printing		5		
	NVCR-270, 271 Production Printing III, IV	2	2		
	NGGE-102 Life After College			1	
		4	4	8	
		3	3	3	

'These are Level I required courses and are not sequential. Each may be taken during any of the first four quarters.

"Electives may be taken during any quarter if all prerequisites have been met.

Pre-Baccalaureate Studies

Dr. Adele Friedman, Co-Chairperson
Dr. Rosemary Saur, Co-Chairperson

Pre-Baccalaureate Studies are available as a bridge to students accepted by NTID and interested in enrolling in another RIT college, but not yet ready to enter into a baccalaureate-level program. Students spend one year in these studies preparing for matriculation. Reasons for entering pre-baccalaureate studies include the need to further develop in either mathematics or English, indecision as to program of study, or lack of space in the chosen baccalaureate program.

Students receive no degree in pre-baccalaureate studies. Rather, at an appropriate time, they are advised to apply to the program of their choice and are assisted in doing so.

Pre-Baccalaureate Studies— Engineering, Science, ana Social Work

While in a Pre-Baccalaureate Studies program, students receive academic advising as well as personal and career counseling. The academic program is flexible and is set up individually for each student. Courses are chosen to address as closely as possible the strengths and needs of individual students. Regular NTID technical and developmental courses taught by support department faculty members are supplemented by courses in the colleges of Science, Engineering, and Liberal Arts, including the social work courses indicated. This strategy enables students to develop needed skills while at the same time progressing in their chosen fields of study.

Entry Requirements

Students entering NTID during the Summer Vestibule Program must complete the prescribed sampling experience in science, engineering, or social work. Students may be accepted directly into Pre-Baccalaureate Studies if so recommended by the Career Outreach and Admissions Department or upon approval of the Social Work Support staff of the Department of Liberal Arts. Students already matriculated in an NTID program may change to Pre-Baccalaureate Studies upon the recommendation of their current department

Yr.	PRE-BACCALAUREATE STUDIES IN ENGINEERING	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NAPS-100 Freshman Seminar	2			
	NAPS-105 Learning Strategies		3		
	NAPS-200 Reading and Thinking in Science and Technology*..			3	
	NGGE-218, 219 Written Communication I, II**	4	4		
1	Calculus I, II, III	4	4	4	
		4			
	Communication	2	2		
	English Composition			4	
	Physical Education	0	0	0	
	University Physics I, II		3	3	
	University Physics Lab I, II		1	1	

'Chemistry SCHG-209 may be included in students' schedule if they are deferred from Reading and Thinking in Science and Technology during the spring quarter.

"Students judged as proficient—those having a Michigan Test score higher than 80 and a 10th grade California Achievement Test score—start the English Composition series assigned by the NTID Liberal Arts Placement Test (LAPT). Students judged as provisionally qualified take at least one quarter of NTID English.

Yr.	PRE-BACCALAUREATE STUDIES IN SCIENCE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NAPS-100 Freshman Seminar	2			
	NAPS-105 Learning Strategies		3		
	NAPS-220 Reading and Thinking in Science and Technology...			3	
	NTMM-150, 151,152 Integrated Mathematics I, II, III	3	3	3	
	NGGE-218, 219 Written Communication I, II*	4	4		
	College Algebra and Trigonometry"	(4)			
	Introduction to Calculus I, II		4	4	
	OR				
	Calculus I, II, III	(4)	(4)	(4)	
1	General Chemistry	3	3	3	
	OR				
	General Biology	(3)	(3)	(3)	
	AND				
	General Biology Lab	(1)	(1)	(1)	
	OR				
	Physics Orientation	(2)			
	University Physics I, II		3	3	
	AND				
	University Physics Lab I, II		1	1	
	Communication	2	2		
	English Composition			4	
	Physical Education	0	0	0	

'Students judged as proficient—those having a Michigan Test score higher than 80 and a 10th grade California Achievement Test score—start the English Composition series assigned by the NTID Liberal Arts Placement Test (LAPT). Students judged as provisionally qualified take at least one quarter of NTID English.

"Credits shown in parentheses () are substitutes for those above without parentheses.

Yr.	PRE-BACCALAUREATE STUDIES IN SOCIAL WORK	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	GSWS-212 Self Awareness in the Helping Role		4		
	GSWS-216 Introduction to Social Welfare		4		
	GSWS-217 Community Services			4	
	NTMM-140,141,142 Fundamentals of Mathematics I, II, III	3	3	3	
	NGGE-100 Freshman Seminar	2			
1	NGGE-218, 219 Written Communication I, II	4	4		
	Communication	2	2		
	Communication or General Education Bridging Course		2		
		4	4	4	
	General Education	2-3			
	General Education Bridging Course	3		3	
	Physical Education	0	0	0	

and with the approval of a support department advisor and chairperson.

Prerequisites
Students interested in baccalaureate-level programs must have the appropriate high school background for their area of interest. They should consult appropriate sections of this catalog for individual program requirements. High school courses should be of a level comparable to New York State Regents or college preparatory. Ideally, grades should be at the "B" level or better.

Approximate Time
Students generally take three-four quarters to matriculate in an associate or baccalaureate-level program of study.

Educational Interpreting

Gary E. Mowl, Chairperson

Educational Interpreting
AAS Degree Program

On-the-job Responsibilities
Work in educational and similar settings where deaf people can use interpreting and other support services such as tutoring and notetaking.

Places of Employment
Elementary, secondary, and post-secondary educational institutions; community service organizations; vocational rehabilitation agencies; business/industry; and government agencies

Special Entrance Requirements
High school diploma or equivalent and intermediate sign language competence

A pre-AAS program may be required of students depending on skill level in sign language at application. Pre-AAS courses include Introduction to Sign Language, Sign Language I and II, and Introduction to the Deaf Community. The pre-AAS program is offered in the summer for six weeks before the fall quarter of entrance.

This is a two-year program for a typical entering freshman who has basic sign language competency.

Approximate Time
6 quarters, may be taken over a three-year period.

Yr.	EDUCATIONAL INTERPRETING: AAS DEGREE	Qtr. Credit Hours			
	Typical Course Sequence	FALL	WTR.	SPG.	SMR.
	NITP-203,206 American Sign Language (ASL) I, II	3	3		
	NITP-204 ASL Interpreting			3	
	NITP-210 Fingerspelling and Numbers			3	
	NITP-211 Voice Interpreting I			3	
	NITP-251, 252 Aspects and Issues of Deafness I, II	3	3		
1	NITP-261,262 Theory and Practice of Interpreting I, II	3	3		
	NITP-271 Professional Interpreter I			3	
	NITP-391 Principles of Tutoring and Notetaking		3		
	NITP-398 Special Topics: Process of Interpreting		3		
	English Composition	4			
	Liberal Arts: Literature			4	
	Liberal Arts: Social Science	4			
	Physical Education	0	0	0	
	NITP-212, 213 Voice Interpreting II, III	3	3		
	NITP-281, 382 Practicuml.il		5	5	
	NITP-283, 384 Seminar 1, II		1	1	
	NITP-331, 332 Transliteration I, II	3	3		
2	NITP-343 Oral Transliteration	3			
	NITP-372 Professional Interpreter II	3			
	NITP-395 Mainstreaming: Programs and Alternatives		3		
	NITP-396 Support Service Professional			3	
				4	
	Liberal Arts: Social Science	4			
				4	

Application Procedures and Admissions Services

Applying for admission
RIT accepts students on a "rolling admission" basis. This means that decisions regarding acceptance are made soon after the application and supporting documents have been received in the Office of Admissions.

Because of this policy, and because some RIT programs fill to capacity very early in the year, it is to a student's advantage to apply early.

Students applying to RIT through NTID must complete both the standard RIT and the NTID Supplemental Admission Application forms, available from NTID's Department of Career Outreach and Admissions. If deaf students want to enroll directly into one of RIT's other eight colleges, they still must complete both application forms. In addition to meeting the NTID requirements, students also must fulfill the requirements for admission to the selected college. NTID students should submit their applications in the fall of the year before they wish to attend. The date of application is the date when the Application for Undergraduate Admission has been received by NTID's Department of Career Outreach and Admissions. The NTID admission year is October 1-June 30.

The admission decision
Factors considered in the admission decision include, but are not limited to, past high school and/or college performance—particularly in required academic subjects—admission test scores, competitiveness of high school or previous college, and other educational experiences (military, etc.). An admission interview and recommendations from those familiar with your academic performance are often influential as well.

Students applying to RIT choose a specific program. Applicants are encouraged to indicate second and third program choices as well. For the **undecided student,** RIT offers a number of academic opportunities, including Technical and Liberal Studies, Undeclared Science, Undeclared Engineering, and Undeclared Business options.

Admission to RIT is competitive and based on our prediction of your likelihood of success. Admission standards vary from program to program. Each year approximately 6,000 students apply for freshman and transfer admission; about 4,800 gain admission; and 2,350 new freshmen and transfers enroll.

A $200 non-refundable admission deposit reserves a place in your class and is credited to your first quarter tuition. (Deposit is $100 for students applying to RIT through NTID.) The due date will be indicated with your offer of admission. For students entering in September, this is May 1, or within two weeks of acceptance, whichever is later.

How to apply
In order to complete the application procedure for admission to RIT, you need to submit the following:

1. fully completed application for admission (Students applying to RIT through NTID must complete both the RIT standard application and NTID Supplemental Admission Application forms.)
2. non-refundable $35 application fee
3. an official high school transcript for all freshman applicants and all transfer applicants with fewer than 60 semester hours
4. official Scholastic Aptitude Test (SAT) or American College Test (ACT) results for all freshman applicants and all transfer applicants with fewer than 15 semester credit hours completed (Deaf applicants should submit results from appropriate tests.)
5. official transcripts of all completed course work and a listing of any course work in progress (and not on the transcript) or course work to be completed prior to enrolling at RIT

Early decision plan
An "early decision" plan is available to freshman candidates who identify RIT as their first choice college. Details of this plan are outlined in the under graduate application packet.

Early admission
Students occasionally complete the prescribed number and adequate distribution of high school units in three years, with the exception of fourth-year English and/or history. In such instances they may seek admission to RIT under the Early Admission Program. If admitted, they must fulfill high school senior-year requirements and first-year RIT requirements concurrently. Upon completion of the first year of study at RIT, they graduate from high school.

A letter from the high-school guidance office agreeing to the above conditions must accompany the application for admission.

Transfer credit
Because approximately 35 percent of RIT students are transfers, we have a strong commitment to attracting and providing services for them. Students who have completed studies at another accredited college before coming to RIT will be awarded transfer credit for all prior course work that is judged to be applicable to their RIT program. Usually a grade of "C" or better is required for a course to transfer.

Deaf students may transfer into an NTID program or they may qualify for transfer directly into a program in another RIT college, with NTID sponsorship. Deaf students accepted to the Summer Vestibule Program will have their transfer credit evaluated in the fall when they are accepted into a specific program.

Credit by exam
RIT grants credit for satisfactory scores on examinations covering objectives and contents parallel to the RIT courses for which students seek credit. Usually these are advanced placement (AP) or college-level examination placement (CLEP), New York State proficiency examinations or RIT-prepared examinations.

Academic scholarships
RIT offers academic scholarships based on merit through the annual Outstanding Freshmen Scholarship (OFS) and Outstanding Transfer Scholarship (OTS) programs. Winners are chosen on the basis of their previous academic record, recommendations, extracurricular activities and score on a scholarship exam taken at RIT.

All freshman applicants accepted by January 1 will be considered for invitation to the OFS program. Transfers must be accepted and make special application to the OTS program by March 1. Please contact the Admissions office for more details on either program.

Campus visits
Selecting the appropriate college is a difficult decision, but visiting a campus often helps students form more accurate impressions. We encourage campus visits and personal admission inter-

views because they allow students to see our outstanding facilities firsthand and get answers to questions they may have.

Although it is not required for admission, deaf students applying to RIT may take regularly scheduled tours offered at NTID (10 a.m., Monday-Friday, and 2 p.m., Monday and Thursday). Students may schedule personal interviews, although they are not required for admission.

Admissions services
RIT takes pride in the diversity of its student body—diversity that is actively promoted by the Office of Admissions in its recruitment of women, veteran, commuter, minority, adult, part-time, handicapped and international students. In addition to admissions counseling, we also direct students to various Institute resources and support services that can help with questions about the world of work or job placement. Such referral assistance gives students a better insight into the opportunities and challenges at RIT.

Whether a high school student or an experienced homemaker exploring a second career, we encourage students to seek our assistance while clarifying or reexamining personal and career goals.

To obtain answers to questions about RIT programs and procedures, contact the Admissions Office. Counselors are available to help students with questions and concerns. An appointment for an admissions interview and campus tour may be scheduled by writing RIT Admissions, Bausch & Lomb Center, P.O. Box 9887, Rochester, N.Y. 14623 or calling (716) 475-6631, (Monday-Friday, 8:30 a.m.-4:30 p.m.).

RIT's Office of Part-time Enrollment Services (OPES) provides a centralized information and counseling service for students interested in enrolling in part-time undergraduate studies offered through the Institute's various schools and colleges. We encourage you to contact this office if you need assistance in selecting an academic program, exploring financial aid opportunities, registering for classes, or receiving information about any aspect of part-time study at RIT.

OPES staff members are available to assist you during day or evening office hours, 8:30 a.m. to 6:30 p.m., Monday through Thursday, and 8:30 a.m. to 4:30 p.m., Friday. We invite you to telephone (716) 475-2229 for enrollment information, or visit our offices located on the first floor of the Bausch & Lomb center on campus.

Expenses and Financial Aid

Procedures and Costs

Matriculated Day College Students

Payment procedure
The quarterly pre-billing charges at RIT are computed on a quarterly basis. The Institute must receive the required payment for each quarter before registration will be allowed. Any preregistered student whose payment is not received by the due date will not be eligible to officially register until payment is received. Any non-preregistered student must attend Open Registration Day and make payment at that time. Payments sent by mail should be made by check, payable to Rochester Institute of Technology. Due dates for the 1990-91 school year are as follows:

Fall Qtr.	August 16, 1990
Winter Qtr.	November 14, 1990
Spring Qtr.	February 13, 1991
Summer Qtr.	May 15, 1991

The student should receive the quarterly pre-billing approximately two weeks prior to the quarterly due date. These due dates are rigid. If payment is not received by the date stated, the student must appear at the Registration Day for the quarter desired. Upon receipt of the student's payment in full, the Bursar's Office will process the payment and clear the student for registration.

Students whose college costs are paid by the G.I. Benefit Plan or their employer are required to submit the properly authorized deferment form. Quarterly pre-bills will be mailed to the student's permanent address.

A late payment fee of $50 will be charged to all student accounts that become past due. This includes, but is not limited to, the deferred payment plan and company deferred payment plan.

Financial standing
Tuition and fees paid to the Institute cover approximately 60-70 percent of the actual expense of a student's education. The rest of the cost is borne by the Institute through income on its endowment and from the gifts of alumni and other friends.

Students, former students and graduates are in good financial standing when their account is paid in full in the Bursar's Office. Any student whose account is not paid in full will not receive transcripts, diplomas or other forms of recognition or recommendation from the Institute.

THE INSTITUTE RESERVES THE RIGHT TO CHANGE ITS PRICES AND POLICIES GOVERNING THEM WITHOUT PRIOR NOTICE.

Other fees
In addition to the fees specified in the table, certain segments of students may incur other fees as follows:

New Student Room & Board Fee—$23 charged to new students living in the residence halls.

Orientation Fee—$40 one-time charge for new students.

Photo Facilities Fees—$74 per quarter charged to all full-time photo students; $37 per quarter charged to all part-time photo students.

Late Registration Fee—A late registration fee of $50 is charged to any student who fails to register (and make the necessary financial commitment) by the designated quarterly open registration day and time.

Student sickness insurance plan
A charge of $128 is assessed Fall Quarter to all full-time RIT students who have no other medical insurance and have not signed the waiver option. Full-time, undergraduate NTID students are charged $160.

FEE SCHEDULE 1990-91
(MATRICULATED DAY COLLEGE STUDENTS EXCEPT NTID)

Tuition	Per Quarter	Per 3 Qtr. Yi
Full-Time Undergraduate (12-18 Credit Hrs.)	$3,653	$10,959
Part-Time Undergraduate (Less than 12 Credit Hrs.)	$260/Cr. Hr.	
Student Activities Fee (Mandatory Charge)		
Full-Time Undergraduate	30	90
Part-Time Undergraduate	11	33
Student Health Fee (Mandatory Charge)		
Full-Time Undergraduate	35	105
Residence Hall Room Charges		
Double Occupancy	840	2,520
Single Occupancy	965	2,895
Board/Meal Plans		
20 Meals Per Week	748	2,244
Any 14 Meals Plus	727	2,181
Any 10 Meals Plus	661	1,983
(Commuter meal plans also are available)		

Additional budgeting information, books and supplies. These vary widely with the program followed and to some extent the electives chosen. Programs with minimal expenses (e.g., sciences, business) will average $250-400; in the arts and crafts, this may be in the neighborhood of $1,000-1,500; in photographic illustration or professional photography, a realistic allowance is $1,500 in addition to cameras (but in photographic sciences and photo finishing, expenses are minimal).

Typical expenses
We can tell you what tuition, room and board and fees will cost, but estimates of personal expenses are up to the individual student. When estimating what you'll spend for a year at college, remember to count travel expenses, clothes, meals not counted in your board plan, and spending money. A typical full-time resident student would have the following academic year expense:

Tuition	$10,959
Fees	195
Room	2,520
Board	2,181
Books	307
Personal & Transportation	805
Total	$16,967

As indicated in the preceding paragraphs, expenses will vary according to individual circumstances.

12-month payment plan
For the 1990-91 academic year, RIT will offer a 12-month payment plan. This combines the elements of a prepayment/deferred payment plan. For further information regarding this plan, contact the Bursar's Office at (716) 475-6059.

Policies to remember
- Matriculated Day College students are charged the day rate for **ALL** courses taken (CCE, Day/Evening Division, and courses taken while on co-op).
- Students on co-op will not be charged tuition for those quarters unless they are also enrolled in classes.
- Non-matriculated and matriculated Day College/Evening Division students are charged for the type of course taken (CCE rate for CCE and Day/Evening Division courses, Day rate for Day courses, Graduate rate for Graduate courses).
- Students taking courses during Summer Quarter should refer to the Summer Quarter Bulletin for Policies & Procedures.

Vocational Rehabilitation
1. Deaf students receiving Vocational Rehabilitation (VR) support for fees and supplies must file authorization with RIT's VR billing supervisor before registration. If authorization has not been received before registration, studens must either obtain from their VR counselors a letter of commitment stating the dollar amount that is authorized and present it to the VR billing supervisor or be prepared to pay for the charges in question. Any authorization received after student payment of charges will result in a refund to students.
2. Students must pay all uncovered charges (those charges not paid by VR) before the quarterly due date.
3. VR counselors should specify each charge that they assume on their authorization forms.
4. Clarification regarding VR authorization and/or billing procedures should be addressed to:
   Rochester Institute of Technology
   VR Supervisor for NTID
   Bursar's Office
   George Eastman Building
   Post Office Box 9887
   Rochester, NY 14623-0887

Refund Policies

It is the student's responsibility, not the instructor's, to assure that all paperwork and refunds are properly processed.

The acceptable reasons for withdrawal with refund during the quarter are:

For a full refund
1. Active military service: A student called to active military service during the first eight weeks of the term may receive a full tuition refund. If called after the eighth week, he may elect to complete the course by making special arrangements with both his instructor and department, or to withdraw and receive a full tuition refund. If he withdraws, he will have to repeat the courses at a later date.
2. Academic reasons: Students sometimes register before grades for the previous quarter are available. If such a student later finds that he or she is subject to academic suspension, or has failed prerequisites, the student will be given a full refund upon withdrawal.
3. If part-time students drop a course during the Official Drop Period (first 6 days of classes during the specific quarter), they may contact the Bursar's Office for a 100% refund for that course dropped. Courses dropped after the official Drop Period will not result in any tuition refund.

For a partial tuition refund
A student must officially withdraw from all courses or take leave of absence from the Institute in order to be eligible for a partial tuition refund.

A partial refund will be made during a quarter if withdrawal/leave of absence is necessitated for one of the following reasons:

1. Illness, certified by the attending physician, causing excessive absence from classes.
2. Withdrawal for academic reason at the request of the Institute during a quarter.
3. Transfer by employer, making class attendance impossible.
4. Withdrawal for academic or personal reasons at the request of the student, approved by the student's advisor or department representative, the Institute coordinator for academic advising, and the bursar.

These partial refunds will be made according to the following withdrawal schedule and percentage of tuition reduction:

During official add/drop period (first 6 days of classes)—100% tuition reduction

From the end of the official add/drop period through the end of the second week of classes—70% tuition reduction

During the third week of classes—60% tuition reduction

During the fourth week of classes—50% tuition reduction

Fifth and subsequent weeks—no tuition reduction

NOTE: NON-ATTENDANCE DOES NOT CONSTITUTE AN OFFICIAL WITHDRAWAL.

A student is not "officially withdrawn" until he or she receives a copy of the withdrawal form. The date on which a withdrawal form is properly completed will be the date of "official withdrawal" used to determine the refundable amount.

If the student drops his or her course load from full-time (12 or more credits) to part-time (less than 12 credits) status during the Official Drop Period, he or she may contact the Bursar for a refund based on the differential between the full-time tuition payments and the total per-credit charge for the part-time load.

No refund will be made for classes dropped after the Official Drop Period unless the student is officially withdrawing from the Institute.

Advance deposits and fees are not refundable.

For further information regarding refund policies and specific withdrawal dates, contact the Bursar's Office.

Appeals process

An official appeals process exists for those who feel that individual circumstances warrant exceptions from published policy. The initial inquiry in this process should be made to Richard B. Schonblom, bursar. Unresolved matters will be referred for further action to William J. Welch, controller.

Room and board*

To complete a withdrawal from RIT, a resident student or a non-resident student on a meal plan must check out with Housing and/or Food Service. Refunds, when granted, are from the date of official check-out.

**Room and board policies are established by Residence Lije and Food Service.*

Partial refund schedule:

Room

a. During the first week of classes—90% of unused room charge
b. During the second week of classes—75% of unused room charge
c. During the third week of classes—60% of unused room charge
d. During the fourth week of classes—50% of unused room charge
e. Fifth and subsequent weeks—no refund

Board

a. During the first four weeks—75% of unused board charge
b. After the first four weeks—50% of unused board charge
c. After the last two weeks—no refund

Procedures and Costs

College of Continuing Education (CCE) Students and Matriculated Day College/Evening Division Students

Payment procedures

Charges at RIT are computed on a quarterly basis. The Institute must receive the required payment for each quarter before registration will be allowed. CCE and Day College/Evening Division students will be allowed to register only after they make the appropriate financial commitment for the quarter and have no balance due from prior quarters.

CCE and Day College/Evening Division students may pay for a quarter's tuition in a single payment at the time of registration or by the partial payment plan. Partial payments are due twice a quarter: 50 percent (plus $25 partial payment processing fee) at the time of registration, and the remaining 50 percent by the end of the fourth week of classes. (A bill will not be generated prior to the due date of remaining balance.) A $50 late fee will be assessed for failure to pay the remaining 50 percent on time.

FEE SCHEDULE

(Matriculated CCE and Day College/Evening Division students)

Tuition—Undergraduate

Upper Level (courses in 400, 500, 600 Series)	$176/Credit Hour
Lower Level (courses in 100, 200, 300 series)	$161/Credit Hour
Graduate	$330/Credit Hour

Other fees

Some courses require additional charges to cover laboratory, studio or supply fees. (Consult the registrar's quarterly schedule for those courses with additional fees.)

Late registration fee. A late registration fee of $50 is charged to any student who fails to register (and make the necessary financial commitment by the designated quarterly open registration day and time).

Policies to remember

- Matriculated students are assessed the tuition rate associated with their program, regardless of the courses taken.
- Non-matriculated students are assessed tuition consistent with the program(s) in which their course(s) are offered.
- Students taking courses during Summer Quarter should refer to the Summer Quarter Bulletin for Policies and Procedures.

Refund policies

The student must arrange to drop or withdraw from courses in person at their college with a letter addressed to the college, otherwise he or she will not receive a tuition refund. This will not be official until the student receives his or her copy of the change in the Class Schedule form. The postmarked date of the letter to the college or the date on which the change in Class Schedule form is properly completed, is the date used to determine the refund. It is the student's responsibility (not the instructor's) to assure that the paperwork and refund are properly processed. The official drop period is the first six class days of the specific quarter. Please note that official withdrawal from courses is required even if the student is not eligible for a tuition refund. The final grade is determined by the official withdrawal.

NOTE: NON-ATTENDANCE DOES NOT CONSTITUTE AN OFFICIAL WITHDRAWAL.

Should the student find it necessary to drop or withdraw from a course, a net refund will be calculated in accordance with the quarterly payment

received, the tuition charged as outlined in the schedule below, any current quarter fees and any balance remaining from the previous quarter. A partial payment is refundable only if:

1. The student drops the applicable courses during the official add/drop period.
2. The student registers for a sequential course and later finds that he or she has failed the prerequisite course in the previous quarter. (Students generally register for the following quarter before grades for the previous quarter are available.)
3. The course is cancelled or filled.

NOTE: Tuition charges for courses dropped (with no grade assigned) during the official drop period (first 6 days of classes during the specified quarter) will be credited in full.

Refunds for courses dropped with any grade assigned will be handled according to the following schedule:

During official add/drop period (first 6 days of classes)—100% tuition refund

From the end of the official add/drop period through the end of the second week of classes—70% tuition reduction

During the third week of classes—60% tuition reduction

During the fourth week of classes—50% tuition reduction

Fifth and subsequent weeks—no tuition reduction

Refunds will be made by an RIT check and mailed approximately three weeks from the date on which the student reports the drop or withdrawal to the College of Continuing Education, Registration Services. Advance deposits and Institute fees are non-refundable.

Financial Aid

We feel strongly that no qualified student should refuse to consider RIT because of cost. With this in mind, RIT offers a full range of traditional financial aid programs, and a number of innovative financing plans as well. In 1989, approximately 69.5% of our undergraduate students received financial aid awards from RIT. These students qualified for over $43 million in financial assistance from federal, state and institutional sources. Many families also took advantage of RIT's 12-month, interest-free payment plan, and a four-year prepayment plan that guarantees participants no increase in tuition (the RIT Tuition Stabilization Plan).

Your financial need

Eligibility for need-based financial aid at RIT begins with two basic requirements: enrollment in a degree program at least half time (six or more credits per quarter), and the ability to demonstrate financial need.

Financial need is the difference between the cost of an education and the amount that a student and his or her family can afford to pay toward meeting that cost. Financial aid programs are designed to supplement their contributions. Attending college with assistance does not limit the student to a less expensive school that might not offer a program reflecting his or her educational interests. Even if a student is unable to pay any of his or her expenses, it still may be possible to attend RIT. This is true because financial need is determined by subtracting the student's resources from the cost of the institution chosen to attend.

A student's financial need is determined by analysis of a Financial Aid Form (FAF) available through a high school guidance office, any college financial aid office, or the College Scholarship Service. The student's family will be asked to fill out this form, disclosing income, assets, indebtedness, family size (including other children in college) and special circumstances that affect the financial situation. The completed form is analyzed by an independent, non-profit agency that assists colleges and universities in determining financial need.

The process of applying for aid should begin during the month of January in the year the student wishes to enroll. In order to receive full consideration, it is vitally important that the Financial Aid Form is filed by March 1 each year. Applications received after March 1 receive secondary consideration because funds are limited. Therefore, students should file the form as soon after January 1 as possible. For transfer students, RIT requires a financial aid transcript from each college attended.

Types of aid

At RIT there are five general categories of financial aid: scholarships, grants, entitlements, loans, and employment. An applicant for financial aid is considered for each of these categories.

- Scholarships are generally awarded on the basis of academic record, financial need and personal recommendations. RIT awards many such scholarships each year. Other typical scholarship sources are competitions, corporations, private donors, foundations, fraternal organizations, unions and local and state governments. Repayment is not necessary.

  RIT offers academic scholarships based on merit through the annual Outstanding Freshman Scholarship (OFS) and Outstanding Transfer Scholarship (OTS) programs. Winners are chosen on the basis of their previous academic record, recommendations, extracurricular activities and score on a scholarship exam taken at RIT. All freshman applicants accepted by January 1, 1991, will be considered for invitation to the OFS program. Transfers must be accepted with third-year standing and make special application to the OTS program by February 1, 1991. Please contact the Admissions office for more details on either program.
- Grants are gifts of financial assistance that are awarded on the basis of demonstrated need. RIT awards institutional grants that vary from $100-$7,450 for the academic year. RIT also awards grants under the federally funded Supplemental Education Opportunity Grant (SEOG) program.
- Entitlements are a special type of grant. They are iunded by state and federal governments. Eligibility for entitlements can be based on financial need or on special characteristics of a recipient. Entitlements based on need include the federal government's Pell program and various state grant programs (for example, the New York State Tuition Assistance Program). Examples of entitlements based on special student qualifications are the G.I. Bill and vocational rehabilitation benefits. Entitlements need not be repaid.
- Loans are a lien on future earnings. The money you receive on loan is a formal financial obligation that must be repaid. You need to be aware of the interest charges, the method of payment after graduation and the effect that additional loans will have on your ability to meet all of your later financial obligations. Student loans are not repaid until after graduation or termination of study, and interest does not begin to accumulate until then.

Many students will utilize the Stafford Student Loan Program (formerly GSL) in meeting their costs. RIT also awards Perkins (National Direct) Student Loans and Income Contingent Loans (ICL). These are federal programs administered by colleges to eligible students as part of financial aid awards.

Parents are also eligible to participate in several educational loan programs designed to enhance funds available for college expenses. Parent Loans for Undergraduate Students (PLUS) for up to $4,000 per year are available to supplement other aid programs in meeting educational costs. While this parent loan is not based on need, the amount borrowed in any year cannot exceed educational costs taking into account other financial aid received.

RIT also offers a Supplemental Education Loan Program (SELP II) through Chase Lincoln Bank designed to provide loans to families beyond amounts they would receive through existing federally subsidized programs. In the RIT Supplemental Education Loan Program, payments on principal and accrued interest commence six months after withdrawal or graduation with borrowing limits of up to $5,000 per year for full-time study.

In addition, RIT participates in the ConSern program. This loan is primarily available to parents of RIT students attending at least half time. In certain cases, students or spouses may also borrow under this program. The maximum loan available is equal to total cost minus approved financial aid; the minimum loan is $1,500 per year. Applications are available from the Office of Student Financial Aid.

- Employment opportunities are also available to assist RIT students in meeting college expenses. Whether or not students seek financial aid, they may choose to defray some of their expenses through student employment while attending college.

As part of a financial aid award at RIT, students may be offered employment in the College Work-Study Program. Over 3,100 students were employed on campus in 1989. The Student Employment Office also helped a number of students secure part-time employment off-campus.

Full-time salaried employment through RIT's cooperative education program can also contribute to meeting college expenses. While co-op salaries vary depending upon academic program, a typical co-op student will earn approximately $7,000 per year during his or her junior and senior years at RIT. Additional information about co-op can be found on page 190.

NTID Grant-in-Aid

Federal Grant-in-Aid funds, awarded on the basis of financial need, are the primary source of financial aid for deaf students who do not have adequate financial resources from the sum of their parental and personal contributions and assistance from outside agencies to cover educational costs. To be awarded financial aid, individuals must be admitted as full-time matriculated students.

Students must re-apply for aid each year by completing the Financial Aid Form (FAF). Every effort is made to continue financial assistance to students each year, provided they remain in good academic standing and maintain satisfactory progress, file the required application by the recommended deadline, and demonstrate continued financial need.

First-year and transfer students may expect notification of financial aid awards during April or May; returning upperclass students may expect award notification during June or July.

Students are encouraged to apply for financial aid. Students and their families should not try to decide by themselves if they qualify; that decision should be left to the Student Financial Aid Office and other agencies to which students have applied. Denial of aid from one or more sources does not necessarily mean that students will be denied aid by all sources. Students are urged to pursue all available sources of financial aid.

Payment plans

The RIT Monthly Payment Plan combines the elements of a deferred payment plan and a prepayment plan to allow students and their families to finance their educational costs over a 12-month period with no interest or finance charges. Participating families would make their first payment by June 1 preceding the academic year in which it would be utilized. Fixed costs include: tuition, fees, residence hall charges and RIT meal plans. Dormitory residents will contract for the 20- or 15-meal plan. Rental charges incurred for RIT apartments or with private landlords cannot be financed through the plan. The Advance Tuition Deposit required of all new undergraduates and the Advance Housing Deposit, if applicable, will be credited against annual charges. Approved financial aid may be deducted from student charges to reduce the amount financed.

Additional information as well as applications for the RIT program may be obtained from the Bursar's Office. Monthly payment programs are also available through a number of commercial banks and agencies, and inquiries regarding these programs should be directed to the Financial Aid Office.

RIT also offers a Tuition Stabilization Plan which guarantees no tuition increase for the equivalent of four years of undergraduate study (12 academic quarters). Tuition remains at 1990-91 rates ($3,653/quarter) and monthly payments can be set on a four-, six- or eight-year repayment schedule. The amount financed ($43,836) equals four years of tuition at current rates ($10,959 x 4 = $43,836). The plan requires $43,836 to participate; and although not required, participants may elect to obtain financing through Chase Lincoln First Bank, N.A., as a home equity loan. Interest payments are tax-deductible under the new tax code. For the 1990-91 year, this plan is available only to incoming freshmen. Applications are available from the Office of Student Financial Aid or the Bursar's office.

NTID-sponsored students may contact the NTID/VR Billing Department at (716) 475-2080, 475-5489 (Voice), or 475-2960 (TDD) for more information about payment options.

Requirements for State and Federal Aid Programs

New York State Tuition Assistance Program (TAP)

In order to receive a Tuition Assistance Program grant, an individual must be admitted as a full-time matriculated student, meet New York State residency and income requirements, must pursue the program of study in which he or she is enrolled and must make satisfactory progress toward completion of his or her program of study. The two tables on page 183 list the approved standards of satisfactory progress for the associate degree and baccalaureate degree respectively.

In addition to accruing degree credits and minimum grade point average as specified below, TAP recipients are required to:

Complete 6 credits per quarter to receive TAP payments 2-4

Complete 9 credits per quarter to receive TAP payments 5-7

Complete 12 credits per quarter to receive TAP payments 8-12.

Completion of a course indicates meeting course requirements and receiving a letter grade of A, B, C, D, or F.

Waiver of academic progress standards for TAP

Students who have been denied Tuition Assistance Program benefits due to failure to maintain satisfactory standards of academic progress may *request* a one-term waiver of those standards. State regulations require that these waivers be granted only under extraordinary circumstances. Accordingly, waivers are normally granted for the reasons listed below. Students failing to meet satisfactory progress standards will be given the opportunity to contact an institutional representative to discuss their situation. The institutional representative will require documentation as appropriate and establish deadlines for submission of this documentation. Under the regulations established by the Commissioner of Education, the decision of the institutional representative will be final. Students, who in the judgment of the institutional representative, satisfactorily meet the criteria for the waiver may have one waiver at the undergraduate level. One waiver also may be granted at the graduate level. Those wishing to apply for waivers must do so during the quarter in which notification of TAP denial was sent.

Reasons for which a waiver may be granted include the following (decision of the institutional representative is final):

A. Verifiable physical/mental illness of the student or member of the student's immediate family during the quarter in which academic standards were not met.

B. Death of a member of the student's family during the quarter in which standards were not met.

C. For financial reasons, the student assumed an employment burden sufficient to cause unsatisfactory progress. Normally, the student must demonstrate that his or her work schedule has subsequently been reduced to allow sufficient time, in the judgment of the institutional representative, for academic pursuits.

D. Change of academic/career goals: Students who fail to meet academic progress standards and subsequently change majors or students whose failure to meet progress standards was caused by changing major* may be considered for a waiver. The student's entire academic record will be considered with regards to probability for success in the new academic major.

E. Divorce/separation within the student's immediate family creating a demonstrable financial/emotional disruption sufficient to affect progress.

F. Transfer students failing to meet state standards in their first term of attendance at RIT may apply for waiver consideration. Applications will be evaluated on an individual basis.

G. Students may submit waiver applications for circumstances which the student feels were extenuating. Applicants must explain why circumstances were extenuating and beyond their control.

**Normally this will be the student who has attained a satisfactory grade point average but has lost degree credit hours due to changing majors.*

Standards of satisfactory academic progress for the purpose of determining eligibility of Federal (Title IV) Financial Aid

Federal regulations require financial aid recipients to maintain minimum standards of satisfactory academic progress for receipt of federally sponsored aid. All students receiving federal assistance must maintain matriculated status in a degree program. Regulations require a maximum time frame for degree completion, a quantitative measurement (credits earned toward a degree), and a qualitative measurement (cumulative grade point average). The standards described below are effective for terms ending after July 1, 1987.

Full-time students who have never attended another college are allowed a maximum of six academic years (18 full-time academic quarters) to attain the bachelor's degree. Those pursuing associate degrees are allowed three academic years (9 academic quarters) for degree completion. However, deaf students pursuing associate degrees through NTID are allowed up to four academic years (12 academic quarters) for degree completion.

Grade point average is reviewed at the end of each full-time quarter or its equivalent. Minimum cumulative grade point average standards are as follows:

Completion of:
- First Quarter— Minimum Cumulative GPA =1.0
- Second Quarter— Minimum Cumulative GPA = 1.2
- Third Quarter— Minimum Cumulative GPA = 1.4
- Fourth Quarter— Minimum Cumulative GPA = 1.6
- Fifth Quarter- Minimum Cumulative GPA = 1.8
- Quarters 6-18— Minimum Cumulative GPA = 2.0

Credits earned toward the degree are evaluated every three academic quarters. Aid recipients are expected to complete 30 degree credits every three academic quarters as detailed below:

Completion of:
- 1st Academic Year (3 Academic Qtrs.)— 30 degree credits required
- 2nd Academic Year (6 Academic Qtrs.)— 60 degree credits required
- 3rd Academic Year (9 Academic Qtrs.)— 90 degree credits required
- 4th Academic Year (12 Academic Qtrs.)— 120 degree credits required
- 5th Academic Year (15 Academic Qtrs.)— 150 degree credits required
- 6th Academic Year (18 Academic Qtrs.)— 180 degree credits required

Additional Requirements

Transfer students

Cumulative grade point average requirements are the same as for non-transfer students [i.e., students must obtain a 2.0 GPA at the end of two academic years (six academic quarters)]. Transfer students also are expected to accumulate 30 degree credits for each three-quarter academic year. However, the maximum number of quarters allowed for full-time students to accumulate remaining degree credits may be reduced. For every 10 credits, or fraction thereof, granted as transfer credit by RIT, the maximum number of quarters allowed to accumulate remaining degree credits is reduced by one. A student transferring from another college and granted 30 transfer credits, would have 15 rather than 18

quarters to accumulate remaining degree credits; the same student transferring to an associate degree program would be allowed six rather than nine quarters to complete the degree.

Part-time students
Students registering for 6 to 11.5 credits per quarter and receiving federal financial assistance must meet the same grade point average requirements as full-time students (i.e., attainment of a 2.0 GPA after six academic quarters.) The established time frame for part-time students is 12 academic years (36 half-time quarters) for completion of bachelor's degree requirements. Associate degree candidates are allowed six academic years (18 half-time quarters) for degree completion. At the end of each three-quarter academic year, 15 credits must be accumulated toward the degree. Quarters in which a student is registered for less than six credit hours will be counted on a pro-rated basis toward the maximum time frame.

All students
Students should be aware that eligibility to receive certain forms of federal assistance may expire in less than the equivalent of six academic years.

For students first receiving the Pell Grant after July 1, 1987, there is a maximum of five academic years of eligibility. In addition to annual limits, both the Perkins (National Direct) Loan and Stafford/Guaranteed Student Loan also have cumulative undergraduate limits of $9,000 (Perkins) and $17,250 (Stafford/GSL).

These standards apply to federally sponsored assistance programs: Stafford/GSL, Supplemental Loans for Students, Parent Loan for Undergraduate Students (PLUS), Pell Grant, Supplemental Educational Opportunity Grant (SEOG), Perkins Loans (NDSL), Income Contingent Loans, and College Work-Study. Requirements for the New York Tuition Assistance Program (TAP), other state scholar ships, and Institute-sponsored programs may vary somewhat from these standards.

Notification and appeal
Students whose academic progress is not in compliance with federal requirements will be notified of the deficiency and advised of the appeal process. Copies of the policy are available upon request.

Student responsibilities
Recipients of financial aid from the Institute are responsible for reporting any significant changes in their financial situation during the year to the director of Financial Aid, who will review and may revise the applicant's financial aid accordingly. Financial aid recipients are also expected to assist in financing their education.

You should begin the process of applying for aid during the month of January. In order to receive full consideration, it is recommended that your FAF be received at the College Scholarship Service by March 1, prior to the fall quarter of your entrance. Applications received after March 1 are considered as long as funds remain available. We suggest you file your FAF as soon after January 1 as possible.

Standard of Satisfactory Progress for the Purpose of Determining Eligibility for New York State Student Aid

Baccalaureate Degree - Quarter System

Before being certified for this payment	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th
a student must have accrued at least this many credits	0	3	9	20	32	44	56	68	80	92	104	116	132	148	164
with at least this grade point average	0	.50	.75	1.00	1.20	1.30	1.40	1.50	1.60	1.65	1.70	1.75	1.80	1.85	1.90

'Only students in the HEOP program at RIT are eligible for more than 12 quarters of undergraduate awards.

Standard of Satisfactory Progress for the Purpose of Determining Eligibility for New York State Student Aid

Associate Degree - Quarter System

Before being certified for this payment	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
a student must have accrued at least this many credits	0	3	9	20	32	44	56	68	80
with at least this grade point average	0	.50	.75	1.00	1.20	1.30	1.40	1.60	1.80

Any student who intentionally defrauds or attempts to defraud the Institute of tuition, fees or other charges, or who gives false information in order to obtain financial aid, is subject to legal liability, prosecution and Institute disciplinary action.

Undergraduate Financial Aid at a Glance

Scholarship/Grant

	Eligibility	Amounts	Where to apply
Regents College Scholarship (New York State)	New York State residents who plan to attend college full-time and qualify through an examination in the senior year of high school.	$250 per year	N.Y.S. Higher Education Services Corp., 99 Washington Ave., Albany, N.Y. 12255
Regents Award for Children of Deceased Police Officers. Firefighters, Corrections Officers	Residents of New York State who are children of certain deceased policemen, firefighters, corrections officers.	$450 per year	N.Y.S. Higher Education Services Corp., 99 Washington Ave., Albany, N.Y. 12255
Tuition Assistance Program (New York State)	New York State residents who show ability to pursue full-time programs and meet state income requirements	$350 to $3,650 per year for first time recipients 1989-90.	N.Y.S. Higher Education Services Corp., 99 Washington Ave., Albany, N.Y. 12255
Regents Awards for Children of Deceased and Disabled Veterans (New York State)	New York State residents who are children of certain deceased and disabled veterans, and are enrolled full-time	$450 per year	N.Y.S. Higher Education Services Corp., 99 Washington Ave., Albany, N.Y., 12255
Pell Grant (Federal)	Undergraduate students who are pursuing their first bachelor's degree, in financial need, attending post secondary institutions on at least a half-time basis	$195 to $2,300 per year	File Financial Aid Form (FAF) requesting submission to Pell Grant or file separate Pell Grant application.
Supplemental Educational Opportunity Grants (Federal)'	Students of academic promise who are accepted for college study, are in exceptional financial need, and are pursuing their first bachelor's degree	$ 100 to $4,000 per year for full-time students	Through RIT by use of the Financial Aid Form. File FAF between Jan. 1 and Mar. 1 each year."
War Orphans Educational Assistance (Federal)	Children of certain deceased or disabled veterans.	Up to $220 per month	Veterans Administration
ROTC	Students enrolling in ROTC and who are academically qualified	Tuition, fees, books, and monthly stipend	RIT Department of Military Science
Veterans Benefits	Veterans	Amounts per month vary upon full-time/part-time status and number of dependents	RIT Veteran Affairs Office
RIT Scholarships and Grants	Financial need and satisfactory academic progress	Amounts vary	File Financial Aid Form between Jan. 1 and Mar. 1 of each year."
Higher Education Opportunity Program (HEOP)	Economically and academically disadvantaged residents of New York State	Amounts vary	Director of HEOP at RIT
SSI/SSD (Federal)	Determined by student's income, resources, and degree of disability	Amounts vary	Social Security Administration
NTID Grant-In-Aid	College students who meet federally established need requirements due to insufficient support from outside sources	Minimum award is $ 100; maximum award varies.	File the Financial Aid Form (FAF)
Private Scholarships	Varies	Amounts vary	High school guidance offices and public libraries department
Other State Grants	Eligibility varies	Amounts vary	Consult your state's education department
Loans			
Guaranteed Student Loan (GSL)	Must be at least a half-time matriculated student	Undergraduates - up to $2,625 for freshmen and sophomores and $4,000 for upperclassmen. Cumulative maximum of $17,250.	Through RIT by use of the Financial Aid Form
Supplemental Loans for Students (SLS)	All students except dependent under-graduates. Must be enrolled at least half-time and matriculated.	$4,000 per year maximum	Local Lenders (it is recommended that the student apply for Guaranteed Student Loan first.)
Parent Loan for Undergraduate Students (PLUS)	Parent with a dependent who is full-time student	$4,000 per year for each dependent who is a full-time student	Local Lenders
Perkins Loans (formerly) National Direct Student Loans (NDSL)	College students who meet financial need requirements established by Federal government	Upt to $4,500 for first two years of undergraduate study. Maximum of $9,000 for four and five years of undergrad. study	Through RIT by use of the Financial Aid Form. File FAF Jan. 1 and Mar. 1 each year."
RIT Supplemental Education Loan Program (SELP-II)	Full-time, undergraduate, matriculated RIT students. Eligibility to borrow may be affected by receipt of funds from other aid programs. Credit evaluation is necessary. Parents may also apply.	Minimum of $1,000 per year up to a maximum of $5,000 per year	RIT Financial Aid Office
ConSem	Undergraduate and graduate students attending RIT at least half-time. Parents may also apply.	Minimum $1,500; maximum is the amount equal to total cost minus aid.	Financial Aid Office
Employment			
College Work-Study Program (Federal)	College students in full- and part-time degree programs who meet financial need requirements established by Federal government.	Varies, depending on hours and wage rate. Wages range from $3.75 to $4.35	Through RIT by use of the Financial Aid Form. File FAF between Jan. 1 and Mar. 1 each year."
Other on-campus part-time work	Considerable variation in kinds of positions, hours, and wages	SameasforCWSP	Consult other RIT publications and RIT Student Employment Office.

'NOTE: For first priority consideration, the FAF must be received in Princeton, New Jersey, by March 1 each year. To assure timely receipt, it is recommended that the document be mailed by February 20 each year.

Academic Policies and Student Standards

Registration and Student Records

Office of the Registrar
The Office of the Registrar operates the systems in which courses are scheduled, students register and student academic records are maintained.

The scheduling process
The development of the quarterly course and exam schedule is coordinated by the Registrar's Office in conjunction with the academic departments. The goal is to produce schedules that provide:

(1) effective utilization of resources (e.g., classrooms, instructors, time)
(2) equitable accessibility to courses and
(3) ample opportunity for normal progress toward degrees.

In short, course and examination schedules are directed at fulfilling curricular requirements while accommodating student interests.

Registration
To be officially registered at RIT, a student must be academically eligible, properly scheduled for courses, and have made the required financial commitment. All students are encouraged to seek academic advising before selecting courses.

There are several opportunities to register each quarter and the earlier a student registers the better chance he or she has of obtaining the classes desired. **Early Registration** begins approximately 10 weeks before the quarter begins and lasts for several weeks. During this period, students may register via the **Telephone Registration System** or by mailing or bringing their course requests to the Office of the Registrar. Some restrictions apply. Students who fail to make their financial commitments by the "Tuition Due Date" risk being dropped from their courses. Consult the quarterly Schedule of Courses for specific dates and procedures.

Open registration
Open registration occurs just prior to the start of the quarter and is the last opportunity to finalize course schedules and/or make financial commitments before the academic term begins. Matriculated students who elect to register for their courses and/or elect to make financial commitment after this date will be assessed a $50 late fee.

Drop/Add period
Students may initiate changes to their course schedules by dropping and/or adding courses during the first six days of the quarter (Saturdays, Sundays, and holidays excluded). All changes must be approved by the academic unit offering the course and must be recorded with the Office of the Registrar.

Non-matriculated student registration
Many of the courses offered by RIT are available to students who have not been admitted into a particular academic program. While non-matriculated students are eligible to participate in any of the registration periods above, some courses may be reserved for matriculated students during the earlier registration periods. These students are strongly encouraged to seek the advice of the colleges offering the desired courses before registration is attempted. Non-matriculated students are not assessed a late fee, but are expected to be properly registered by the end of the Drop/Add period.

Auditing a course
Courses that are taken on an audit basis will not count towards a student's residency requirements; may not be used to repeat a previously taken course; and do not satisfy degree requirements. A grade of "Z" will be assigned and the student need not take exams. Permission to audit a course must accompany the registration and any changes between credit and audit must be accomplished by the end of the Drop/Add period.

Course withdrawal
With the permission of the instructor, a student may withdraw from a course at any time from the end of the Drop/Add period until the end of the eighth week of the quarter. A grade of "W" will be recorded on the official record. Tuition refund policies are described on pages 178-179.

Student records
Confidentiality of records: In accordance with the Family Education Rights and Privacy Act of 1974 (commonly known as the Buckley Amendment), RIT students have the right to inspect, review, and challenge the accuracy of official educational records.

RIT policy ensures that only proper use is made of such records. Therefore, with the exception of copies made for internal use (e.g., those provided to departments for advising functions), in most cases, no copy of a student's permanent record (transcript) or non-public information from student records will be released to anyone without the student's written consent. If an employer, for example, requests a transcript, he or she will have to obtain a written request from the student. For more detailed information concerning the act, see the *Facts* booklet.

At the time of registration, but not later than 14 days after the beginning of a term, students may request the Office of the Registrar, in writing, not to release directory information pertaining to them. "Directory information" includes the following: a student's name, date and place of birth, major field of study, participation records in official RIT activities and sports, weight and height if a member of an athletic team, dates of attendance at RIT, degrees and awards received.

Transcripts: A transcript of a student's official academic record is maintained in the Office of the Registrar. It contains a detailed statement of the scholastic record.

All requests for transcripts must be in written form. Each transcript request should include full name or names used, social security number, and dates of attendance to assure proper identification of the record requested. There is a charge for each copy. Transcripts can usually be obtained by a student within 48 hours after the request is submitted. During exam week and the week following exams, it may take longer to prepare a complete transcript.

No partial transcript will be issued.

No transcript will be issued to a student who is indebted to the Institute.

Transcripts issued directly to students are stamped "This official transcript issued directly to the student."

Transcripts from colleges other than RIT that have been received in support of admission application and/or transfer credit evaluation, will not be re-issued by the RIT Office of the Registrar.

Grade reports: Grade reports are prepared after the completion of each quarter. For Fall and Winter quarters, day college undergraduate students will receive their grade reports through their department mail folders. Grade reports for other students and other academic terms will be mailed directly to the students' permanent address.

Change of name, address or social security number: It is the obligation of every student to notify the Office of the Registrar of any changes in name, address, or social security number. Failure to do so can cause serious delay in handling student records.

Student retention
Based on a summary of the most recent cohort survival statistics, RIT's student retention rate is 51.4 percent for students entering at the first-year level and graduating four to five years later (the period between entry and graduation depending upon a student's particular program of study).

Excluding part-time and non-degree students in the College of Continuing Education and NTID, 79 percent of first-year, full-time day students register for their second year; and 86 percent of third-year students continue through graduation (fourth or fifth year depending upon the program).

RIT is currently developing a comprehensive study of the progress of students, which would include factors to predict retention for all student populations such as those on cooperative education work blocks and the large number of part-time and non-degree students.

The statistics reported herein have been computed in a manner consistent with data reported to the State Education Department through the Institute's Office of Institutional Research.

Academic Standards and Regulations

RIT stresses programs that lead to a high level of technical and professional competence. Programs of study are offered leading to degrees at the associate, bachelor's, master's, and doctoral levels. Certificate, diploma and associate degree programs are offered by the College of Continuing Education (see page 52) and the National Technical Institute for the Deaf (see page 148).

Graduate degree programs
Programs leading to graduate degrees are fully described in the separate Graduate Bulletin, available from the Admissions office.

Grading system
Grades representing students' progress in each of the courses for which they are registered are given on a grade report form at the end of each quarter of attendance. The letter grades are as follows:

A Excellent
B Good
C Satisfactory
D Minimum passing
E Conditional Failure
F Failure
I Incomplete
R Registered
S Satisfactory
W Withdrawn
X Credit by Examination
Z Audit

An incomplete or temporary grade of "I" is given when a professor observes that a student is unable to fulfill the requirements of a course. The professor is required to inform the student of an extended due date for completion of the course requirements, which is not to exceed two quarters. If the registrar does not receive a "change of grade" form from the professor by the end of the second quarter due date, the incomplete grade changes to a failing grade, and the student is charged full tuition.

A grade of "W" will be assigned in courses from which a student withdraws after the second week of classes or if a student withdraws from all courses in a given quarter. A student can change from credit to audit or from audit to credit status for a course only during the first six days of classes.

An "X" grade indicates successful completion of an external or Institute examination, provided such examination covers or parallels the objectives and content of the indicated course. Credit must be assigned in advance of any credit received through registration for the indicated course.

For exact policy and procedural statements on the above see the Educational Policy and Procedures Manual available in the Student Affairs Office or on reserve in the Wallace Memorial Library.

Grade point average
Each course has credit hour value based upon the number of hours per week in class, laboratory or studio, and the amount of outside work expected of the student.

Each letter grade yields quality points per hour as follows:

A—4 quality points
B—3 quality points
C—2 quality points
D—1 quality point

E and F count as 0 in computing grade point average (GPA). R, W, Z, S, X and I grades are not used in computing GPA.

The grade point average is computed by the following formula:

$$Qp^{\wedge} \quad \frac{\text{Total quality points earned}}{\text{Total quality hours}}$$

Dean's list
By action of the college concerned, matriculated undergraduate students will be placed on the Dean's List if their program quarterly GPA is at least equal to a 3.40; they do not have any grades of "Incomplete," "F," "E," or "D" (including physical education, orientation classes and any other non-credit, but required, courses); they have registered for, and completed, at least 12 credit hours per quarter; they are not on probation due to a low cumulative GPA in their principal field of study.

Exception: Matriculated undergraduate students who are primarily part-time students may qualify for the Spring Quarter Dean's List if in the

preceding three quarters they have taken 18 hours of credit with a program yearly cumulative GPA of at least 3.40, or in the preceding three quarters plus summer quarter, summer evening or day session have completed 24 credit hours with at least a 3.40 program yearly cumulative GPA. In both cases this must be accomplished without grades of "Incomplete," "F," "E," or "D," and without being placed on probation due to a low cumulative GPA in the principal field of study.

Academic probation and suspension policy

Matriculated undergraduate full-time and part-time students will be placed on probation or suspended from the Institute according to the criteria enumerated herein. All actions are taken at the end of the quarter. However, a student may petition the dean of the college for reconsideration of probation or suspension should the removal of an incomplete grade (I) raise the appropriate grade point average above those stated below. Each matriculated student will generate three different grade point averages. The *Institute* average reflects all course work completed at RIT. The *Program* average reflects course work completed at RIT applicable to graduation in a student's current academic program. The current academic program refers to the Institute and college degree course requirements specified by the degree granting college and noted in the Institute catalog. The third average, in the *Principal Field of Study,* reflects course work completed in a student's specialized field of study.

1. Any student whose program Quarterly Grade Point Average falls below 2.0* or whose Cumulative Grade Point Average in the principal field of study* * (based upon at least 20 credit hours attempted in the principal field at RIT) falls below 2.0 will be *placed on probation.*

2. Any student who has been placed on probation according to (1) above is *removedfrom probation* for achievement of both a 2.0 Program Quarterly Grade Point Average and a 2.0 Cumulative Grade Point Average in the Principal Field of study, based upon at least 20 credit hours attempted in the principal field at RIT.

3. Any student who is on probation according to (1) and who is not removed from probation in the two succeeding periods of study in which credit is earned, will be suspended from RIT for a period of not less than one quarter.

4. Any student who has been placed on probation after having been removed from probation and whose Program Cumulative Grade Point Average is below 2.0 will be suspended. Any student who has been placed on probation after having been removed from probation and whose program Cumulative Grade Point Average is 2.0 or above will be granted one quarter to be removed from probation or he or she will be suspended from RIT.

5. Any student whose Program Quarterly Grade Point Average falls below 1.0 will be suspended from RIT.

6. Any student who has been re-admitted to his or her original program, after being suspended, and then goes on probation will be suspended from RIT.

7. A suspended student may not enroll in any academic course at the Institute while on suspension. When there is evidence that the student's scholastic problems are the result of inappropriate program choice, or other extenuating circumstances, the suspension may be waived or the student may be admitted to another program or allowed to take courses on a nonmatriculated basis if it is approved by the dean of the college in which the enrollment is requested.

In evaluating the request for waiver of suspension, the dean may seek the recommendation of the Counseling Center as to the appropriateness of the program for the career goals of the student under consideration.

8. A student may apply to the Office of Admissions for re-admission at the end of his suspension. His re-admission must be approved by the dean of the college he wishes to attend upon his return (this may be his original college or another).

Disciplinary probation

Students are expected to conduct themselves at all times in such a way as to reflect credit on themselves and the Institute. Any student guilty of flagrant violation of good conduct may be warned, placed on probation or, in serious cases, dismissed from the Institute.

A student dismissed from RIT may not enroll in any courses. Disciplinary suspensions are imposed and may be waived only by the assistant vice president for Student Affairs (Judicial Affairs).

**"C" Average*

** * The principal field of study is generally defined to be all eolirxes within the eollege offering the academic program. The packaging science and printing systems programs, and programs offered through the College of Continuing Education and NTID do not hair principal field of study statistics calculated.*

Class attendance and other rules

Students are expected to fulfill the attendance requirements of their individual classes. Rules and regulations relating to conduct in residence halls and use of general campus facilities are issued directly by the appropriate offices of the Institute and published in the student handbook.

It is the responsibility of all students to attend their scheduled classes regularly and punctually in order to promote their progress and to maintain conditions conducive to effective learning.

Absences for whatever reason do not relieve students of responsibility for fulfilling normal requirements in any course. In particular it is the student's responsibility to make individual arrangements in advance of missing class due to personal obligations such as religious holidays, job interviews, athletic contests, etc., in order that they may meet their obligations without penalty for missing class.

Attendance at class meetings on Saturdays, or at times other than the regularly scheduled meetings, may be required. The Institute reserves the right to alter any of its courses at any time.

What You'll Need for Graduation

The following general requirements apply to students who are candidates for an undergraduate degree:

Certificates and diplomas

1. Satisfactorily meet the program requirements of the college.
2. Full payment of all financial obligations.

Associate and baccalaureate degrees

1. Successfully complete all required courses of the Institute and college including cooperative employment where applicable.
2. Full payment of all financial obligations.
3. A minimum of 45 quarter credit hours must be successfully completed in residence at the Institute in the college granting the degree (inclusive of service courses). If the student has successfully completed 45 credit hours in residence he or she may petition the dean to study 15 quarter credit hours in absentia in the final year of the degree; a minimum 30 of the 45 quarter hours are to be completed in residence.
4. A program grade point average of at least 2.0.

5. Minimum number of quarter credit hours as required by that college, but in no case shall this be less than 90 quarter credit hours for the associate degree and 180 quarter credit hours for the baccalaureate degree.

6. Physical education requirements as published in the Official Bulletin.

7. Demonstrate competence in writing skills as established in the Institute's writing policies.

Writing policy

RIT's writing policy is meant to insure that each graduate develops sufficient skill in the use of the English language to function as an educated member of society and to meet any special demands for written communications likely to be expected in his or her intended career.

Students must demonstrate that they have the writing skills needed for successful entry into their chosen careers. At least three academic quarters before the student's anticipated completion of baccalaureate degree requirements, the department faculty will determine whether the student has met departmental writing standards. A full description of these standards and certification procedures are available from each department. Students whose writing does not meet standards will have to take remedial measures recommended by the department.

Students must meet the departmental writing standards before they can graduate. The nature and standards of departmental writing requirements will be consistent with Institute policy and will be reviewed by the Institute Writing Committee.

For the master's degree

See separate Graduate Bulletin, available from the Admissions office.

Certification for degree

Upon completion of the stipulated requirements, a student's academic department certifies him or her for a degree. After graduation, a statement verifying that a degree has been awarded will be posted to the academic transcript. Diplomas will be mailed to the graduate's permanent home address approximately six-to-eight weeks following the end of the quarter in which he or she was certified.

Commencement

RIT confers degrees and other academic awards at the end of each quarter. Formal commencement ceremonies are held at the end of the Spring Quarter. Graduates who have received their degrees at the end of the Fall or Winter quarter are invited to attend the Spring Commencement ceremonies. Students who will be completing their requirements at the end of the Spring or Summer quarter are expected to attend Commencement.

Institute Standards For Student Conduct

RIT's educational mission

It is the mission of RIT "to prepare men and women for living and working in a democratic and technological society" by offering curricula that "meet the need for technological and other specialized knowledge and skills within the broader framework of humanistic values."[1] To achieve its mission, the Institute establishes guidelines that provide for the orderly conduct of its instructional and campus life activities. As an educational community, it strives for a campus environment that is free from coercive, exploitive behavior by its members. Moreover, it sets high standards that challenge students to develop values that will enhance their lives professionally and will enable them to contribute constructively to society.

Historically, RIT has aspired to the goal of teaching students for the "making of a living and the living of a life, not as two distinct processes, but as one."[2] This goal includes the emotional, physical, spiritual and social development of students. Because the Institute prepares its students for leadership in their careers and in community life, it has set standards of personal development and academic excellence that go well beyond the standards of the larger society. Moreover, the faculty and staff are expected to set examples for students in the pursuit of their personal and academic development. Although RIT acknowledges and respects the diversity of values and lifestyles of its faculty, staff and students, each member of the RIT community has the responsibility of observing the standards of campus life that are important to the pursuit of the Institute's mission.

'Rochester Institute of 'technology, "1900 Master Plan " (March 1980).

'George W. Hoke, Blazing New Trails *(Rochester, N. Y., Rochester Athenaeum and Mechanics Institute, 1937), p. V.*

Principles underlying Institute conduct policies

1. Students are expected to assume responsibility for their own conduct and also to have concern for the behavior of others. Such responsibility includes efforts to encourage positive behavior and to prevent or correct conduct by others that is detrimental.

2. The Institute places high priority on self-regulation by its members and intends that campus life will provide opportunities for students to exercise individual responsibility.

3. The Institute acknowledges the diversity of backgrounds, lifestyles and personal moral values of those who comprise the Institute community, and respects the right of individuals to hold values that differ from those expressed by the Institute. However, in their activities and duties as students, they are expected to observe Institute policies and standards.

4. Moreover, the Institute has legitimate concern for personal behavior beyond the impact the behavior has on the rights and freedoms of others. When an individual's pattern of behavior is self-destructive, interferes with the achievements of one's educational objectives, or adversely affects the quality of life on campus, the Institute may intervene to correct or prevent such behavior.

5. The Institute values and safeguards the personal privacy of its members. Rooms in campus housing will not be entered by Institute personnel without either the permission of the residents or the authorization of the vice president for Student Affairs unless a legal search warrant has been obtained. Exceptions are made in emergency situations such as imminent harm to individuals or serious damage to the Institute property and for reasons of health and safety. The Institute adheres to the provisions of the Buckley Amendment regarding the privacy of student records.

6. The conduct of students at events held off-campus which are sponsored by RIT organizations must adhere to the same standards and policies as events held on campus, and infractions are subject to Institute action.

7. For students living in campus housing, campus life standards have special significance. The residence hall environment is highly interpersonal, and the behavior of every individual in some way usually influences the quality of residence life for others. Therefore, standards and policies for residence life are stated explicitly and are communicated to students through residence halls publications.

Summary of conduct policies
In keeping with the prior principles listed, the following broad areas of conduct for students are enunciated. Although they are not all-inclusive, they indicate in general terms the standards of student concern that are important to the desired quality of campus life and to the educational mission of RIT. More explicit conduct policies are contained within the residence halls' "Terms of Occupancy" and other official Institute documents.

Human rights and dignity
The Institute expects all students to practice high regard for the human dignity of other people. It seeks to prevent all types of discrimination on the basis of race, sex, religion, age, handicap and national origin. Attempts are made to resolve conflicts between individuals and groups with differing backgrounds and views through discussion and clarification of values and attitudes. However, repeated disregard for the rights and dignity of others will result in disciplinary action in accordance with Institute policies and procedures.

Personal conduct
Through its policies, the Institute requires conduct that contributes positively to the personal welfare of students, enhances the quality of the campus living environment and respects the rights of others. Conduct that infringes upon the rights of others or endangers any individual will not be permitted. The sanctions associated with student misconduct are outlined in Institute policies, and actions are taken in accordance with the RIT Judicial Process. The following statements on sexual behavior, alcohol and drug use, appropriate study environments, safety, and student regard for property are a further expansion of the Institute's position on the personal conduct of students.

Policy on racial harassment
Racial harassment is antithetical to the multicultural educational community RIT wishes to maintain. The Institute will not tolerate racial harassment in any form and will investigate all complaints of harassment that are brought to the attention of the administration.

Racial harassment is regarded as a serious conduct matter, and the Institute judicial system will fully enforce the Institute's policy prohibiting harassment. Judicial action against students found guilty of harassment may include suspension from the Institute. Similarly, any RIT employee found guilty of racial harassment VYill be subject to disciplinary action that may include termination of employment.

Sexual behavior and harassment
The Institute acknowledges that an individual student's sexual attitudes and values are a matter of personal choice. However, responsible sexual behaviors, no less than in other areas of human interaction, must take into account the dignity, privacy and rights of others. Sexual harassment is not tolerated. Moreover, no individual should be subjected to exploitive actions. Unacceptable behaviors and living arrangements are further defined within the "Terms of Occupancy" for the various Institute housing units.

Alcohol and drug use
Individual students will be held responsible for their behavior even though their judgment may be impaired because of the use of alcohol or other drugs. Registration procedures for all RIT events set forth the responsibilities and procedures to be followed by the sponsoring group at an activity where alcohol is served. No student should feel pressured to consume alcohol or other drugs.

Institute policies on drug and alcohol use conform to the laws of the State of New York. The Institute is not a haven from the law, and both New York State law and Institute policy will be enforced. Those students who evidence problems with alcohol or drugs will be offered, and, if necessary, required to avail themselves of counseling or other appropriate treatment. Even though individual students may be receiving such assistance, they will be held accountable for their behaviors through established Institute judicial procedures.

Study environment
Students need a campus environment that is conducive to studying. This is especially important in those facilities that are designated primarily for study. In the residence halls, each separate living unit must establish in writing the policies it will maintain to provide adequate study conditions according to the basic standards established by the Institute.

Religious holidays
In regard to attending classes during religious holidays, the Institute calendar cannot accommodate fairly the wide variety of religious holidays observed by RIT students. Institute policy states that it is the responsibility of students to attend scheduled classes. Faculty members are requested to make every effort to accommodate the religious convictions of students.

If a student wishes not to attend classes in observance of a religious holiday, it is the responsibility of that student to confer with his or her instructors in order to meet class attendance expectations.

Safety
Safety is of critical importance at all places on the campus, but it is particularly important in the residence halls because the carelessness of one individual can threaten the lives of hundreds of others. Willful violations of safety, such as causing false fire alarms, will result in immediate action according to judicial procedures. Safety inspections of individual rooms and group living areas will be conducted periodically by authorized Institute personnel.

Student regard for property
Students are expected to exercise appropriate care of Institute property and regard for the property of others. A student-developed property damage policy in the residence halls holds accountable those students responsible for damage.

Academic Services

Career and Academic Advising

Career and academic advising helps students plan and carry out a sound program of study at RIT. Because of its importance, several specialized sources for this planning are available.

Advising systems will vary within academic majors depending on the unique needs of each program. Advising is available to all students whether from an assigned advisor or a centralized office within the college. Whatever the system, students will be assisted in developing their curriculum plans, determining the requirements for graduation, and interpreting academic needs. It is the student's responsibility, however, to seek out advising and take an active role in the maintenance of academic records. When a specific advisor is assigned to a student, he or she is a specialist in his or her career field.

When students wish to re-examine their choice of academic major, or have questions about the appropriateness of a transfer to a new major, the Counseling Center is available for clarifying educational and vocational plans.

The Office for Cooperative Education and Placement is another resource of the Institute, particularly in fulfilling cooperative education requirements in a student's major field and securing initial employment at the end of his or her program at RIT.

The support services at RIT are directed to meet career and academic needs. For assistance in finding the appropriate office, call the coordinator of academic advising at 475-6682.

Support Services For Deaf Students

In addition to having access to all other RIT advising services, deaf students are provided a personal/career counselor trained in theory and techniques, career development, communication, and deafness. Career development counselors assist students with problems such as getting along better with others, adjusting to college life, gaining self-confidence, and choosing a program of study. Counselors also help students plan their educational programs and are available to talk with students about personal and social problems. Counselors utilize a variety of strategies in working with students, including individual counseling sessions, career planning seminars, special groups, assessment, and consultation with faculty members and various resource people.

Each RIT college has an affiliated NTID support services department that has resource faculty who provide educational support services to deaf students in the college. Services may include:

- workshops, seminars, and courses on study skills, cooperative work experiences and employment preparation, communication, and college issues
- career and personal counseling
- maintaining liaison with faculty members of other RIT colleges
- preparing deaf students for matriculation at other RIT colleges
- interpreting, notetaking, tutoring, and other support services
- teaching courses using simultaneous communication and other instructional techniques that maximize students' learning
- working with employment specialists and employers to provide career advisement to students seeking employment
- helping deaf students assess their communication needs in the classroom, e.g., using an FM auditory unit, speech skills for class participation, or interpreters to voice ideas.

Cooperative Education and Placement

RIT's particular philosophy is called career education—and the Office for Cooperative Education and Placement supports the Institute's commitment to preparing students for "the making of a living and the living of a life." RIT made a commitment to career education as early as the 1880s and began the Cooperative Education Program in 1912.

Since 1912, RIT has developed one of the world's strongest co-op programs. It is the fourth oldest and fifth largest cooperative education program in the world today. Last year alone over 1,300 employing companies across the U.S. participated in the program, hiring students to gain career experiences as a part of their RIT curriculum. Those 1,300 employers join the Institute and the student in a three-way partnership that leads to career awareness and experience that can't be matched. Co-op gives the student and the employer an opportunity to look each other over; it gives the student an opportunity to try out personal and professional abilities in a different environment. Many students relocate in order to take advantage of the best co-op opportunities.

The Office for Cooperative Education and Placement provides counselors for each student from the beginning of the co-op program right through career entry upon graduation. The office takes pride in being ready to give students an edge over the competition when they graduate. Individual career counseling and job search seminars are provided as well as resource materials for career and job research, job listings from co-op and career employers, reference and credential service, and an excellent on-campus interview program. The Cooperative Education and Placement staff spends considerable time developing opportunities with employers nationwide for students in co-op programs and for graduates. Services remain available to alumni for a lifetime.

A center for information about the employment of RIT students, the office communicates with business, industry and government to keep an eye on the needs of students and employers. Information is synthesized and made available through many formats to students and their academic advisors as well as Institute planners. The linkages among the students, alumni and employers enhance RIT's ability to provide a quality education firmly rooted in the dedication to preparation for career success.

Wallace Memorial Library

Information comes in many forms other than printed pages bound between two covers. When a student wants to research a topic at RIT's Wallace Memorial Library, he or she will not only find a variety of print and nonprint forms such as books, compact disks, microfilm, microfiche and magazines in which to locate information, but also a unique on-line computer catalog. Individual terminals allow for

access of authors, title and subjects of over 250,000 records. Access is also available remotely from office, home, or lab.

In addition the library offers computerized searching of information from commercial data bases specializing in a broad spectrum of subject areas, as well as an electronic reference service available by calling 610WMLREF on the VAX mail network. Inter-library Loan assists in providing access to virtually all publicly available material.

To help in the use of all these resources, reference librarians are on duty during the week and on weekends. Located throughout the three floors are more than 700 study stations including individual carrels and group study rooms.

During the year student work in art and photography is exhibited in display gallery areas. Outstanding student work is also permanently displayed within the building as a result of Purchase Prizes awarded annually. Several lounge areas are located throughout the facility.

The library contains a special collection of materials on deafness to serve NTID and to support research in deafness.

A special Collections area houses the archives, rare books, faculty writings and RIT theses. A separate Chemistry Library in the Chester R. Carlson Memorial Building houses selected science material.

For library hours, call 475-2046 (voice); for Reference Desk, call 475-2564 (voice) and 475-2563 (TDD); for Circulation Desk, call 475-2562 (voice) and 475-2962 (TDD).

Information Systems and Computing

Information Systems and Computing (ISC) provides computing services on VAX/VMS and VAX/ULTRIX (UNIX) systems and various microcomputers to students regardless of their majors. Students in selected courses can use an IBM VM/CMS system. These services are provided at no cost to students. Many RIT colleges also have computing facilities available to students in their programs.

Students use computers for course assignments, developing computer literacy, writing reports, analyzing statistics, manipulating numbers and data using electronic spreadsheet software, producing graphs, and performing many other functions. Students also can send electronic messages to professors and other students at RIT, and throughout the world via the Internet and BITNET networks.

A VAX/VMS computer account is available to each registered student whether or not specific computer use is required in the student's program. The account remains active as long as the student is registered and in good standing. ISC publishes the *Computer Use Code of Conduct* which provides guidelines on the use of computers at RIT.

Computer accounts and the files stored in those accounts are the property of RIT. ISC and departments that student accounts are associated with have the right to review and delete accounts and files. Normally, accounts are deleted only if the student leaves RIT. ISC will take action against people who abuse the privilege of using RIT's computers.

The Ross Microcomputer Lab and the VAX/VMS systems are used to support the Institute computer literacy program, which is available to many students. The Booth Microcomputer Lab with Apple Macintoshes, and Image Writer and LaserWriter printers, is available to students in the College of Liberal Arts Freshman Writing Program and the College of Fine and Applied Arts foundation courses. Other students may use the Booth Lab if it is not scheduled for those programs.

Central computer systems can be accessed via telephone or terminals in the User Computing Centers (UCC) located in the James E. Gleason Memorial Building (9), Max Lowenthal Memorial Building (12), Microelectronics/Computer Engineering Building (17), Lewis P. Ross Memorial Building (10), and Grace Watson Hall (25).

UCC and Microcomputer Lab employees assist students using the computer systems. Professional software specialists in the Academic Computing and User Services department also are available for consultation or presentation of free seminars. Documentation is available in the UCCs and labs, and can be purchased from ISC Academic Computing and User Services or Campus Connections' Textbook department. The monthly *ISC Newsletter,* and on-line HELP and NEWS also provide information on using ISC systems.

Questions and comments regarding ISC services and policies can be made to Academic Computing and User Services staff in the Lewis P. Ross Memorial Building (10), room A291, or by calling (716) 475-6929. VAX/VMS computer accounts can be obtained from that office. Questions regarding use of computing facilities provided by RIT colleges should be made to the specific college.

Instructional Media Services

Instructional Media Services provides television and audiovisual support services to faculty, students, and staff. These services include a campus-wide cable television network, satellite teleconferencing, and delivering media to classrooms. IMS also provides a Media Resource Center, which houses the RIT media collections and an extensive art slide library. Many faculty members place materials on reserve in the MRC for students to study, such as videotapes, films, and audiotapes.

IMS staff members assist faculty and students in finding and preparing media for classroom presentations, club meetings, or personal use. The color laser copier is a popular tool used by many photographers and artists at RIT. Others find the photo and graphic design services of IMS helpful in preparing for presentations and lectures. Audiovisual and television equipment such as slide projectors, videoplayers, overhead projectors, telephone conferencing equipment is available for instruction and other campus events from IMS.

RIT instruction extends beyond the campus classrooms. Courses are delivered to distant sites by a variety of techniques, including offerings on local cable and broadcast television, videotapes, computer and audio conferencing, and use of an interactive electronic writing system called a telewriter. Workshops and lectures that originate at RIT are delivered by satellite to audiences throughout the United States, Mexico, and Canada. IMS supports these efforts with equipment and production of materials.

IMS offices and the Media Resource Center are located on the lower level of Wallace Memorial Library. More than 60 students work in IMS, assisting with video production, photography, graphic design, and office routine. Individuals are invited to drop in and explore these resources. The offices are open from 7:30 a.m. to 9:30 p.m., Monday through Thursday; 7:30 a.m. to 5 p.m., Friday and Saturday.

Learning Development Center

The Learning Development Center, an academic support unit at RIT, offers students, faculty, staff, and the community a variety of services. The College Skills Program offers courses in reading, writing, math, and study skills as well as a math and writing lab open on a drop-in basis. The English Language Center offers full and part-time English language study for international students with courses in pronunciation, conversation, reading, writing, grammar, and vocabulary. The College Restoration Program assists students who are on probation or suspension while The College Anticipation Program is for students who need additional preparation before matriculating into a college program. The Learning Assessment Program offers individual assessment for RIT students who are experiencing academic difficulties. For more information about these programs, see the program descriptions beginning on this page.

In addition to these programs, NTID has communication, general education, mathematics, and physics learning centers that provide specialized academic support for deaf students.

Communication learning centers include the Self-Instruction Lab, where students can practice skills they have learned in listening, speaking, and sign/simultaneous communication; Telecommunications Lab, where students can practice their telephone skills; English Learning Center (ELC), which has reading and writing labs that allow students to practice their skills independently. The ELC includes the Computer-Assisted Language Learning Lab, which helps students improve reading and writing skills using interactive computer software.

The General Education Learning Center (GELC) supports deaf students in their general education and liberal arts core courses. Skilled peer tutors, working closely with faculty members, provide students with feedback related to their reading and writing assignments. Reference books and computers also are available for assistance with assignments. The GELC sponsors evening enrichment programs in language arts, study skills, and social and political awareness.

The Mathematics Learning Center provides tutoring assistance to students enrolled in mathematics classes.

The Physics Learning Center (PLC) offers a variety of physics courses in a classroom setting. A laboratory experience is a part of each course. Tutors supplement classroom and laboratory experiences. Students enrolled in applied science, engineering, and other NTID technical programs as well as deaf students studying in one of RIT's other colleges use PLC services. PLC courses assist students who plan to enroll in courses offered through the colleges of Science and Engineering.

College Skills Program

The College Skills Program is the LDC unit devoted to providing academic assistance for students enrolled at RIT. It offers workshops, classes, and labs for instruction in reading, writing, mathematics, and study skills.

The College Skills Program has services for all levels of students, from freshmen to graduates. In addition to basic skill development, it offers courses that teach students how to improve study techniques and how to assess and make the most of their individual learning abilities.

Reading and Writing Department: Courses offered include Efficient Reading, Analytical Reading and Writing, Speed Reading, Writing Skills, Vocabulary, and Persuasive Presentations. The Writing Lab provides individualized instruction to improve students' abilities to complete college writing assignments. Individual or small group instruction in reading is available by appointment.

Mathematics Department: An individualized math course using diagnostic testing and carefully prepared review material is offered. The Math Lab offers free tutoring in most math courses as well as "math-related" areas such as biology, chemistry, physics, computer science, statistics, and accounting. A workshop, "How to Study Math," is also offered. Review courses for the GRE and GMAT exams are offered in both the math and verbal areas.

Study Skills Department: The focus of this department is on the development of good study skills to promote academic success. Diagnostic evaluation, individual instruction and mentoring and "tailor-made" courses for various RIT groups are available. A series of mini-workshops, the "Lunch 'n' Learning Series," is offered each quarter. Topics covered include time management, listening & notetaking, text reading, test taking & preparation, test anxiety reduction, and memory improvement.

College Skills Program services are free to RIT students with the exception of the GRE and GMAT Review Courses. For more information concerning these services, contact the Learning Development Center at (716) 475-6682.

The English Language Center: English to Speakers of Other Languages

The English Language Center offers both full- and part-time study of English to non-native speakers. Class offerings include: conversation, grammar, writing, vocabulary, reading, presentation skills, business communication, and TOEFL preparation.

Full-time program

The intensive English Language Program consists of 20 hours of class instruction and 5 hours of language lab per week at beginning, intermediate, and advanced levels. This intensive study program meets the immigration requirements for the Certificate of Eligibility 1-20. There is a fee for this program.

Before a course of study can be selected, students are tested to determine their levels of English proficiency and to diagnose their specific language needs.

Part-time program and individualized instruction

In addition to the full-time program, students may register for one or more ESOL courses. Arrangements also may be made for individualized language instruction. Pronunciation and conversation, as well as grammar, writing, reading, and vocabulary may be studied in this manner. There is a fee for instruction, but students enrolled for 12 academic credits at RIT receive a reduced rate.

For more information about the English Language Center's program offerings, visit the English Language Center (GEM 2321) or call 475-6684.

Foreign language instruction
The English Language Center offers a program in which international students teach their native languages. The international student meets with a trained language instructor who assists in curriculum development and provides language teaching methodology. The international student then instructs in his or her native tongue. Language, culture and customs can all be part of this program. For more information about learning a new language or teaching your native language, call the English Language Center at 475-6684 or pick up an application at the office (GEM-2321).

Translation services
Translation Services provides quick and efficient translation of documents, reports, letters, and manuals for RIT students, faculty, and staff as well as businesses in the Rochester area. For a fee, documents of all types, general to technical, can be translated. For more information, contact the English Language Center at 475-6684.

College Restoration Program

The College Restoration Program is a full time specialized program of instruction, with matriculated status, for students who have experienced academic difficulty and suspension from a college.

A course of action can be recommended only after the reason for academic difficulty has been established. If it is determined after an interview and diagnostic and achievement tests have been administered that CRP can be helpful, a very structured program including one or two content courses, LDC instruction, and counseling is arranged.

The student meets regularly with an LDC faculty mentor to clarify directions and goals, to discuss relationships between the skills courses and to review progress.

The entire program is designed to strengthen the student's self-confidence. Successful completion of this program could qualify students for readmission to the college or department of their choice or for entrance into another educational program.

Although the College Restoration Program does not guarantee a participant readmission to his or her former college or status as a transfer student at another school, the center does provide recommendations and resumes of student achievement in the program to colleges upon request of the student.

For more information contact the Learning Development Center (716) 475-6682.

College Anticipation Program

The College Anticipation Program is designed for the college-bound high school graduate who desires further skill development before matriculating in a full college program.

Applicants are interviewed and diagnostic and achievement tests are administered. Once the educational diagnosis has been analyzed, and it has been determined that the College Anticipation Program is appropriate for the student, an individualized program is designed.

The program runs for one RIT academic quarter and generally includes a content course, LDC instruction and academic counseling. The work is based on a system of established deadlines and immediate evaluation of progress.

Participation in the program cannot guarantee that a student will be admitted to the college or university of his or her choice, however, professional resumes of student achievement in the program are sent to colleges upon request of the student.

During the summer the center runs a special five-week College Anticipation Program for high school graduates entering college the next fall. Students in the summer program take a credit course from the RIT College of Liberal Arts and a block of LDC reading, writing, math and study skills courses. The LDC instructors incorporate the Liberal Arts course reading, writing and study assignments in their "learning-how-to-learn" courses.

For more information contact the Learning Development Center (716) 475-6682.

Learning Assessment Program

The Learning Assessment Program includes a team of diagnosticians who offer individual learning assessments to RIT students. The assessment process (which ranges from one to six, one-hour sessions) combines clinical interviewing and testing to discover cognitive and affective factors that may facilitate or interfere with academic performance.

Cognitive factors examined may include learning style, level of skill development, learning strategies as well as content knowledge.

Some factors that may relate to academic performance include appropriate choice of major, and students' perception of themselves as learners as well as their perception of the quality of their environmental, social and personal lives at RIT.

Results of an assessment enable a diagnostician and a student to discover how these factors affect the student's performance, and the diagnostician can then direct the student to appropriate services at the Institute. Students are often referred to this program by advisors or instructors, but need not be referred to take advantage of the services.

Students may contact the Learning Assessment Program through the Learning Development Center (716)475-5513.

Counseling Center

The Counseling Center, located in Grace Watson Hall, offers a variety of services to RIT students. These services include:

- Personal/Psychological Counseling
- Career Counseling
- Career Walk-In Center
- Career Resource Center
- DISCOVER (a computerized guidance system)
- IMPACT: Alcohol/Drug Assessment, Referral and Educational Services
- Developmental Programs and Groups
- Testing
- REACT: Rape Education and Counseling Team
- Consultation

Counseling Center hours
Counseling Center hours are 8 a.m. to 5 p.m., Monday, Tuesday, Thursday; 8 a.m. to 8 p.m., Wednesday; and 8:30 a.m. to 4:30 p.m., Friday. Services are confidential and free. For more information about services, please call 475-2261.

Personal/psychological counseling
Individual and group counseling are available for students who could benefit from meeting with a counselor to explore, for example, more effective ways of dealing with conflict and stress, managing feelings and emotions, developing satisfying relationships, communicating with others, or coping with personal crises.

Career counseling
Counselors can assist students in making thorough appraisals of their interests, abilities, and personality traits so that they can use this information in developing educational and vocational plans. Tests of aptitude, interest, and personality may be used in this assessment process.

Career Walk-In Center
Walk-in assistance is available to students with informational needs related to occupations, colleges, graduate schools, and selection of RIT courses/majors. Appropriate referrals may be made to other Counseling Center services, campus departments or off-campus resources. Call 475-2261 for hours of operation.

Career resource center
Located in the reception area of the Counseling Center is a Career Resource Center which contains occupational information on a variety of careers, vocational and educational reference books, and college catalogs on microfiche.

DISCOVER
DISCOVER is a career guidance system that uses a computer to help users learn more about:
- the career planning and decision-making process
- themselves, especially their interests, abilities, and work-related values
- careers that may be appropriate based on interests, abilities, and/or values
- the world of work, including descriptions of over 40 occupations
- graduate and professional school opportunities

Developmental programs and groups
The Counseling Center staff offers groups each quarter that assist students in their development. These groups offer a supportive environment in which to explore a variety of issues that typically affect the lives of students—such as forming relationships, handling loss, managing stress, clarifying values, and choosing careers.

In addition, Counseling Center staff members will present special programs to student groups and organizations. Presentations include communication skills, team building, leadership development, and goal setting. Individuals should contact the Counseling Center at least three weeks in advance of program date.

Testing
The Counseling Center administers a number of psychological tests and inter est inventories as part of the counseling process for some individuals. In addition, the Counseling Center administers a number of national tests. Advance credit exams (CLEP) are also given.

Rape Education and Counseling Team (REACT)
REACT, jointly administered by the Counseling Center and the Department of Campus Safety, provides assistance to members of the RIT community who are victims of sexual assault (e.g., rape, attempted rape, sexual abuse, physical or verbal harassment, etc.). It is a confidential service staffed by specially trained volunteer counselors drawn from RIT's faculty and staff.

IMPACT
Alcohol & Drug Education & Prevention program: Individual assessment and referral services are available for persons having concerns about their (or other's) use or abuse of alcohol or other drugs. Educational workshops are also available. Student groups and organizations should contact the IMPACT office at 475-7081 three weeks in advance of scheduling the program.

Consultation
Staff members of the Counseling Center will provide consultation services to interested student groups and organizations in a number of areas within their scope and expertise.

NTID Psychological Services
NTID Psychological Services provides confidential mental health counseling and assessment to all deaf students requesting assistance. Psychological Services staff members work closely with RIT Student Health Services, the RIT Counseling Center, and RIT's Office of Residence Life.

Some concerns that students may need help in resolving include adjustment to deafness, depression, anxiety, family conflicts, intimate relationships, and sexual and personal identity matters. Workshops, discussion groups, and group counseling experiences on topics such as stress management, dating/relationships, and assertiveness training also are offered to assist students' mental health growth and development.

Psychological testing and assessment are available to students whose personal/social problems affect their academic performance. Consultation often is done with faculty and staff members so that students are assisted in planning remedial programs that emphasize their academic as well as personal needs.

A 24-hour emergency crisis inter vention service for students experiencing mental or emotional trauma is provided in conjunction with Campus Safety and NTID Interpreting Services.

Special Services

Higher Education Opportunity Program

The Higher Education Opportunity Program is a New York State- and Institute-funded service that qualifies students for additional financial and academic support for up to five full years, not including co-op. This supplemental assistance is available for students who need extra time to complete their academic requirements. While both New York State and the Institute provide financial support, HEOP students must also qualify for TAP and PELL, and be personally responsible for loan and college work study contributions. The HEOP program is dedicated to each individual student's academic success and personal growth.

To qualify, a student must meet strict academic and financial guidelines set by New York State Education Department prior to attending college. Any student who has taken college courses following high school graduation, matriculated or not, is ineligible. Students must have graduated from high school or the equivalent, and they must be New York State residents. Transfers are eligible if they are coming from a like program at another institution in the State: HEOP, EOP, SEEK, or College Discovery. Transfers must apply to and be accepted by both the HEOP office and the Admissions office for entrance. Space in the program is limited.

Services for all students include personal, academic, financial, and career counseling. Tutoring is available in all subjects, and the HEOP staff act as campus resources and advocates. Students accepted as freshmen must attend a six-week summer program prior to fall entrance. They live on campus and attend a selection of skills building classes carefully designed to facilitate their entry into standard RIT courses.

Throughout its 18 years on the RIT campus, HEOP has been applauded for its high graduation rate. Inquiries in regard to the program should be directed to (716) 475-2221.

Office of Special Services

Pursuing a college education is a major challenge. The goal of the Office of Special Services is to provide the necessary academic and personal support that will enable students who qualify to fully realize their potential and to successfully complete their college career.

The Office of Special Services is a federally funded program that has been hosted at RIT for 13 years. Presently, there are four components that make up the office. Each has a distinct purpose while remaining integrally linked with the others.

The Academic component has developed a full complement of services including tutoring, math mentoring, advisement and skills development, which assist students with academic concerns, enable them to understand and refine their learning process, and to use academic resources more effectively. The academic staff help students develop success strategies and experience positive responses to academic endeavors.

The Counseling component works to bring students into the program and provides the appropriate personal support that enables them to direct their energies into positive pursuits. Understanding that each student brings a unique set of circumstances to the learning environment, a counselor assists the student in understanding all that is available to him or her and how to access the assistance each may need. A counselor also is available to work with students on areas of general concern.

The Programming component provides complementary experiences that enhance the student's academic and personal perspectives by drawing on RIT and other community resources. When used effectively, this component can provide the student with new opportunities for personal and professional growth.

The Disabled Student component deals with a broad range of issues faced by students with disabilities. The staff provides services related to academic and physical accessibility, and works to raise the awareness of the RIT community.

The ultimate purpose of the Office of Special Services is to help students meet their unique challenges and become a part of the larger community. We work to make systems work. We often serve as a bridge between the learning community that we create and RIT. The success we pursue is the development of the student as a whole person, able to negotiate the environment using his or her resources.

For further information, contact the office at (716) 475-2832 or 2833. The office is located in the RITreat in the Student Alumni Union. Eligibility for the program is determined by financial aid, physical or learning disability and first generation college status. Any full-time, undergraduate student who is a United States citizen and meets one of the eligibility requirements may become a member of Special Services.

International Student Affairs

The Office of International Student Affairs is the resource center for all hearing and deaf international students on visas and for those members of the campus community seeking cross-cultural learning. The office provides assistance with immigration regulations and travel documents, helps international students adjust to the academic and cultural expectations in the U.S. and provides cross-cultural programming for international students and the campus at large. The staff works closely with RITISA, the international student organization and International House, which is a special interest house in the residence halls for both international and American undergraduates and serves as a liaison with off-campus groups which seek to extend friendship to international students. The office is located on the second floor of the George Eastman Memorial Building. The phone numbers are 475-6943 and 475-6876.

International student emergency loan fund
This fund is administered by the International Student Affairs office and its purpose is to provide emergency assistance to international students on visas. The loans may not exceed $200 and must be repaid within two months. Students must have a good record of payment with the Bursar's office and no unpaid previous loans from the fund to be eligible for a loan. This loan and the International Student Scholarship fund are supervised by the International Student Scholarship Committee. Further information regarding loans or scholarships can be obtained from the International Student Affairs office.

Veterans' Affairs

Active service persons, reservists, members of the National Guard, veterans and their dependents begin their educational programs in RIT's Office of Veterans' Affairs (OVA). We know that the transition from the military to a successful civilian career is dependent upon proper preparation, and education is the key to this transition process.

"Our veterans realize the value of education and they undoubtedly try harder," says Gene Clark, director of Veterans' Affairs. "They have proven that a student's level of maturity and interest in self-development are key factors in achieving his or her goals." Veterans attending college usually have the added responsibility of a family, the added financial pressures of maintaining a home and often work at a full-time job. Because of these demands, veterans attending college need several types of assistance. "Our veterans are dependent on our ability to service their needs," says Clark. "They come to the OVA for counseling, information, assistance with problems, tuition deferments, or just to say hello. Our OVA staff members are veterans too, so veterans helping veterans is an important aspect of our services."

The OVA staff is comprised of a director, program secretary, peer counselors, and VA work-study students, who are available to handle inquiries and assist veterans with VA-related and college-related information. The OVA is conveniently located on the lower level of the College-Alumni Union and is easily accessible for both day and evening students. The office is open from 8 a.m. to 8 p.m., Monday through Thursday, and until 4:30 p.m. on Friday. Students may visit the office or telephone (716) 475-6642 to speak with an OVA counselor.

Veterans are important to the RIT community. They bring unique experiences and expertise to the campus. Consequently, the Office of Veterans' Affairs is very interested in helping veterans become successful students at RIT. Veterans who are planning on attending college should consider the difference that a campus Veterans' Affairs Office can make. Students coming from schools unable to assist a veteran population's needs find RIT a model place to begin and continue their education.

"Benefit programs are often seen as complex, confusing and problem related, but successful contact with our veterans has proven that VA problems can be effectively dealt with before they have a negative impact," maintains Clark. "We are concerned that many veterans, as well as the dependents of deceased and disabled veterans, are not utilizing their benefits. Benefit payment rates have recently increased and the length of eligibility extended to 10 years for program completion. We encourage veterans and their family members to contact us if we can provide assistance as they explore the many educational opportunities available to them at RIT."

Complementary Education

Viewed as a valuable dimension of the student's education at RIT, Complementary Education formally recognizes and encourages important experiences that happen outside the classroom that complete and enhance the traditional academic activities of the Institute. Its essential aim is to further the personal development of students. It will supplement their curricula in four broad content areas: personal and social development, learning skills development, civic competence, and leisure and avocational skills.

Complementary Education is multifaceted. The Complementary Education Grants Program makes funds available to students, faculty and staff who want to develop unique kinds of experiences. These projects are cooperatively planned and facilitated by students and faculty.

Some specific programs that make up the total Complementary Education concept include the Community Services Program, which provides students with opportunities to volunteer in campus-organized community projects as well as in non-profit agencies in Rochester; the Group Development Program, which offers student groups an opportunity to look at their self-awareness, communication skills and group dynamics; the Outdoor Education Program, which offers an intriguing way to learn decision making and group interaction skills using the outdoors as a classroom; and the Leadership Program, which emphasizes an in-depth look at individual leadership strengths. Participants have an opportunity to examine their own skills, receive feedback, and develop self-esteem. Each of these activities offers formal learning before the event takes place and evaluation and processing of the experience. Students will have the chance to expand their learning environment. These programs also serve to increase the interaction of hearing and deaf students.

In addition to these programs, the staff in Complementary Education has been involved in the development and facilitation of Freshman Seminar courses created to assist new students in their adjustment to college life. These required experiences focus on awareness and appreciation of diversity; the development of communication skills; an increased knowledge of academic and student life services; as well as an opportunity for increased knowledge of self and academic and career options.

Campus Life

What happens in the classroom is one part of a college education. But what happens outside the classroom can be just as important.

The Division of Student Affairs at RIT coordinates many services provided to students during their years at college.

The division includes Physical Education, Intercollegiate Athletics, Residence Life, Student Health Service, Student Activities, International Student Affairs, College-Alumni Union, Religious Activities and the Chaplaincy, Counseling Center, Higher Education Opportunity Program (HEOP), Orientation and Special Programs, Upward Bound, Special Services, Judicial Affairs and Horton Child Care Center.

Life on campus is a living, as well as a learning, experience. Students, with the counseling of trained resident staff, have their own governing organizations and develop social programs. A wide variety of athletic, social and professional activities is available for all students.

Student Housing

The residence halls

The Department of Residence Life provides a living environment for approximately 3,500 students in residence halls. Part of the Division of Student Affairs, the department has as its primary goal the development of a residential setting consistent with the overall educational philosophy of the Institute.

RIT recognizes the significant effect the on-campus living environment has on the social, academic, educational and overall development of the student. The aim of the Residence Life Department is to create a positive environment to promote this development.

All first-year students are required to live in the residence halls, except those who live with their families within a 30 mile radius of RIT. All sophomore students are required to live in either RIT residence halls or apartments. Resident students enrolled in cooperative programs are charged only for the period of occupancy. Each student is required to sign a Room and Board Request and Assignment Form, which is included in the housing information mailing. All students are required to live in residence halls for the full academic year (fall, winter, spring).

RIT realizes that the student body is not homogeneous and that students have diverse interests, backgrounds, experiences, needs and maturity. In recognition of this, a variety of living options is available. Many residence areas are coeducational; men and women live on the same floor. Many Greek organizations (fraternities and sororities) have their own houses. There are also academic houses in art, computer science, engineering and photography; International House for both international and American students; Unity House, which emphasizes the development of black culture; and Community Service Clubhouse where members volunteer their time to groups on and off campus.

Most residence hall units have double rooms only, although some units do include a limited number of single rooms. These single rooms are not available to entering students. During Fall Quarter most entering students may be assigned to triple rooms (a double room which has three students living in it). We immediately start detripling (making these double rooms again) as quickly as possible.

All corridors and rooms are carpeted. Bed, desks, chair, dressers, closets and window covering are provided depending on the number of students in a room. Each corridor in the unit has its own bathroom, equipped with showers. Suites are available, composed of three bedrooms connected to a common bathroom, only in the Ellingson/Peterson/Bell area. Each house has its own lounge furnished with a TV. Coin-operated laundry facilities are available.

Several residence halls are equipped with visual emergency warning systems for deaf students. The Intercom facility and the 24-hour desk in Mark Ellingson Hall provide students with TDD (telecommunication device for the deaf) and interpreter-assisted telephone services. Several public pay phones equipped with TDDs also are available throughout the RIT campus. A limited lending system for portable TDDs is available.

Each student is furnished with information on residence hall living by the Department of Residence Life.

All residence hall students must participate in one of the Institute board plans. The charges for residence and meals are included in the section on student expenses.

Apartment housing

RIT's Apartment Life program is one of the nation's largest university-operated apartment systems, with approximately 2,800 students residing in nearly 1,000 individual townhouse and apartment units. Apartment housing is available to all upperclass students in the four Institute-owned and operated apartment complexes. Sophomore students are required to reside on campus in either residence halls or an RIT apartment, except those who live with their families within a 30 mile radius of RIT. While single students comprise the majority of apartment residents, a mixture of graduate and undergraduate students, single and married students and faculty/staff can be found in each apartment complex. Contracts run September through August, but residents are permitted to leave for co-op employment and summer without penalty. All apartments are equipped with refrigerator and stove but are otherwise unfurnished. Furniture, however, may be leased from local rental companies. All Institute apartments are located less than a mile and a half from the center of campus and are serviced by RIT's shuttle bus system. A brochure describing the four complexes—Colony Manor, Perkins Green, Riverknoll and Racquet Club—is available from the Office of Apartment Life, Kate Gleason Hall, P.O. Box 9887, Rochester, N.Y., 14623;(716) 475-6920.

The Housing Connection

A service of the Department of Apartment Life, The Housing Connection is designed to meet the general housing needs of the RIT community. The center provides free referrals for students looking for Institute or off-campus housing accommodations in the Rochester area. In addition, the center offers the only on-campus clearinghouse for apartment residents in need of additional roommates, providing a continual updated listing of available roommates and their specific interests.

Located on the first floor of Kate Gleason Hall (room 1060), The Housing Connection provides free maps, information pamphlets, and telephones for users of this service. A trained staff member will assist you in your research for housing or roommates. For more information, stop in or call 475-2575.

New Student Orientation

Each year, RIT provides freshman and transfer students with summer and fall orientation programs designed to help them make the adjustment to life in a new environment. These programs are developed for both students and parents and address the academic, social, emotional and intellectual issues involved in beginning college or changing from one college to another.

Three Summer Orientation programs are offered, one specifically for transfers in June, and two for freshmen in mid-July. Summer programs concentrate on registration for classes, academic information, support services provided by the Institute, housing information and the opportunity to meet other new students. The fall program continues the academic information process and concentrates on promoting student interaction and community development. While the summer programs are not required, students are strongly urged to attend both the summer and fall programs to derive the greatest benefit.

During the fall Orientation, new students receive a copy of *The Source,* the official new student handbook of RIT. This important publication contains valuable information on Institute services and programs.

All students are encouraged to live in the RIT residence halls during the summer programs. This live-in experience is designed to allow all students to sample on-campus living regardless of their long-range housing plans.

Parents' orientation is offered only during the summer programs. There is a small parent orientation fee to support the program.

All new, full-time, day, matriculated students are assessed a program fee to cover program development costs.

The Office of Orientation and Special Programs is located on the A-level of the Student Alumni Union, and is open 8:30 a.m.-4:30 p.m., Monday through Friday. The phone number for Orientation is (716) 475-2508.

Student Clubs and Organizations

Student Directorate
The Student Directorate is the governing body for students. It represents the student population by working with RIT administration, faculty and staff to communicate the needs and desires of the student body and to communicate the decisions of the administration to the students. It pulls together the student body to formulate and express student opinion and the Student Hearing Board, which provides for the self-discipline of the student body.

All full-time and part-time under graduate and graduate students are members of the Student Directorate when they pay the Student Activities Fee. All other students may become members of the Student Directorate if they wish to participate in student-sponsored activities by paying the Student Activities Fee.

NTID Student Congress
The NTID Student Congress (NSC) is an organization of and for deaf students. NSC helps interested students communicate their needs, ideas, and concerns about campus life to faculty members, administrators, and other student organizations within RIT; provides opportunities for developing new leadership skills; and encourages student activities on campus and integration by providing deaf students with opportunities to interact with hearing students socially, academically, athletically, and culturally. NSC is divided into six areas: academic, athletic, cultural, legal and organizational, public relations, and social affairs.

Off Campus Student Association
OCSA is the representative student government for all RIT students who do not reside in a residence hall. The Off Campus Student Association, formed in 1978, is composed of off-campus students who live with their parents, the four RIT-operated apartment complexes or off RIT campus apartments. Through the council, a standing Housing Committee has been set up to deal with the varied housing problems that RIT students may face. The council is the voice of the off-campus students to the administration.

OCSA also has many student committees that work on programming for the off-campus student and provide needed services such as lockers, a satellite office and off-campus survival booklets. The OCSA lounge, located in the RITreat, Student Alumni Union, is a place for the off-campus student to relax. OCSA also publishes a newsletter that contains beneficial off-campus news.

If you are interested in getting involved, stop in at the OCSA office or call 475-6680 for more information.

The College Activities Board
The College Activities Board, which is composed of students, staff advisors, and a student activities staff representative, is responsible for providing a balanced program of activities that reflect and enhance the special social, cultural, recreational and educational needs of the campus community. If you are interested in getting involved, stop by the office, CAU-A251, or call -2509.

The Black Awareness Coordinating Committee
The Black Awareness Coordinating Committee is organized to foster an awareness of the role of black men and women in the toted society and to create a greater understanding among black students at RIT. Each year the committee sponsors various social and cultured programs designed to achieve these objectives.

Student professional associations
A number of national technical associations have student affiliate chapters on campus. Frequently sponsored by parent chapters in Rochester, these societies play an important part in Institute life by bringing together students who have common interests in special subjects. The associations serve a professional and social purpose.

Student publications
RIT students produce some of the most professional collegiate publications in the country.

The *Reporter* is published by students weekly, except during examinations and holidays, and serves as the student news magazine. *Tichmila,* the student yearbook, contains a student-edited pictorial and written description of student life at the Institute during the year. The *Reporter* and *Tichmila* have consistently won state and national awards.

A monthly calendar listing campus activities, "The CalendaRIT," is distributed to all academic buildings, the Student Alumni Union, Wallace Memorial Library, and Grace Watson Dining Hall.

These publications draw their talented staffs—artists, photographers, writers, managers and printers—from the entire student body.

Publications produced by deaf students include *Rolling Bricks,* a literary/art magazine; *Eagle Eye,* a newspaper published several times each quarter; and *NTIDLife,* the college's yearbook.

Student Alumni Union

The Student Alumni Union, a primary focal point at the main entrance to the academic plaza, is designed specifically to service events sponsored by and for the entire campus community—students, faculty, and administrative groups, alumni and guests. A staff is available to assist and advise the various individuals and groups in planning and coordinating their activities. In addition, a complete information service is located in the main foyer.

The three-level facility, the center of cocurricular activities, features the 507-seat Ingle Auditorium; a complete gameroom for bowling, billiards, foosball, and electronic games; a unisex hairstyling salon & tanning booth; a candy and tobacco counter; three separate dining areas comprised of the main cafeteria, the Ritskeller, and the Clark Dining Room; meeting rooms and lounges. The offices housed also include Special Services, Student Affairs, Orientation, Complementary Education, the Black Awareness Coordinating Committee, the Office of Minority Student Affairs, Food Services, Veterans' Affairs, College Activities Board, Student Activities, Student Directorate, WITR radio station, RITV, *Techmila, Reporter,* Off-Campus Student Association, and other student organization offices.

The RITreat

The RITreat is more than just a lounge. Through the efforts of the Student Life Advisory Board and several other student groups and individuals, the RITreat is a dedicated student area. The following resources can be found in the RITreat:

- Clubs and organizations space
- Copiers/typewriters/word processors
- Stamp machine
- Shuttle bus and RTS monitor
- Special Services
- Office of Minority Student Affairs
- Student conference room
- Student Directorate office
- Mailfolder for SD clubs, organizations
- Off-Campus Student Association
- Study tables/lounge area
- TV lounge
- Meeting room on 2nd floor

Social events

Major social events on the activities calendar include Fall Weekend, Spring Weekend, Parents Weekend, and Winter Weekend.

Other dances, parties, speakers and events are sponsored by other organizations such as the College Activities Board, the Residence Hall Association, the Greek Council, and various special interest clubs. Students can also get involved with departmental and professional associations such as Alpha Chi Sigma, Delta Lambda Epsilon, Delta Sigma Pi and Sigma Pi Sigma. Greek Council consists of members of three national sororities and thirteen national fraternities which offer social activities and promote high scholastic and social standards among members.

Performing arts

The Department of Student Activities and the Creative Arts Committee supports a variety of activities.

- The RIT Singers is open to all RIT students, faculty, and staff—no auditions necessary! Classical and popular music, produces joint concerts with RIT Philharmonia and Jazz Ensemble. Performs on campus for award ceremonies, Parents Weekend, Holiday Concert, and more. Jointly produces the bi-annual popular musical with Philharmonia. Participates in Rochester's Intercollegiate Choral Festival.
- The RIT Thursday Afternoon Consort is selected through auditions; this small chamber ensemble performs madrigals and other small ensemble music of the Renaissance and Baroque periods. Players of "old" instruments are also welcome.
- The RIT Men's Octet, selected through auditions, is an ensemble of eight singers, comprised of four tenors and four basses.
- The RIT Philharmonia is open to all RIT students, faculty and staff and musicians from the surrounding area. No audition necessary! Classical and 20th century masterworks by Beethoven, Handel, Bach, Schubert, and more.
- The RIT Woodwind Quintet is selected through auditions; this ensemble of five musicians (flute, oboe, clarinet, horn, bassoon) performs music from the standard woodwind quintet literature. Performances are for special events both on and off-campus.
- The RIT Brass is selected through auditions and is a small ensemble of brass instrument players (trumpets, horns, trombones, baritones, tubas). It performs a variety of music from the Renaissance period to the 20th century. Performances are both on-campus and in Rochester.
- The RIT Gospel Ensemble is open to all RIT students, faculty and staff. Black spirituals, modern gospel songs, interdenominational anthems and hymns are the specialty of the RIT Gospel Ensemble. They perform frequently on campus, including bi-weekly performances at the Interdenominational Gospel Worship Services in the Interfaith Chapel, and an anniversary concert.
- The RIT Jazz Ensemble, selected through auditions, is a spirited ensemble of jazz musicians. The group consists of trumpets, trombones, sax, piano, drums, bass, and guitar. Repertoire includes traditional big band music of Count Basie, Duke Ellington, and Woody Herman, as well as contemporary music of such groups as Spyro Gyra. Major concerts are held quarterly with periodic special appearances in the Ritskeller.
- The RIT Musical is featured every other year. The RIT Performing Arts Program launches a major popular musical for the enjoyment of the RIT community. Members of each of the major performing arts groups—RIT Philharmonia, RIT Singers and Jazz Ensemble—participate in the production. Open auditions are also held for all RIT students, faculty, and staff.

NTID's Department of Performing Arts also supports a variety of activities that offer students training and experiences in theater, music, and dance.

- The department presents three plays during the year. These use deaf and hearing actors working together and are performed in both sign language and voice.
- Guest artists are invited to perform in the Robert F. Panara Theatre. For example, the National Theatre of the Deaf typically performs each year.
- The NTID Lab Theater offers experimental, new, or unusual productions.
- *Sunshine Too* is an outreach company of three deaf and three hearing performers who provide entertainment and information about RIT and deafness. The group travels throughout the country from September to May presenting shows and workshops for schools, alumni groups, special RIT groups, and the general public.

- The RIT Dance Company includes deaf and hearing dancers who perform at least one concert each year. The company rehearses throughout the year.
- NTID's Music Combo is composed of deaf music students who perform contemporary music at RIT and community events.
- RIT Tiger Band combines RIT and NTID students, faculty, and staff and community members who perform a variety of music at various sporting events, ceremonies, dedications, and student activities.
- RIT Tiger Band Auxiliary Squad members are recruited from the RIT student body to perform flag, rifle, and drum line routines with the RIT Tiger Band.
- RIT Time Stompers perform music of the 1890s-1940s, Dixieland jazz, and danceband styles. The group performs at various events including receptions, dinner parties, and ceremonies.
- RIT Trombone Choir and RIT Flute Choir ensembles perform at various events such as receptions, dinner parties, and ceremonies.

Religious Activities

Although RIT has no formal religious affiliation, it has recognized the importance of religion in educating the whole person by establishing Campus Ministries as a department within the Division of Student Affairs. Campus Ministries welcomes and encourages all religious denominations to join together to serve the needs of individual faiths as well as all the members of the RIT community with their religious, ethical and personal concerns. All religious activities at RIT are sign language interpreted for deaf individuals.

RIT's Interfaith Center, on the east side of the Student Alumni Union, is the focal point for the diverse religious traditions within the Institute community.

The center's two levels offer areas for worship, reflection, lectures, and meetings. Administered by Campus Ministries, the center also houses offices for the department's director and for each campus minister. The offices are open from 8:30 a.m. to 9 p.m., Monday through Thursday, and Friday from 8:30 a.m. to 6 p.m., to accommodate evening activities. Saturday and Sunday hours for the center are determined by scheduled activities. Campus ministers may be contacted at 475-2135 (Voice/TDD) or by coming to the center during regular hours.

Various religious traditions have assigned campus ministers to the Institute to serve the needs of students, faculty and staff of their particular faiths. Campus ministers offer opportunities for worship, personal counseling, religious study, social services and dialogue to the entire Institute community. The ministers are available at the Interfaith Center to discuss options for campus activities and to assist in developing programs. There are also student organizations recognized as religious clubs by the RIT Student Directorate. Although not directly affiliated with the Department of Campus Ministries, these religious clubs adhere to the same Institute guidelines for religious activities.

Physical Education

Rochester Institute of Technology recognizes the need for physical fitness and recreation in today's society. To meet this demand, the Institute offers an exceptional program of courses designed to aid the student in developing and maintaining fitness, acquiring physical skills in a variety of lifetime activities and providing principles and elements for utilizing free time in an enjoyable and constructive manner.

The PE requirement is built on the premise that the attainment of good health and fitness are basic elements in the pursuit of excellence in many aspects of campus life. The learning experiences provided through the physical education curriculum are an integral part of the total educational experiences at RIT.

Institute's PE Policy

Baccalaureate Degree—All candidates for the baccalaureate degree entering as first or second year students must successfully complete six quarters, or the equivalent of two years, of physical education. This requirement is normally met during the first and second years at RIT, but may be completed at any time during succeeding academic quarters.

Those entering as third or fourth year students must successfully complete three quarters of physical education unless they have completed the equivalent of three quarters or more of physical education or earned a baccalaureate degree at another Institution.

Associate Degree—All candidates for the associate degree are required to successfully complete three quarters, or the equivalent of one year, of physical education. This is normally met during the first year at RIT, but may be completed at any time during succeeding academic quarters.

Transfer Credit—One semester of credit at another school equals one quarter of RIT credit; two semesters equal three quarters. Credit for independent activity may be granted if completed within one year before matriculation at RIT and approved by the Physical Education Department. Students who have met requirements may enroll in Physical Education on an elective basis.

Exceptions

Permanent Medical Excuse—This will be granted only by the RIT Student Health Service. One copy of the medical excuse should be filed with the Physical Education Department and the other copy taken to the student's department. Medical excuses from your family physician will not be accepted.
Intercollegiate Athletics—Students participating in the Institute's intercollegiate athletic programs will be granted physical education credit for the season of participation.
Veterans—Students who have completed six months or more of active military duty are not required to participate in the physical education program, but may voluntarily enroll in any course on a space available basis.
Age—Students who are 25 or older at the date of matriculation are exempt from the physical education requirements but may voluntarily enroll in any courses on a space available basis.

In the event a student is unable to fulfill the requirement for either a baccalaureate or associate degree due to extenuating circumstances, the student's academic advisor must be consulted.

Physical Education Classes

Physical education courses are offered during all academic quarters, including summer. More than 60 courses are available during the year. Not all courses are offered every quarter. Registration for Physical Education classes will coincide with the dates and times for the academic departments. A nominal fee is charged in some courses requiring specialized instruction and/or facilities.

The following classes are offered as selections in the Physical Education Department.

Cardiovascular and strength activities
Aerobic Dance, Army Conditioning Drills, Conditioning, Jogging, Judo, Karate, Kung Fu, *ROTC, Swimming for Fitness, Weight Training, Yoga and Tai Chi, *Red Barn Ropes

Recreation and sports activities
Aquathenics, Archery, Badminton, Ballroom Dance, Basketball Officiating, Billiards, Bowling, Canoeing, Cross Country Skiing, Dance Performance I & II, Night Club Dancing, Diving, English Horseback, Fencing, Fishing, Frisbee, Golf, Hunting, Ice Skating, Juggling, Modern Dance, Outdoor Experiential Education, Racquetball, *Scuba Diving, Self-Defense/Women, "Skiing (downhill), Swimming, Tennis, Water Polo, Western Horseback, *Rock Climbing, **Skeet and Trap

Team activities
Basketball, Ice Hockey, Lacrosse, Soccer, Softball, Volleyball, Wallyball

Life support and safety programs
CPR & First Aid, Life Guarding, Water Safety Instruction, Health/ Mind-Body Connection

Intramural Activities

An extensive program of intramural activities is offered at RIT. Under the direction of the Department of Physical Education, Recreation and Intramurals, activities include co-rec, men's and women's teams in basketball, volleyball, softball, ice hockey, flag football, soccer, innertube water polo, bowling, tennis and golf.

Recreation

RIT offers some of the finest recreational facilities available in colleges today. Indoor facilities feature two gymnasiums, ice rink (with running surface around upper level), swimming pool, air support structure with three multipurpose courts, physical fitness and weight training center, recreational equipment room, wrestling room and game room (bowlingj video games, billiards). Outdoor facilities include 12 tennis courts, an all-weather track and numerous athletic fields. The equipment cage provides quality equipment for recreation, physical education instruction and intramural needs and interests. Services offered include: general information center, issuance of guest passes, equipment loan-outs and lost and found. The Recreation Department also provides a series of health education and exercise programs throughout the year.

Intercollegiate Athletics

For eight decades, intercollegiate athletics has developed a tradition of excellence at RIT. The Institute's heritage in competitive athletics is a rich one. It has grown to become highly successful and widely recognized on the regional and national levels.

In the past 10 years, RIT has won more than 50 percent of its contests. Some of the men's team accomplishments have come in soccer (eight straight NCAA appearances and runnerup honors in 1988), cross country (four consecutive Eastern College Athletic Conference crowns), hockey (two national championships and three ECAC titles), and lacrosse (four Independent College Athletic Conference crowns in the last five years).

Women's teams have also excelled. Volleyball boasts two straight ICAC crowns and its first NCAA playoff appearance in 1989. Women's tennis is 86-20 since 1980, and women's hockey won its first ECAC title in 1989.

Each year more than 350 athletes take part in 20 varsity sports offered at the Institute. Fall competition features men's cross country, men's and women's soccer, women's volleyball, and women's tennis. Winter sports include men's and women's basketball, swimming, hockey, indoor track, and wrestling. Spring competition includes baseball, men's and women's track, lacrosse, softball, and men's tennis.

A National Collegiate Athletic Association (NCAA) Division III member institution, RIT competes against schools in the Northeast with similar academic and intercollegiate athletic philosophies. Known as the Tigers, RIT is also a member of the Eastern College Athletic Conference, Independent College Athletic Conference (ICAC), and New York State Women's Collegiate Athletic Association (NYSWCAA).

Since 1970, RIT has been a member of the ICAC, which also includes Alfred University, Clarkson University, Hartwick College, Hobart and William Smith Colleges, Ithaca College, Rensselaer Polytechnic Institute, and St. Lawrence University.

ICAC men's and women's soccer champions receive automatic berths in the post-season NCAAs, and the conference is consistently well-represented in numerous national championships.

Support Services for Deaf Students in Physical Education and Athletics
NTID's Physical Education and Athletics Support Team provides support services for deaf students on intercollegiate teams and those involved in physical education classes and intramural activities. It also provides direct instruction in physical education courses and ongoing in-service instruction, both formal and informal, to physical education teachers and athletic coaches regarding deafness and deaf/hearing interaction.

Student Health Service

Student Health Service provides primary level medical care on an outpatient basis. The staff includes physicians, medical nurse practitioners, registered nurses, and an interpreter for the deaf. Some specialties—psychiatry, gynecology—are available on campus by appointments. In addition, Student Health Service provides health education programs.

Student Health Service is located on the second floor of the Administration Building. Students are seen on a walk-in basis (Monday through Friday, 8:30 a.m. to 4 p.m.; to 4:30 p.m. for emergencies). Appointments for follow-up treatment are arranged when necessary. A registered nurse is on duty in Nathaniel Rochester Hall in the evening(4:30 to 10:30 p.m.; to 11 p.m. for emergencies). On Saturday and Sunday, a medical provider is available from 10 a.m. to 3:30 p.m. (to 4 p.m. for emergencies) in Nathaniel Rochester Hall.

For emergency transportation, the RIT Ambulance is available. The unit can be reached through Campus Safety at 475-3333.

A Student Health fee per quarter is mandatory for all full-time undergraduate students. All other students may pay either the quarterly fee or a fee-for-service. Some laboratory work ordered through Student Health Service is not covered by this fee; there is a nominal charge for this service. Prescription medicines may be obtained from local pharmacies. The health fee does not include prescription medications.

The Institute **requires** students to maintain health insurance coverage as long as enrolled as a student at RIT. Students may obtain coverage either through RIT or their personal coverage.

Questions about Student Health Service or health insurance should be directed to the office (475-2255).

Health Records

Medical records are confidential. Information will not be released without the written consent of the student. Exceptions to this rule are made only when required by the public health laws of New York State.

Additional Resources

Campus Stores

RIT operates two campus stores in the main campus.

The main store, Campus Connections, is located on the west side of the Student Alumni Union. It consists of two selling floors and is divided into eleven departments.

1ST FLOOR:	Clothing and Accessories
	General Reading and Reference Books
	Gifts and RIT Insignia Shop
	Stationery
	Print, Poster and Framing Shop
	Supplies—school, office, art, engineering
	Home Accessories
2ND FLOOR:	Photography and Electronics
	Products for the hearing impaired
	Computers—hardware, software, accessories, computer furniture
	Course books—textbooks, study guides, etc.
	Sporting apparel and equipment, tickets for RIT hockey games

Store hours are:

Monday through Thursday, 8:30 a.m. to 8:30 p.m.; Friday, 8:30 a.m. to 4:30 p.m.; Saturday, 11 a.m. to 4 p.m.

Campus Connections accepts cash, checks, and charge cards (VISA, MasterCard) for payment. Certain students may have arrangements with a government agency to pay for some of their books and supplies; this is handled at our service counter on the first floor.

The Candy Counter in the lobby of the Student Alumni Union is where candy, tobacco products, notions, sundries, magazines, daily newspapers, snack items and tickets for most campus events are sold. Film for processing can also be dropped off there.

For current information about store hours and special sales, call Campus Connections Info Line at 475-6033.

Campus Safety Department

The Campus Safety Department is a professional security agency that serves and protects the college community 24 hours a day, seven days a week. RIT does not assume liability for lost or stolen personal effects of students, faculty or staff. Students are encouraged to maintain an insurance policy on their own through a family insurance program.

The Campus Safety Department, located in the Grace Watson Dining Office, Building 25, offers a variety of services including: preventative safety measures; criminal investigations; lost and found property services; motorist assists; emergency family notification; and emergency assistance related to injury, illness, motor vehicle accidents and occurrence of fire. The department also offers educational and awareness programs that include: fire safety; alcohol/drug awareness; personal safety; crime prevention; and sexual assault.

There is a campus-wide network of courtesy phones, which automatically dial to campus safety to lend assistance.

You can contact the Campus Safety Department at these numbers:

General Information	475-2853
Parking Information	475-2074
Escort Service	475-2853
Lost and Found	475-2074
Emergency	475-3333
TDD (General or Emergency)	475-6654

Vehicle Parking and Registration

All New York State motor vehicle traffic laws are in effect on the RIT campus. RIT vehicle regulations supplement state laws. All drivers on RIT properties must make themselves aware of and abide by these regulations. These regulations require that all vehicles operated on the RIT campus by students, faculty and staff must be registered with the Campus Safety Department.

Failure to register a vehicle parked on campus will result in a fine. There are fines for other infractions of regulations as well. Fines are payable at the Bursar's Office in the George Eastman Memorial Building.

Questions regarding parking regulations should be addressed to the Parking Information Office at 475-2074.

RIT Ambulance

RIT Ambulance is a New York State certified volunteer ambulance service that operates in and around RIT's Henrietta Campus. The organization is an auxiliary of the Student Health Service. Its primary territory includes the main campus, Riverknoll, Perkin's Green, Colony Manor and Racquet Club apartment complexes and the Hilton Inn.

Any student, faculty or staff member of RIT who is at least 18 years of age is eligible to join RIT Ambulance. Although most members eventually become certified emergency medical technicians, minimum requirements are a valid certification in CPR, a valid driver's license with a good driving record, and a sincere interest in ambulance work.

Applications may be obtained and submitted through Student Health Service on the second floor of the George Eastman Memorial Building (administration building). To obtain more information a message may be left at Student Health Service, 475-2255.

Endowed Professorships

College of Business

J. Warren McClure Professorship in Marketing
Established: 1977
Donor: Mr. and Mrs. J. Warren McClure
Purpose: To perpetuate Mr. McClure's professional interest in the field of marketing
Held by: Dr. Eugene H. Fram

College of Continuing Education

Frederick H. Minett Professorship in Continuing Education
Established: 1972
Donor: Mr. Minett by bequest
Purpose: To provide a permanent memorial for Mr. Minett and to recognize his interest in students who obtain their education through the evening division
Held by: Dr. John D. Hromi

Paul A. Miller Distinguished Professorship in Continuing Education
Established: 1978
Donor: RIT Board of Trustees
Purpose: To honor Dr. Miller on the occasion of his retirement as president of the Institute and to give lasting recognition to his standing as an acknowledged authority in the field of continuing education
Held by: Dr. Edward Schilling

College of Applied Science & Technology

Russell C. McCarthy Chair
Established: 1979
Donors: Mr. Fred Gordon, Mr. Lucius Gordon, Mixing Equipment Company and General Railway Signal Company, units of General Signal Corporation, and other friends of Mr. McCarthy
Purpose: To honor Mr. McCarthy as manager of the Industrial Management Council for 20 years and for his role as a champion of and authority on industry and business. Mr. McCarthy served RIT as a trustee and honorary trustee since 1947
Held by: Professor James Forman

College of Engineering

James E. Gleason Professorship in Mechanical Engineering
Established: 1967
Donor: Estate of James E. Gleason
Purpose: To provide a permanent memorial for Mr. Gleason, who served as a trustee of RIT from 1930 until 1964, and to strengthen RIT in the field in which he received his education
Held by: Dr. Richard G. Budynas, P.E.

College of Fine & Applied Arts

Charlotte Fredericks Mowris Professorship in Contemporary Crafts
Established: 1976
Donor: Mrs. Charles F. Mowris
Purpose: To perpetuate interest in the School for American Craftsmen through the work of faculty and students as talented craftsmen
Held by: Albert Paley

College of Graphic Arts & Photography

Melbert B. Cary Jr. Professorship in Graphic Arts
Established: 1969
Donor: Mary Flagler Cary Charitable Trust
Purpose: To provide a permanent memorial for Mr. Cary as a former president of the American Institute of Graphic Arts and to perpetuate his interest in the field
Held by: Professor Mark F. Guldin

Richard S. Hunter Professorship in Color Science, Appearance, and Technology
Established: 1983
Donors: Mr. and Mrs. Richard S. Hunter
Purpose: To enable RIT to increase its research and educational efforts in the areas of color science, technology, and appearance science in order to benefit the industry and science of color
Held by: Dr. Roy S. Berns

James E. McGhee Professorship in Photographic Management
Established: 1967
Donor: Master Photodealers and Finishers Association and friends of Mr, McGhee
Purpose: To provide a permanent memorial for Mr. McGhee, a former vice president of Eastman Kodak Company and lifelong friend of the photofinishing industry
Held by: Professor James E. Rice

Paul and Louise Miller Distinguished Professorship in Newspaper Operations Management
Established: 1979
Donor: Frank E. Gannett Newspaper Foundation
Purpose: To honor the former chairman of the board of the Gannett Company and to perpetuate his interest in good management practices in the newspaper industry
Held by: Professor W. Frederick Craig

Frederick and Anna B. Wiedman Professorship in Medical Imaging
Established: 1985
Donor: Frederick Wiedman Jr.
Purpose: To establish a permanent memorial to Frederick and Anna B. Wiedman, lifelong residents of Rochester and long-time friends of RIT
Held by: Dr. Joseph P. Hornak

College of Liberal Arts

Caroline Werner Gannett Professorship in the Humanities
Established: 1974
Donor: Mrs. Frank E. Gannett
Purpose: To perpetuate Mrs. Gannett's lifelong interest in education, especially those fields of study that have a humanistic perspective
Held by:

Arthur J. Gosnell Professorship in Economics
Established: 1987
Donor: Family and friends of Arthur J. Gosnell
Purpose: To perpetuate the memory of Arthur J. Gosnell through recognition of the importance of good teaching in economics and by facilitating research into public policy questions
Held by: Dr. Thomas D. Hopkins

Ezra A. Hale Professorship in Applied Ethics
Established: 1989
Donors: William B. and Patricia F. Hale and Lawyers Co-operative Publishing Company
Purpose: To establish a permanent memorial to a long-time and valued friend of RIT, Ezra A. Hale, and to provide instruction in applied ethics in keeping with his beliefs in sportsman-like conduct, fair play, and honesty.
Held by: Dr. Wade L. Robison

William A. Kern Professorship in Communications
Established: 1971
Donor: Rochester Telephone Corporation
Purpose: To commemorate the 100th anniversary of that company and to provide a memorial for a former president of the company and a man who served as an RIT trustee from 1959 to 1964
Held by: Dr. Bruce Austin

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Thomas K. Witt, BS, Kansas State University; MS, Rochester Institute of Technology—Acting Manager, Mason E. Wescott Statistics Laboratory
Joseph G. Voelkel, BS, Rensselaer Polytechnic Institute; MS, Northwestern University; Ph.D, University of Wisconsin-Madison—Assistant Professor
Mason E. Wescott, BS, Ph.D., Northwestern—Professor Emeritus, Statistics
Hubert D. Wood,BS, George Washington University; MS, University of Rochester—Assistant Professor

College of Engineering

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Raman M. Unnikrishnan, BSEE, MSEE, Ph.D.—Associate Dean for Graduate Studies and Graduate Research; Professor
Margaret M. Urckfitz, AAS—Assistant to the Dean
Roy S. Czernikowski, BEE, ME, Ph.D.—Department Head, Computer Engineering; Professor
Richard Reeve, BS, MS, Ph.D.—Department Head, Industrial Engineering; Professor
Bhalchandra V. Karlekar, BEME, MSME, Ph.D., P.E.—Department Head, Mechanical Engineering; Professor
Lynn F. Fuller, BS, MS, Ph.D.—Director, Microelectronic Engineering; Professor
Susan A. Hickey—Administrative Assistant to the Dean

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George A Brown, BSEE, Vanderbilt; MSEE, University of Rochester—Professor
Tong-han Chang, BS, Jiao Tong University, Shanghai; Ph.D., Chinese Academy of Science, Peking—Associate Professor
Roy S. Czernikowski. BEE, Catholic University of America; ME, Ph.D., Rensselaer Polytechnic Institute—Professor
Kenneth W. Hsu, BS, National Taiwan Normal University; MSEE, Ph.D., Marquette University; PE—Associate Professor
Ronald G. Matteson, Ph.D., Syracuse University—Associate Professor
V.C.V. Pratapa Reddy, BE.M. Tech., Osmania University, India; Ph.D., Indian Institute of Technology, Madras—Associate Professor
V.C.V. Pratapa Reddy, BE, M. Tech., Osmania University, India; Ph.D., Indi Institute of Technology, Madras—Associate Professor

ELECTRICAL ENGINEERING DEPARTMENT

Joseph DeLorenzo, BS, Alabama; MS, Polytechnic Institute of Brooklyn; Ph.D., Boston University—Associate Professor
Soheil A Dianat, BSEE, Aria-Mehr University, Iran; MSEE, Ph.D., George Washington University—Associate Professor
Roger E. Heintz, BSEE, Michigan Technological University; MSEE, Ph.D., Syracuse—Professor
Mark A. Hopkins, BS, Southern Illinois University; MS, Ph.D., Virginia Polytechnic Institute and State University—Assistant Professor
Bernard A Logan, BS, M.Ed., University of Rochester—Associate Professor
Swaminathan Madhu. MA, University of Madras; MSEE, Tennessee; Ph.D., Washington—Professor
Athimoottil V. Mathew, BEE, Jadavpur University, India; M. Tech., Indian Institute of Technology; Ph.D. Queens University, Canada—Professor
Norman A. Miller, BSc, EE, London University, England—Lecturer
P.R. Mukund, BS, MS, Ph.D., University of Tennessee—Assistant Professor
James E. Palmer, BS, University of Western Ontario; MSEE, University of Pennsylvania; Ph.D., Case Institute of Technology—Professor
David Perlman, BS, MS, Cornell—Associate Professor
Paul E. Petersen, BS, MS, Iowa State UNiversity; Ph.D., Michigan State University—Professor
Mysore R. Raghuveer, BSEE, Mysore University, India; ME, Indian Institute of Science, Bangalore, India; Ph.D., University of Connecticut—Assistant Professor
Sannesi Ramanan, Ph.D., IIT, India—Assistant Professor
V.C.V. Pratapa Reddy, BE, M.Tech., Osmania University, India; Ph.D., Indian Institute of Technology, Madras—Associate Professor

Harvey Rhody, BSEE, University of Wisconsin; MSEE, University of Cincinnati; Ph.D., Syracuse University—Professor
Alton F. Riethmeier, BSEE. Valparaiso University; MSEE, University of Rochester—Associate Professor
Edward R Salem, BSEE, Pennsylvania State; MSEE, Catholic University of America; Ph.D., Buffalo—Professor
Robert Spina, BS, Western Michigan University; MS, Rochester Institute of Technology—Visiting Instructor
David A. Sumberg, BA, Utica College of Syracuse University; MS, Ph.D., Michigan State University—Associate Professor
Fung-I Tseng, BSEE, Taiwan University; MSEE Chiao-Tung University, Taiwan; Ph.D., Syracuse—Professor
I. Renan Turkman, Diplome D'Ingenieur (MSEE); Docteur-Ingenieur, Institut Nationale des Sciences Appliques, Toulouse, France—Associate Professor
Raman M. Unnikrishnan, BSEE, University of Kerala, India; MSEE, South Dakota State University; Ph.D., Missouri—Professor
Dr. Jayanti Venkataraman, BS, MS, Bangalore University; Ph.D., Indian Institute of Science, Bangalore, India—Associate Professor

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S. Cem Karacal, BS, Middle East Technical University, Turkey; MS, Ph.D., Oklahoma State University—Visiting Assistant Professor
Madhu R Nair, BS, Rochester Institute of Technology; MS, Lehigh University—Visiting Instructor
Nabil Nasr, BS, Helwan University, Egypt; MS, Rutgers University; M. Eng., Pennsylvania State University; Ph!b., Rutgers University—Assistant Professor
Sudhakar R. Paidy, BS, Osmania University, India; MSIE, Ph.D., Kansas State University—Professor
Richard Reeve, BS, MS, Ph.D., Buffalo—Professor
Jasper E. Shealy, BS, Georgia Institute of Technology; MS, Ph.D., SUNY at BufTalo—Professor
Paul H. Stiebitz, BS, ME, Rochester Institute of Technology—Assistant Professor
Brian K. Thorn, MS, Georgia Tech.—Assistant Professor

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Nir Berzak, BS, M.Sc., Technion Israel Institute of Technology; Ph.D., Columbia University— Associate Professor
Richard G. Budynas, BME, Union College; MSME, Rochester; Ph.D., Massachusetts; P.E.Gleason—Professor
Robert A. Ellson, BME, City College of New York; MSME, Ph.D., University of Rochester, P.E.—Professor
Jon Freckleton, BSME, University of Rochester; P.E.—Assistant Professor
Hany A. Ghoneim, B.Sc., M.Sc., Cairo University, Egypt; Ph.D., Rutgers—Associate Professor
Amitabha Ghosh, B.Tech, M.Tech., Indian Institute of Technology, India; Ph.D., Mississippi State University—Associate Professor
Surendra K. Gupta, B.Tech., Indian Institute of Technology, India; MS, University of Notre Dame—Associate Professor
Charles W. Haines, AB, Earlham; MS, Ph.D., Rensselaer Polytechnic Institute; Mathematics and Mechanical Engineering—Professor
Robert J. Hefner, BS, MS, Ph.D., Georgia Institute of Technology—Associate Professor
Richard B. Hetnarski, MSME, Gdansk Technical University; MS, Warsaw University; Dr. Tech.Sci., Polish Academy of Sciences; P.E.—Professor
Satish Kandlikar, BE, Marathwada University, India; M.Tech., Ph.D. Indian Institute of Technology—Associate Professor
Bhalchandra V. Karlekar, BE, ME, College of Engineering, India; MSME, Ph.D., University of Illinois; P.E.—Professor
Mark Kempski, BS, Purdue University; MS, Ph.D., SUNY Buffalo—Associate Professor
Chris Nilsen, BS, Rochester Institute of Technology; MSME, Worcester Polytechnic Institute; Ph.D., Michigan State; P.E.—Associate Professor
Alan H. Nye, BSME, MSME, Clarkson College; Ph.D., University of Rochester—Professor
Ali Ogut, B.Ch.E., Hacettepe University, Turkey; MS, Ph.D., University of Maryland—Associate Professor
Frank Sciremammano, Jr., BS, MS, Ph.D., University of Rochester—Associate Professor
Robert L. Snyder, BS, Rochester Institute of Technology; Ph.D., Iowa State; P.E.—Professor
Joseph S. Torok, BS, University of Akron; MS, Ph.D., Ohio State University—Associate Professor
Panchapakesan Venkataraman, B.Tech., Indian Institute of Technology; MSME, Rice University—Assistant Professor
Wayne W. Walter, BE, State University of New York Maritime College, Bronx; MS, Clarkson College; Ph.D., Rensselaer Polytechnic Institute; P.E.—Professor

MICROELECTRONIC ENGINEERING DEPARTMENT

Lynn F. Fuller, BS, MS, Rochester Institute of Technology; Ph.D., SUNY Buffalo—Professor
Michael A. Jackson, BS, MS, SUNY Buffalo—Assistant Professor
S. Cem Karacal, BS, Middle East Technical University, Turkey; MS, Ph.D., Oklahoma State University—Visiting Assistant Professor
Santosh K. Kurinec, BS, MS, Ph.D., University of Delhi, India—Associate Professor
Richard L. Lane, BS, Ph.D., Alfred University—Analog Devices Professor
Robert E. Pearson—BSEE, Rochester Institute of Technology—Assistant Professor
Bruce W. Smith, BS, MS, Rochester Institute of Technology—Visiting Assistant Professor
I. Renan Turkman, Diplome d'Ingenieur (MSEE); Docteur-Ingenieur, Institut Nationale des Sciences Appliques, Toulouse, France—Associate Professor

Academic Technical Associates

Vaudeen Abel—Facilities Manager, Computer Engineering
Scott Blondell, AAS, Alfred State College—Facilities Manager, Microelectronic Engineering
William Gallacher—Technical Associate, Industrial and Manufacturing Engineering
David Hathaway—Facilities Manager, Mechanical Engineering
Barbara Ryder, AAS, Onondaga Community College—Facilities Manager, Electrical Engineering

Adjunct Faculty

K.H. Gurubhasavaraj, Ph.D., Nebraska
Ti-Lin Liu, MS, Tsinghua University, Peking
Jacob Rubin, MS, New York University and Rochester Institute of Technology
James Schueckler, BS, MS, Rochester Institute of Technology
M. Ibrahim Sezan, BS, Bogazici University, Turkey; MS, Stevens Institute of Technology; MS, Ph.D., Rensselaer Polytechnic Institute
Yusheng T. Tsai, BSEE, National Cheng-Kung University, Taiwan; MSEE, National Taiwan University, Taiwan; Ph.D., Ohio State University

College of Fine and Applied Arts

Peter Giopulos, BFA, Syracuse University; M.Ed., Ph.D. Pennsylvania State University—Acting Dean; Professor
Joanne Szabla, BFA, Madonna College; MA, Catholic University of America; Ph.D., Walden University—Acting Associate Dean; Professor
Rose Marie Deorr, BS, Rochester Institute of Technology—Assistant Dean for Administrauon
Edward A. Lincoln, BA, Eisenhower College, Rochester Institute of Technology; MS.Ed., University of Rochester—Assistant Dean

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Judy Battaglia, BFA, MFA, Rochester Institute of Technology—Lecturer
Map- Ann Begland, BS, Ohio State University; MFA, Kent State University—Associate Professor
Kener E. Bond, Jr., B.Ed., SUNY-Buffalo; MFA, Rochester Institute of Technology—Professor
Philip W. Bornarth, BAE, MAE, Art Institute of Chicago—Professor; Special Assistant to the Dean for Graduate Affairs
Luanda Brogden, BS, MFA, University of Wisconsin—Assistant Professor
Nancy A. Ciolek, BFA, Indiana State University; MFA, Indiana State University—Assistant Professor
Douglas Cleminshaw, BSME, Case Institute of Technology—Assistant Professor
Robert A. Cole, BA, MS, University of Maryland—Professor
Nancy David, BFA, Denison University; MFA, Southern Illinois University—Gallery Consultant
David Dickinson, Chelsea School of Art, London, England; SKHS, Oslo, Norway; MFA, Rochester Institute of Technology—Professor; Chairman, Fine Arts
Ronald Feinen—Lecturer
Elizabeth Fomin, BS, Syracuse University—Assistant Professor
Joan Hantz, BA, Bennington College; MM, University of Michigan—Lecturer
Robert Heischman, BFA, Miami University; UCFA, Ruskin School of Art—Professor
Frederick Hellenberg, BFA, University of Buffalo—Lecturer
Glen Hintz, BA, Lafayette College; MS, The Medical College of Georgia—Assistant Professor
Barbara Hodik, BS Ed., Benedictine College; MA, New York University; Ph.D., Pennsylvania State—Professor
Robert M. Kahute, BFA, Syracuse University; MFA, Rochester Institute of Technology—Assistant Professor
Robert P. Keough, BFA, Rochester Institute of Technology; MFA, Rochester Institute of Technology—Professor
Robert Kerr, BFA, University of Illinois; MFA, Rochester Institute of Technology—Professor
Heinz Klinkon, BFA, Rochester Institute of Technology—Assistant Professor
Charles F. Lewis, B. Arch., Pratt Institute of Technology—Lecturer
Thomas Lightfoot, BA, BFA, University of Connecticut; MFA, Institute Allende, San Miguel de Allende, Gto., Mexico; MA Ed. Art, Ed.D. Art, Columbia University, Teachers College—Professor
Frederick Lipp, BAE, School of the Art Institute of Chicago; MFA, Rochester Institute of Technology—Professor
Steve Loar, BS, Murray State University; MA, Northern Illinois University—AssociateProfessor
Craig J. McArt, BID, Syracuse University; MFA, Rochester Institute of Technology—Professor
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Robert C. Morgan, BA, University of Redlands; Ed.M., Northeastern University; MFA, University of Massachusetts; Ph.D., New York University—Professor

Gabrielle Peters, BFA, SUNY at Geneseo; MA, University of Toronto, Canada—Part-Time Instructional Faculty
R. Roger Remington, BFA, Rochester Institute of Technology; MS, University of Wisconsin—Professor
Karen Sardisco, BS, SUNY College at Buffalo; MFA, Rochester Institute of Technology—Lecturer
Luvon Sheppard, BFA, MST, Rochester Institute of Technology—Associate Professor
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James H. Sias, BFA, MA, Michigan State University—Professor
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Bruce Sodervick, BS, Rhode Island School of Design; MFA, Indiana University—Associate Professor
Michael Teres, BA, Hunter College CUNY; MA, MFA, University of Iowa—Lecturer
James E. Thomas, BS, Philadelphia College of Art; MFA, Pennsylvania State University—Professor
Toby Thompson, BID, Syracuse; MFA, Rochester Institute of Technology—Professor; Chairman of Industrial Design, Interior Design and Packaging Design
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Robert Wabnitz, Diploma, Rochester Institute of Technology; Certificate, University of Rochester—Professor
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Bruce Wenger, BS, Western Michigan University; MFA, Ohio University—Lecturer
Lawrence Williams, BFA, Kansas City Art Institute; MFA, University of Illinois—Professor
Norman Williams, BFA, MS, Syracuse University—Associate Professor; Chairman of Foundation Studies

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William A. Keyser, Jr., BS, Carnegie-Mellon Institute of Technology; MFA, Rochester Institute of Technology—Professor
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Douglas E. Sigler, BFA, MFA, Rochester Institute of Technology—Professor
Mark Stanitz, BFA, MA, Kent State University—Assistant Professor
Richard Tannen, BS, Cornell University; Certificate of Mastery in Woodworking and Furniture Design, Boston University
Michael Taylor, BS, Middle Tennessee State University; MA, MFA, East Tennessee State University—Associate Professor
Leonard A. Urso, BFA, MFA, SUNY at New Paltz—Assistant Professor

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Gail L. Welch, BS, MS, Rochester Institute of Technology—Director of Operations
Herbert Phillips, AAS, Rochester Institute of Technology—Director, Industry Education
John L. Kronenberg, BS—Consultant for Graphic Arts
Virginia Burchill—Administrative Assistant

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Roger L. Easton, Jr., BS, Haverford College; MS, University of Maryland; Ph.D., University of Arizona—Assistant Professor
Margaret Evans, BA, Goddard College; MFA, Rochester Institute of Technology—Coordinator of Academic Services
Mark D. Fairchild, BS, MS, Rochester Institute of Technology—Instructor
Dana Marsh, BS, California State University; ME, Rochester Institute of Technology; Ph.D., University of California/Riverside—Associate Professor
Pantazis Mouroulis, B.Sc., University of Athens; Ph.D., University of Reading—Assistant Professor
Zoran Ninkov, BS, University of Western Australia; M.Sc., Monash University; Ph.D., University of British Columbia—Visiting Assistant Professor
Jeff Pelz, BFA, MS, Rochester Institute of Technology—Instructor
Navalgund Rao, BS, MS, BHU India; Ph.D., University of Minnesota—Assistant Professor
Harvey Rhody, BSEE, Wisconsin; MSEE, Cincinnati; Ph.D., Syracuse University—Professor
John Schott, BS, Canisius College; MS, Ph.D., Syracuse University—Professor
Elvin Thurston, BS, Queen Mary College, University of London—Associate Professor
Medi Vaez-Irivani, Ph.D., University College of London—Assistant Professor

Adjunct Faculty

Joseph Altman, BS, Massachusetts Institute of Technology
Robert Clark, BS, Massachusetts Institute of Technology; Ph.D., University of Maryland
Robert Daly, Ph.D., University of Arizona
David Farnsworth, Ph.D., University of Texas-Austin
Merle Hirsh, Ph.D., Johns Hopkins University
Robert Rolleston. Ph.D., University of Rochester
Paul Wilson, BA, MA, University of Cincinnati; Ph.D., University of Illinois

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Owen Butler, BFA—Chair, Applied Photography; Associate Professor
John Ciampa, BA, MA, JD—Director, American Video Institute; Associate Professor
Andrew Davidhazy, BFA, MFA—Chair, Imaging and Photographic Technology; Professor
Michael R. Peres, BS, BA—Chair, Biomedical Photographic Communications; Associate Professor
James E. Rice—Chair, Photographic Processing and Finishing Management; McGhee Professor
Malcolm Spaull, BS, MFA—Chair, Film and Video; Assistant Professor
Ken White, BA, MA, MFA—Chair, Fine Art Photography; Assistant Professor

Faculty

Patricia Ambrogi, MFA, Visual Studies Workshop—Assistant Professor
Carl Battaglia, BA, Boston College; MFA, Syracuse University—Associate Professor
Joan Boccino, BFA, Syracuse University; MFA, School of the Chicago Art Institute—Assistant Professor
Owen Butler, BFA, Rochester Institute of Technology—Associate Professor
Guenther Cartwright, BA, University of Oregon; MFA, Buffalo—Associate Professor
John Ciampa, BA, Boston University; MA, University of Michigan; JD, Cornell University—Associate ProfessorAndrew Davidhazy, BFA, MFA, Rochester Institute of Technology— Professor
Denis Defibaugh, BS, Rochester Institute of Technology—Assistant Professor
Steve Diehl, BS, University of Miami, Rochester Institute of Technology-Assistant Professor
William W. DuBois, BFA, Ohio University; M.Ed., Bowling Green State University—Associate Professor
Lothar K Engelmann, Ph.D., University of Frankfurt—Professor
Loret Falkner, MFA, Indiana University—Visiting Lecturer
William S. Fischer, BS, Rochester Institute of Technology—Instructor
Richard Floberg, BA, Iowa State; MS, Boston University—Associate Professor
Mark Haven, AB, Lebanon Valley College—Assistant Professor
Bradley T. Hindson, BA, Rutgers University; MFA, Ohio University—Associate Professor
Jack Holm, BS, Texas A&M University—Instructor
John E. Karpen, BS, MFA, Rochester Institute of Technology—Professor
Robert Kayser, BS, City College of New York; MS, Rochester Institute of Technology—Associate Professor
Weston D. Kemp, MFA, Rochester Institute of Technology—Professor
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Martha Leinroth, AB, Wellesley College; MFA, Rhode Island School of Design—Assistant Professor
Howard Lester, BA, MFA, University of California-Los Angeles—Assistant Professor
Howard LeVant, BS, Institute of Design, Illinois Institute of Technology; MS, Rochester Institute ofTechnology—Associate Professor
Glenn Miller, BS, Rochester Institute ofTechnology—Associate Professor
J. Wesley Morningstar, BS, Rochester Institute ofTechnology—Instructor
Douglas Nishimura, BS, MA, McMaster University—Research Associate/Instructor
Richard Norman, BS, Rochester Institute ofTechnology—Lecturer/Technical Associate
Willie Osterman, BFA, Ohio University, MFA, University of Oregon—Assistant Professor
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DougRea, BS, Union College; MFA Rochester Institute ofTechnology—Associate Professor
James Reilly, BA, Franklin and Marshall; MA, SUNY BuffaloDirector, Image Permanence Institute
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Erik Timmerman, BS, University of Wisconsin; MFA, Southern California—Associate Professor
Jeff Weiss, BS, University of Michigan—Assistant Professor
Charles C. Werberig, BFA, MS, Syracuse University—Associate Professor

Ken White, BA, Princeton University; MA, MFA University of New Mexico—Assistant Professor
Richard D. Zakia, BS, Rochester Institute ofTechnology; Ed.D., University of Rochester—Professor
Thomas Zigon, BS, MS, Rochester Institute ofTechnology—Instructor

Adjunct Faculty

Cat Ashworth, BFA, Arizona State University
Judith Berry
John Delly, MS, MBA, Roosevelt University
David A. Engdahl, BS, M.Ed., University of Rochester
Garry Geer, BS, Rochester Institute ofTechnology; MFA, Syracuse University
William Klein, MSEE, Purdue University
Daniel Larkin
Hadrian Lechner, AB, Michigan State Normal College; Ph.D., Boston University Graduate School
Judith Levy
Arnold Lungershausen, MA, Ohio University
Charles Lysogorski, BFA, State University College at New Paltz
Keith McManus
Affie C. Peed, BS, EE, University of Kentucky
Ronald Richardson, BA, Colgate University; MFA, Rochester Institute ofTechnology
Grant Romer, BFA, Pratt Institute; MFA, Rochester Institute of Technology—Conservator, Photographic Collection, International Museum of Photography, George Eastman House
Michael Starenko, BA, Kalamazoo College; MA, University of Chicago

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Archibald D. Provan, BS, M.Ed.—Administrative Coordinator; Associate Professor
Warren Daum, BS, MS—Advisor to the Director
John Kronenberg, BS, Carnegie Mellon—Consultant to the Dean
John C. McCracken, BS, MBA—Staff Chairman, Management Section; Assistant Professor
Marie Freckleton, BFA, MST—Staff Chairman, Aesthetics Section; Assistant Professor
Werner Rebsamen, Diploma, Academy of Fine Ajts, Zurich.—Staff Chairman, Press Section; Professor
Barbara Birkett, BA, MBA-Coordinator, Graduate Program
Mark F. Guldin, BS, MS, Ph.D.—Coordinator, Graduate Program
Joseph L. Noga, BS, MS—Coordinator, Graduate Program; Professor
Linda Tolan, BS, MS—Coordinator of Marketing and Recruitment
Dawn M. House, AAS—Academic Coordinator

Faculty

Barbara Birkett, BA, Aquinas College; MBA, Michigan; MBA Rochester Institute ofTechnology—Assistant Professor
William H. Birkett, BS, Illinois; MBA, Michigan, CMA—Associate Professor
Joseph E. Brown, BS, Carnegie-Mellon University; MS, Kansas State—Professor
Walter A. Campbell, BA, Hobart; MBA, M.Ed., University of Rochester—Professor
Robert Y. Chung, BA, Eastern Washington State University; MS, Rochester Institute of Technology—Associate Professor
Frank J. Cost, BS, Eisenhower College—Assistant Professor
W. Frederick Craig, BS, West Virginia Institute ofTechnology; M.Ed., University of Rochester—Associate Professor
Hugh R. Fox, AB, Dartmouth; JD, Rutgers Law School—Assistant Professor
Clifton T. Frazier, BS, West Virginia Institute ofTechnology; M.Ed., University of Rochester—Associate Professor
Marie Freckleton, BFA, MST, Rochester Institute ofTechnology—Assistant Professor
Mark F. Guldin, BS, Rochester Institute ofTechnology; MS, South Dakota State; Ph.D., Iowa—Melbert B. Caryjr. Graphic Arts Professor
Robert G. Hacker, BS, Illinois State; MS, South Dakota State; Ph.D., Iowa—Professor
Samuel B. Hoff, BA, MA, California State University—Assistant Professor
Walter G. Home, BS, Rochester Institute ofTechnology; M.Ed., University of Rochester—Professor
Herbert H. Johnson, BS, Rochester Institute ofTechnology—Associate Professor
John C. McCracken, BS, MBA, Rochester Institute ofTechnology—Assistant Professor
Joseph L. Noga, BS, Central Connecticut State University; MS, University of Bridgeport—Professor
William A. Pakan, BS, Carnegie Institute ofTechnology; MA, Ph.D., Kent State University—Professor
David P. Pankow, BA, MA, Brooklyn; MLS, Columbia—Associate Professor
Archibald D. Provan, BS, Rochester Institute ofTechnology; M.Ed., University of Rochester—Associate Professor
Harry Rab, BSME, MSME, Newark College of Engineering—Associate Professor
Werner Rebsamen, Diploma, Academy of Fine Arts, Zurich—Professor
Eric Sanderson, BS, Eastern Washington University—Instructor
Emery E. Schneider, BS, Southern Illinois University; M.Ed., Rochester—Associate Professor
Julius L. Silver, BA, Brooklyn College; Ph.D., Connecticut—Professor
Miles Southworth, BS, University of Michigan; M.Ed., University of Rochester—Professor
Charles J. Weigand, BS, MS, SUNY at Oswego—Associate Professor

Adjunct Faculty

John Lovenheim, BA, Case Western Reserve University; MBA, Harvard University

Academic Technical Associates

David L. Dembroski—Technical Associate
Daniel Gramlich—Technical Associate
John Kulak—Technical Associate
Kelly Laughlin—Technical Associate
Barry Lee—Technical Associate
John Marciniak—Coordinator, Technical Services

College of Liberal Arts

William J. Daniels, BA, MA, Ph.D., Dean; Professor
Glenn J. Kist, AB, MA, Ph.D., Associate Dean; Professor
David Murdoch, BA, MA, Ph.D., Assistant Dean; Professor
Paul Brule, BA, MS, Division Chairperson, Social Science; Assistant Professor
Joseph M. Nassar, BA, MA, Ph.D., Division Chairperson, Language, Literature and Communications; Associate Professor
Edward Schell, B. Mus. Ed. MM, Division Chairperson, Humanities; Assistant Professor
Diane Hope, BS, MA, Ph.D., Program Chairperson, Professional and Technical Communication; Associate Professor
Richard B. Lewis, BA, MA, Program Chairperson, Criminal Justice; Assistant Professor
Katherine Mayberry, BA, Ph.D., Program Chairperson, Technical and Liberal Studies Option; Associate Professor
Michael J. Vernarelli, BA, MA, Ph.D., Program Chairperson, Economics; Professor
Helen Wadsworth, BS, MSW, Program Chairperson, Social Work; Assistant Professor
Thomas D. Hopkins, BA, MA, Ph.D., Arthur J. Gosnell Professor in Economics
Bruce A. Austin, BA, MA, Ph.D., William A. Kern Professor in Communications
Wade L. Robison, BA, Ph.D., Ezra A. Hale in Applied Ethics

BEHAVIORAL SCIENCE DIVISION

Department of Psychology

John W. Adams, BA, Pennsylvania State University; MA, Ph.D., U.C.L.A.—Associate Professor, Psychology
Brian P. Barry, BA, St. John fisher; MSSc, Ph.D., Syracuse—Associate Professor, Psychology
Kathleen C. Chen, BA, Rangoon University, Burma; MA, Bryn Mawr College; Ph.D., Pennsylvania State Professor, Psychology
Virginia K. Costenbader, BA, Dickinson College; MS, Ph.D.,Syracuse University—Assistant Professor, Psychology
Janet E. Farnum, BA, SUNY at Brockport; MA, Ph.D., University of Rochester—Associate Professor, Psychology
Joseph E. Fitzpatrick, BA, MT, Ed.M SUNY at Buffalo—Professor, Psychology
Roger W. Harnish, BA, University of Rochester; MS, Ph.D., Oklahoma State University—Associate Professor, Psychology
Morton Isaacs, BA, Chicago; BS, MA, Columbia; Ph.D., Yeshiva University Professor, Psychology
Marge S. Reading-Brown, BA, Western College; M.Ed., Springfield College; MA, SUNY at Pittsburgh; Ph.D., SUNY at Albany—Assistant Professor, Psychology

Department of Social Work

Richard Morales, BA, Michigan State University; MA, SUNY at Brockport; MSW, Ph.D., Syracuse University—Associate Professor, Social Work
Marshall L. Smith, AB, MSW, University of Michigan; Ph.D., SUNY at Buffalo—Associate Professor, Social Work
Michael R. Stone, BA, SUNY at Geneseo; MSW, West Virginia University—Lecturer, Social Work
Helen Wadsworth, BS, Gordon College; MSW, Syracuse University—Assistant Professor, Social Work

Department of Sociology and Anthropology

Kijana Crawford-Adeleye, BA, Tougaloo College; MSW, Atlanta University—Associate Professor, Sociology
Paul F. Grebinger, BS, Columbia University; Ph.D., University of Arizona—Professor, Anthropology
Joanne M. Jacobs, BA, University of Rochester; MA, SUNY at Buffalo Associate Professor, Sociology
Boris Mikolji, BA, University of Graz; MA, Ph.D., Western Reserve—Professor, Sociology
Murli M. Sinha, AB, Bihar University, India; MA, Patna University, India; MA, The City College of the City University of New York; Ph.D., Cornell University—Professor, Sociology

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Douglas R. Coffey, Diploma, Cleveland Institute of Art; BFA, Denver; MA, Western Reserve—Professor, Fine Arts
Charles D. Collins, AB, Rutgers University; MA, Ph.D., University of Iowa—Associate Professor, Fine Arts
Tina Lent, BA, MA, University of California at Los Angeles—Assistant Professor, Fine Arts
Edward Schell, B.Mus.Ed., Westminster College; MM, Westminster Choir College—Assistant Professor, Fine Arts
Charles W. Warren, AB, State University of Iowa; MA, Ph.D., Ohio State University—Professor, Fine Arts

Houston Wetherald, BA, Brown University; MFA, Oberlin—Professor, Fine Arts
Hans W. Zandvoort, MFA, Royal Academy of Fine Arts, The Hague—Professor, Fine Arts

Department of History

Frank Annunziata, AB, Manhattan College; MA, City College of the City University of New York; Ph.D., Ohio State University—Professor, History
Richard Chu, BA, Taiwan University; MA, University of California at Berkeley; Ph.D., Columbia University—Professor, History
Norman R. Coombs, BS, MS, Ph.D., Wisconsin—Professor, History
Thomas Cornell, BA, Southwestern at Memphis; MS, Georgia Institute of Technology; Ph.D., Johns Hopkins University—Assistant Professor, History
Nabil M. Kavlani. BA, American University of Beirut; MA, Ph.D., Clark University—Professor, History
Glenn J. Kist, AB, MA, Xavier; Ph.D., Loyola University, Chicago—Professor, History
Richard D. Lunt, BA, Oberlin; MA, Ph.D., New Mexico—Professor, History
Salvatore Mondello, BA, MA, Ph.D., New York University—Professor, History
Pelligrino Nazzaro, BA, P. Giannone; Ph.D., University of Naples—Professor, History
Kenneth R. Nelson, AB, University of Connecticut; MA, Georgetown University; Ph.D., University of Virginia—Professor, History

Department of Philosophy

James L. Campbell, AB, Mount St. Mary's College; MA, Marquette University; Ph.D., University of Notre Dame—Professor, Philosophy
Timothy H. Engstrom, BA, MA, Ph.D., University of Edinburgh, Scodand—Visiting Assistant Professor, Philosophy
Dane R. Gordon, BA, MA, University of Cambridge; BD, University of London; MA, University of Rochester—Professor, Philosophy
John Morreall, BA, St. John Fisher College; MA, Ph.D., University of Toronto—Professor, Philosophy
John T. Sanders, BA, Purdue University; MA, Ph.D., Boston University—Professor, Philosophy
David B. Suits, BA, Purdue University; MA, Ph.D., University of Waterloo—Associate Professor, Philosophy

Department of Science, Technology and Society

Jaye C. Melcher, BA, University of Vermont; Ph.D., University of Kansas—Assistant Professor, Science, Technology and Society
Paul A. Miller, BS, West Virginia; MA, Ph.D., Michigan State—Professor, Science, Technology and Society
Robert J. Paradowsld, BS, Spring Hill College; MA, Brandeis University; Ph.D., University of Wisconsin—Associate Professor, Science, Technology and Society
Richard Shearman, BA, Western State College of Colorado; MS, Eastern New Mexico University—Assistant Professor, Science, Technology and Society
John A. White, BA, Ph.D., Cambridge University—Professor, Science, Technology and Society
Fred L. Wilson, BA, Murray State University; Ph.D., University of Kansas—Professor, Science, Technology and Society

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Bruce A. Austin, BA, Rider College; MS, Illinois State University; Ph.D., Temple University—Professor, Communications
Diane Hope, BS, SUNY at Brockport; MA, Ph.D., SUNY at Buffalo—Professor, Communications
David R. Neumann, BA, Ithaca College; MA, Ph.D., Bowling Green State University—Assistant Professor, Communications
Rudolph Pugliese, BA, SUNY at Oneonta; MA-SUNY at Brockport—Lecturer, Communications
Patrick M. Scanlon, BA, SUNY at Albany; Ph.D., University of Rochester—Assistant Professor, Communications
DeLann L. Williams, BA, Michigan State University; MA, Arizona State University—Lecturer, Communications

Department of language and Literature

Sam Abrams, AB, Brooklyn College; MA, University of Illinois—Associate Professor, Literature
Arnold J, Berman, BA, Hofstra University; MA, Ph.D., New York University; MSW, Syracuse University—Professor, Literature
Sarah Collins, AB, Centre College; MA, Ph.D., Indiana University—Professor, Literature
Anne Coon, BA, MA, Ph.D., SUNY at Buffalo—Associate Professor, Language
William DeRitter, BA, St. Lawrence; MA, University of Rochester—Associate Professor, Literature
Katherine Mayberry, BA, Smith College; MA, Ph.D., University of Rochester—Associate Professor, Literature
Stanley D. McKenzie, BS, Massachusetts Institute of Technology; MA, Ph.D., University of Rochester—Professor, Literature
David Murdoch, BA, Shurtleff College; MA, Redlands University; Ph.D., Occidental College—Professor, Literature
Joseph M. Nassar, BA, MA, University of Toledo; Ph.D., SUNY at Binghamton—Associate Professor, Literature
Thomas J. O'Brien, BS, University of Rochester; MA, Columbia University—Professor, Literature
Mark L. Price, BA, MA, Miami University—Associate Professor, Literature
Sandra E. Saari, AB, Carleton College; MA, Ph.D., Occidental College—Professor, Literature
L. Robert Sanders, BA, MA, SUNY at Albany; Professor, Literature
Caroline Snyder, BA, MA, Radcliffe; Ph.D., Harvard—Professor, Literature
Sister Mary Sullivan, BA, Nazareth College; MA, Ph.D., University of Notre Dame—Professor, Literature
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Wilma Wierenga, AB, Calvin College; MA, Middlebury College, Johannes Gutenberg University— Instructor, Language
Janet Zandy, BA, Montclair State College; MA, University of Rochester Lecturer, Language

Adjunct Faculty

Andrew W. Boone, BA, Stonehill College; MA, Middlebury College
Susan Donovan, BA, Cornell College; MS, Nazareth College
Rhona Genzel, BA, City College of New York
Peter Haggerty, BA, Wesleyan University; MA, Rutgers University
Michael A. McMahon, AB, Rhode Island College; MS, University of Rhode Island
Janet K. Patlow, BA, Wells College; MS, SUNY at Brockport; MA, University of Rochester
Stephanie Polowe, BA, Wayne State University; MA, SUNY at Brockport; Ed.D., University of Rochester
Katherine Schumacher, BA, Indiana University; MA, Cornell University
Nita Speranza-Coskie, BA. Chicago State University; M.Ed., Loyola University of Chicago
Linda Chalmer Zemel, BA, MA, University of Rochester

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Department of Criminal Justice

John O. Ballard, BA, MPA, Indiana University—Associate Professor, Criminal Justice
Paul Brule, BA, Wittenberg University; MS, Xavier University Graduate School—Assistant Professor, Criminal Justice
Elizabeth B. Croft, BA, MA, University of Rochester; MA, Ph.D., SUNY at Albany—Associate Professor, Criminal Justice
John M. Klofas, BA, College of the Holy Cross; MA, Ph.D., SUNY at Albany—Associate Professor, Criminal Justice
Richard B. Lewis, BA, SUNY at Albany; MS, Southern Illinois—Assistant Professor, Criminal Justice
John A. Murley, BA, University of Dallas; MA, Ph.D., Claremont Graduate School and University Center—Associate Professor, Criminal Justice
John M. Violanti, BA, MS, Ph.D., SUNY at Buffalo—Visiting Assistant Professor, Criminal Justice

Department of Economics

Robert Biermann, BA, University of Northern Iowa—Lecturer, Economics
Constantino Dumangane, Sr., BA, MPA, Syracuse University; Ph.D., SUNY at Buffalo—Associate Professor, Economics
Thomas D. Hopkins, BA, Oberlin College; MA, Ph.D., Yale University Professor, Economics
Bradley S. Loomis, AB, University of Miami; MS, Cornell University—Instructor, Economics
Michael J. Vernarelli, BA, University of Michigan; MA, Ph.D., SUNY at Binghamton—Professor, Economics

Department of Political Science

Louis J. Andolino, BS, Rochester Institute of Technology; MA, Kent State University—Associate Professor, Political Science
Robert J. Brown, BS, SUNY at Potsdam; Ph.D., Syracuse—Associate Professor, Political Science
William J. Daniels, BA, Upper Iowa University; MA, Ph.D., University of Iowa—Professor, Political Science
Louis R. Eltscher III, BA, Houghton; MA, American University—Associate Professor, Political Science
Paul H. Ferber, BA, American University; M.Ph., Ph.D., George Washington University—Assistant Professor, Political Science
James S. Fleming, AB, Wake Forest University; MA, Ph.D., University of Arizona—Professor, Political Science
Hoyoung Lee, BA, Seoul National University, Korea; MA, Ph.D., Maryland—Professor, Political Science
James L. Troisi, AB, Lycoming College; MA, Ph.D., Syracuse University—Associate Professor, Political Science

College of Science

John D. Paliouras, BS, Alfred University; MA, Ph.D., University of Illinois—Dean; Professor
Robert A. Clark, BS, Massachusetts Institute of Technology; Ph.D., University of Maryland—Associate Dean; Director, Center for Materials Science and Engineering; Professor
Pasquale T. Saeva, BA, Niagara University; MA, Bowling Green State University; MS, Rochester Institute of Technology—Associate Dean; Professor
Judy A. Witzel, BS, Rochester Institute of Technology—Assistant Dean for Administrauon
Marie Meyers—Administrative Assistant
Eileen D. Marron, BS, St. Bonaventure University; MA, Colgate University—Senior Communications Coordinator
Nicolas A. Thireos, BA, Wabash College; MS, Utah State University-Senior Computing Specialist
G. Thomas Frederick, BS, MS, Ph.D., Ohio State University—Department Head, Biology; Professor
Gerald A. Takacs, BS, University of Alberta; Ph.D., University of Wisconsin—Department Head, Chemistry; Professor

lohn M. Waud, BS, Lehigh University; MS, University of Pennsylvania; Ph.D., Lehigh University—Department Head, Clinical Sciences; Associate Professor
George T. Georgantas, AB, University of Rochester; AM, Washington University; Ph.D., SUNY at Buffalo—Department Head, Mathematics; Professor
Arthur Z. Kovacs, AB, Wabash College; Ph.D.; Duke University-Department Head, Physics; Professor
Peter A. Cardegna, BA, Loyola College; Ph.D., Clemson University—Program Director, Materials Science and Engineering; Associate Professor
David A. Lamb, Operations Manager

DEPARTMENT OF BIOLOGY

Richard L. Doolittle. BA, University of Bridgeport; MS, Ph.D., University of Rochester—Associate Professor
Jean A. Douthwright-Fasse, BA, Skidmore College; MS, Pennsylvania State University; MS, Ph.D., University of Rochester—Associate Professor
Irene M. Evans, AB, University of Rochester; MS, Wesleyan University; Ph.D., University of Rochester—Associate Professor
G. **Thomas Frederick,** BS, MS, Ph.D., Ohio State University—Professor
Paul A. Haefner, BS, Franklin & Marshall College; MS, Ph.D., University of Delaware—Professor
M. Joseph Klingensmith, BS, Wheaton College; MS, Ph.D., University of Michigan—Professor
Jeffrey S. Lodge, BA, University of Delaware; Ph.D., University of Mississippi—Assistant Professor
Douglas P. Merrill, BS, Ph.D., SUNY College of Environmental Science and Forestry, Syracuse University—Associate Professor
Robert H. Rothman, BA, Ph.D., University of California, Berkeley; MA, California State, San Diego-Associate Professor
Carole A. Sack, BA, University of Michigan; Ph.D., Michigan State University—Professor
Franz K. Seischab, BS, Cornell University; MS, SUC at Geneseo; Ph.D., SUNY College of Environmental Science and Forestry, Syracuse University—Professor
Martin A. Vaughan, BS, MS, Ohio University; PhlD., Indiana State University—Assistant Professor
Nancy Wanek, BS, UNiversity of Wisconsin; MS, Ph.D., UNiversity of California—Assistant Professor

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Jerry M. Addud, BS, Univeriity of Rochester; Ph.D., University of Pennsylvania—Professor
B. Edward Cain, BA, Harper College, SUNYat Binghamton; Ph.D., Syracuse University—Professor
Anita Cheraovitx, BS, Southern Connecticut State University; Ph.D., Syracuse University—Assistant Professor
Robert A. Clark, BS, Massachusetts Institute of Technology; Ph.D., University of Maryland—Professor
Thomas Gennett, BA, State University College of New York at Potsdam; Ph.D., University of Vermont—Assistant Professor
Robert E. Gilman, AB, Dartmouth; MS, Ph.D., University of Michigan—Professor
Joseph P. **Hornak,** BS, Utica College; MS, Purdue University; Ph.D., University of Notre Dame—Associate Professor
David R. Harding, BS, University of Nepal; MS, University of Iowa; Ph.D., Cambridge University—Visiting Assistant Professor
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Earl Krakower, BS, McGill University; MS, Ph.D., University of British Columbia—Professor
Andreas Langner, BS, Ph.D., SUNY Buffalo—Assistant Professor
Terence C. Morrill, BS, Syracuse University; MS, San Jose State College; Ph.D., University of Colorado—Professor
John P. **Neenan,** BS, Wayne State University; Ph.D., University of California, Santa Barbara—AssociateProfessor
Christian G. Reinhardt, BS, Lafayette College; Ph.D., University ofRocnester—Associate Professor
Gerald A Takacs BS, University of Alberta; Ph.D., University of Wisconsin—Professor
Laura Ellen Tubbs, BS, Hood College; Ph.D., University of Rochester—Associate Professor
Kay G. Turner, BS, Bucknell University; Ph.D., Ohio State University—Associate Professor
Vladimir Vukonovic, BS, University of Belgrade; Ph.D., University of Munster—Distinguished Professor Emeritus

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Maurino P. Bautista, BS, Ateneo de Manila University; MS, Ph.D., Purdue University—Assistant Professor
Marda P. Birken, AB, Mt. Holyoke College; MS, New York University-Associate Professor
Christine E. Bishop, BA, Pennsylvania State University; MS, Virginia Polytechnic Institute—Lecturer
Patricia A. CUrk, SB,SM, Massachusetts Institute of Technology; Ph.D., University of Rochester—Professor
David M. Crystal, BS, MS, SUNYat Albany—Professor
Alejandro B. Engel, BS, Universidad de Chile; Ph.D., SUNYat Buffalo-Associate Professor
David L. Farnsworth, BS, Union College; MA, Ph.D., University of Texas—Professor
Kenneth H. Farrell, BA, Southern Connecticut State University; MS, Ph.D., Syracuse University—Assistant Professor
Sally E. Fifchbeck, BA University of Rochester; MS, Rochester Institute of Technology—Assistant Professor
Lester B. Fuller, BA, Houghton College; MA, University of Michigan; Ph.D., Michigan State University-Distinguished Professor Emeritus
George T. Georgantas, AB, University of Rochester; AM, Washington University; Ph.D., SUNYat Buffalo-Professor
James A. Glasenapp, BS, University of Houston; MA SUNYat Buffalo-Professor
Marvin H. Gruber, BS, Brooklyn College; MA, Johns Hopkins University; MS, Rochester Institute of Technology; MA Ph.D., University of Rochester—Professor
Laxmi N. **Gupta,** BS, MS, Agra University, India; MS, Rochester Institute of Technology; Ph.D., SUNY at Buffalo—Associate Professor
James J. Halavin, BS, Clarkson University; MA Ph.D., SUNYat Buffalo—Associate Professor
David S. Hart, BS, Syracuse University; MA University of Rochester—Assistant Professor
Rebecca E. Hill, BS, Frostburg State College; MA West Virginia University; MS, Rochester Institute of Technology—Professor
Edwin T. **Hoefer,** BA Elmhurst College; AM, Washington University; Ph.D., SUNYat Buffalo—Professor
Jack W. **Hollingsworth,** BS, BA, University of Kansas; MS, Ph.D., University of Wisconsin—Professor
Sesharadhani Kumar, BS, MS, University of Madras; Ph.D., University of Delaware—Assistant Professor
Wanda S. **Loiasiewicz,** MS, Ph.D., University of Cracow, Poland—Assistant Professor
Sophia A. Magzelakis, BS, MS, Ph.D., Old Dominion University—**Assistant Professor**
James E. Marengo, BA, MS, California State University; Ph.D., Colorado State University—Assistant Professor
David J. Mathiason, BA St. Olaf College; MS, Syracuse University; MS, Ph.D.,University of Rochester—Associate Professor
Douglas S. **Meadows,** BS, Stanford University; MS, New York University; Ph.D., Stanford University—Associate Professor
Edward A. Newburg, BS, MS, Purdue University; Ph.D., University of Illinois—Professor
Richard J. Orr, BS, John Carroll University; MS, Case Institute of Technology; MS, SUNYat Buffalo-Professor
John D. **Paliourai,** BS, Alfred University; MA, Ph.D., University of Illinois—Professor
James C. Runyon, BEE, Cornell University; MSEE, University of Rochester—Professor
Pasquale T. **Saeva,** BA Niagara University; MS, Bowling Green State University; MS, Rochester Institute of Technology—Professor
Harry M.Schey, BS, Northwestern University; AM, Harvard University; Ph.D., University of Illinois-Professor
lack Tiihkoff, BS, MS, MA, University of Rochester—Professor
Thomas C. Upson, BS, Tufts University; MS, Rensselaer Polytechnic Institute—Professor
Theodore W. Wilcox, BS, University of Michigan; MS, Ph.D., University of Washington—Associate Professor
Paul A. Wilson, BA, MA, University of Cincinnati; Ph.D., University of Illinois—Professor
James A Wiseman, BA, Ph.D., Boston University—Associate Professor
Elmer L Young, BA, Amherst College; MS, Ph.D., Ohio State University—Associate Professor

DEPARTMENT OF PHYSICS

John D. Andersen, BS, SUNY at Buffalo; MA, Ph.D., University of Rochester—Assistant Professor
Hrishikesh Baneijee, BS, Presidency College; MS, University College of Science; Ph.D., Institute of Nuclear Physics, Calcutta—Professor
John H. Campbell, BS, Georgetown University; MS, Ph.D., University of Michigan—Assistant Professor
Peter A. Cardegna, BS, Loyola College; Ph.D., Clemson University-Associate Professor
Tracy A. Davis, BA, BS, Wofford College; Ph.D., Clemson University-Associate Professor
F. Kingsley Elder, Jr., BS, University of North Carolina; MS, Ph.D., Yale University—Professor
Alan B. Entenberg, AB, Washington University; Ph.D., University of Rochester—Associate Professor
Charles A. Hewett, BS, MS, Missouri School of Mines; Ph.D., University of Missouri—Professor
Ronald E. Jodoin, BS, Worchester Polytechnic Institute; Ph.D., University of Rochester—Professor
James R. Kern, BS, Indiana University of Pennsylvania; Ph.D., Clemson University—Associate Professor
Michael Kotlarchyk, BS, MS, Ph.D., Massachusetts Institute of Technology—Assistant Professor
Arthur Z. Kovacs, AB, Wabash College; Ph.D., Duke University-Professor
Vera W. Lindbere, BS, University of Alberta; MS, Ph.D., Case Western Reserve University—Associate Professor
Varadaraja V. Raman, BS, St. Xavier; MS, Calcutta University; Ph.D., University of Paris—Professor
Earl H. Sexton, BS, Tufts University; MS, Massachusetts Institute of Technology; MST, Cornell University; Ph.D., SUNY at Albany—Professor
John S. Shew, BS, MS, Indiana University; Ph.D., SUNY at Albany-Professor
Jerome Wagner, BS, Case Institute of Technology; MS, Ph.D., University of Wisconsin—Associate Professor
Anne G. Young, BA, Brvn Mawr; MS, Ph.D., Cornell University—Associate Professor

DEPARTMENT OF ALLIED HEALTH SCIENCES

lohn M. Waud, BS, Lehigh University; MS, University of Pennsylvania; Ph.D., Lehigh University—Associate Professor
Kriiten M. Watentram-Rlch, BS, CNMT, Rochester Institute of Technology—Coordinator for Academic Services

Biomedical Computing

John M. Waud, BS, Ph.D, Lehigh University; MS, University of Pennsylvania—Acting Program Director; Associate Professor

Clinical Chemistry

John M. Waud, BS, Lehigh University; MS, University of Pennsylvania; Ph.D., Lehigh University—Program Director, Associate Professor
James C. Aumer, BS, MS, Michigan Technological University—Associate Professor

Clinical Faculty
Richard M. Bayer, Ph.D., Rutgers University—Rochester General Hospital, Rochester
Nathan Hamblin, Rochester General Hospital, Rochester
Howard N. Harrison, BS, University of California; MS, Ph.D., Cornell University—Rochester General Hospital, Rochester

Medical Technology

James C. **Aumer,** BS, MS, Michigan Technological University; (ASCP)—Program Director; Associate Professor
Linda Myers, BS, MT (ASCP), Rochester Institute of Technology—Clinical Coordinator

Clinical Faculty

Jean M Maatta, MS, MT (ASCP), Acting Program Director, School of Medical Technology, Albany Medical Center, Albany
Susan Cramer,
MT(ASCP)—Education Coordinator, School of Medical Technology, Millard Fillmore Hospital, Buffalo
Edward J. Hanchay, MT (ASCP)—Program Director, School of Medical Technology; Boston Veterans Administration Medical Center, Boston
Robert W. **Herttog**.MD— Director, School of MedicalTechnology, Millard Fillmore Hospital, Buffalo
Virginia Kotlan, MT(ASCP)—Program Director, School of Medical Technology,
Daemen College, Buffalo
Bob Carpenter, MD—Director, School of Medical Technology, St. Mary's Hospital, Rochester
Nancy Mitchell, MS, MT (ASCP)—Associate Program Director, School of Medical Technology, Rochester General Hospital, Rochester
Arene Nikiel, MS, MT(ASCP) SM—Education Coordinator, School of Medical Technology. St. Mary's Hospital, Rochester
Joseph kino, MS, MT(ASCP)-Program Director, School of Medical Technology, Rochester General Hospital, Rochester
W. A. Thomas, MD—Director, School of Medical Technology, Albany Medical Center, Albany
Zygmunt M. Tomklewicz, MD—Director, School of Medical Technology, Rochester General Hospital, Rochester

Nuclear Medicine Technology

Anna M. Wldu, BA, SUNY College of New York at Potsdam; BS, CNMT, Rochester Institute of Technology—Program DirectorjAssistant Professor
Robert O'Mara, MD—Medical Director
Cheryl A Waldman, BA, SUNY at Buffalo; BS, CNMT, Rochester Institute of Technology—Clinical Coordinator

Clinical Faculty

Joseph Carpenter, BS, CNMT—Chief Technologist, Department of Nuclear Medicine, Our Lady of Lourdes Hospital, Binghamton
Cindy Cress, CNMT—Chief Technologist, Department of Nuclear Medicine, Community General Hospital, Syracuse
Linda Decker, BS, CNMT—Chief Technologist, Department of Nuclear Medicine, University of Rochester Medical Center, Rochester
Dawn Estey, CNMT—Chief Technologist, Department of Nuclear Medicine, The Genesee Hospital, Rochester
William Goldman, MD—Director, Department of Nuclear Medicine, Community General Hospital, Syracuse
Bennett Greenspan, BMD— Assistant Professor of Radiology; Staff Nuclear Medicine Physician, University of Rochester Medical Center, Rochester
Linda HoweU, BS, CNMT—Chief Technologist, Department of Nuclear Medicine, Park-Ridge Hospital, Rochester
Francis Kelley, MD—Chief of Radiology, Department of Nuclear Medicine, Highland Hospital, Rochester
Robert Knack, MD—Director, Department of Nuclear Medicine, Our Lady of Lourdes Hospital, Binghamton
Silviu Landman, MD—Medical Director of Nuclear Medicine, United Health Services, Inc., Johnson City
Peter Maffetone, CNMT—Chief Technologist, Department of Nuclear Medicine, Sisters of Charity Hospital, Buffalo
Robert O'Mara, MD—Professor of Radiology; Chairman, Division of Radiology, University of Rochester Medical Center, Rochester
Gretchen Rehberg, BS, MBA CNMT—Chief Technologist, Department of Nuclear Medicine, Rochester General Hospital, Rochester
W. Window Schrank, MD—Chief Radiologist, Department of Diagnostic Imaging, Park-Ridge Hospital, Rochester
Barb in Sullivan, RN—Instructor for Staff Development, St. Mary's Hospital, Rochester
Manha Sundman, CNMT—Chief Technologist, Department of Nuclear Medicine, Highland Hospital, Rochester
Herman Walllnga, MD—Director, Division of Nuclear Medicine, Genesee Hospital, Rochester
Paul Weiss, MD—Director, Division of Nuclear Imaging, Department of Diagnostic Radiology/Nuclear Imaging, Rochester General Hospital, Rochester
George Wilson, MD—Assistant Professor of Radiology; Chief, Division of Nuclear Medicine, University of Rochester Medical Center, Rochester
Brian Wetzel, CNMT—Technical Director, Diagnostic Imaging Department, United Health Services, Inc., Wilson Site, Johnson City

Diagnostic Medical Sonography

r.liniral Faculty

Michael C. Foss, BA, M.Ed., RDMS, RVT, University of South Florida—Program Director; Assistant Professor
Lon E. Bailey. BA, Roberts Wesleyan College; BS, RDMS, Rochester Institute of Technology—Clinical Coordinator
Peter Gleason, MD—Medical Advisor
Jean Allen, RDMS—Sonographer, Bellevue Hospital, Schenectady
Gary Andrade, RDMS—Chief Sonographer, Diagnostic Ultrasound, Community General Hospital, Syracuse
Darushe Anissi, MD—Medical Director, Ultrasound Laboratory, Rochester General Hospital, Rochester
Birgit B. Armstrong, RDMS—Sonographer, Strong Memorial Hospital, Rochester
Joseph Augello, RDMS—Chief Sonographer, Diagnostic Ultrasound, United Health Services, Binghamton
FarhadAzimi, MD—Medical Director, Diagnostic Ultrasound, St. Joseph's Hospital, Syracuse
Robert Benazzi, MD—Medical Director, Diagnostic Ultrasound, St. Mary's Hospital, Rochester
Johan P. Bonk, MD—Medical Director, Diagnostic Ultrasound, Community General Hospital, Syracuse
Marsha C. Brody, RDMS—Chief Sonographer, Children's Hospital, Buffalo
Lawrence Cadkin, MD—Medical Director, Diagnostic Ultrasound, United Health Services, Binghamton
Barbara CosteUo, BA, RDMS—Chief Sonographer, Rochester General Hospital, Rochester
Deborah DeLozier, MS, RDMS—Chief Sonographer, Buffalo General Hospital, Buffalo
Thomas Frede, MD—Bellevue Hospital, Schenectady
Peter Gleason, MD—Medical Director, Westside Radiology, Rochester
John Hurley, MD—Medical Director, Diagnostic Ultrasound, Highland Hospital, Rochester
Kathleen T. Hryhorenko. RT, RDMS—Chief Sonographer, Diagnostic Ultrasound, St. Mary's Hospital, Rochester
Kevin Kirch, RDMS-Chief Sonographer, Diagnostic Ultrasound, St. Joseph's Hospital, Syracuse
Silviu Landman, MD—Medical Director, Diagnostic Imaging Laboratories, United Health Services, Johnson City
Mike McLaughlin, RT—Chief Sonographer, Geneva General Hospital, Geneva
Deborah Mendel, RT—Chief Sonographer, Diagnostic Ultrasound, Sisters of Charity Hospital, Buffalo
Richard Moccia, MD—Director, Diagnostic Ultrasound, Geneva General Hospital, Geneva
Richard Munschauer, MD—Medical Director, Diagnostic Ultrasound, Children s Hospital of Buffalo, Buffalo
William Newey, MD—Diagnostic Ultrasound, Saratoga Hospital, Saratoga
Gail Phillips, RDMS—Chief Sonographer, Westside Radiology, Rochester
Nina Ploetz, AAS, RT, RDMS—Sonographer, Highland Hospital, Rochester
David Rowland, MD—Medical Director, Diagnostic Ultrasound, Sisters of Charity Hospital, Buffalo
Susan Russell, BS, RDMS—Director of Ultrasound Training, Genesee Hospital, Rochester
Kevin Rutkowski, RDMS—Chief Sonographer, United Health Services, Johnson City
Eileen Stadelmaier, RT, RDMS—Children's Hospital, Buffalo
Bruce Stringer, MD—Ultrasound Laboratory, Buffalo General Hospital, Buffalo
Richard Tobin, MD—Director, Diagnostic Ultrasound, Genesee Hospital, Rochester

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Robert A. Clark, Ph.D., University of Maryland—Director; Professor, Chemistry
Peter A. dardegna, Ph.D., Clemson University—Program Director; Associate Professor, Physics
Jerry M. Adduci, Ph.D., University of Pennsylvania—Professor, Chemistry
Hrishikesh Baneijee, Ph.D., University of Calcutta—Professor, Physics
Tracy Davis, Ph.D., Clemson University—Associate Professor, Physics
Alan B. Entenberg, Ph.D., University of Rochester—Associate Professor, Physics
G. Thomas Frederick, Ph.D., Ohio State University—Professor and Head, Biology
William **G.** Friielle, MS, P.E., University of Rochester—Associate, Professor, Mechanical Engineering Technology
Lynn Fuller, Ph.D., University of Buffalo—Professor and Head, Microelectronic Engineering
Surendra K. **Gupta,** Ph.D., University of Rochester—Associate Professor, Mechanical Engineering
Roger E. **Helntz,** Ph.D., Syracuse University—Professor, Electrical Engineering
Charles A. Hewett, Ph.D., University of Missouri—Professor, Physics
Marvin L. Ulinpworth, Ph.D., University of Massachusetts-Associate Professor, Chemistry
Michael Jackson, Ph.D., State University of New York, Buffalo-Assistant Professor, Microelectronic Engineering

Ronald E. Jodoin, Ph.D., University of Rochester—Professor, Physics
Bhalchandra V. Karlekar, Ph.D., P.E., University of Illinois—Professor and Head, Mechanical Engineering
Michael Kotlarchyk, Ph.D., Massachusetts Institute of Technology—Assistant Professor, Physics
Arthur Z. Kovacs, Ph.D., Duke University—Professor and Head, Physics
Andreas Langer, Ph.D., State University of New York, Buffalo—Assistant Professor, Chemistry
Vera W. Lindberg, Ph.D., Case Western Reserve University—Associate Professor, Physics
Swaminathan Madhu, Ph.D., University of Washington—Professor, Electrical Engineering
Chris Nilsen, Ph.D., P.E., Michigan State University—Associate Professor, Mechanical Engineering
Alan H. Nye, Ph.D., University of Rochester—Associate Professor, Mechanical Engineering
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Paul Petersen, Ph.D., Michigan State University—Professor and Head, Electrical Engineering
Harvey E. Rhody, Ph.D., Syracuse University—Professor, Electrical Engineering
Robert L. Snyder, Ph.D., P.E., Iowa State University—Professor, Mechanical Engineering
David A. Sumberg, Ph.D., Michigan State University—Associate Professor, Electrical Engineering
Gerald A. Takacs, Ph.D., University of Wisconsin—Professor and Head, Chemistry
I. Renan Turkman, Ph.D., University of Paris—Associate Professor, Electrical Engineering
Raman M. Unnikrishnan, Ph.D., University of Missouri—Professor, Electrical Engineering
Vladimir Vukanovic, Ph.D., University of Munster—Distinguished Professor Emeritus, Chemistry
Jerome Wagner, Ph.D., University of Wisconsin—Associate Professor, Physics

Adjunct Faculty

John F. Carson, MS, Massachusetts Institute ofTechnology—Eastman Kodak Company, Rochester
Dennis H. Feducke, MS, P.E., Syracuse University—IBM, Endicott
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Ellen Walsh—Coordinator, Facilities and Arrangements

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Susan Mee—Staff Assistant II

INFORMATION SYSTEMS AND COMPUTING

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Barbara T. Cuthbertson, BS, Simmons College—Administrative Assistant

Academic Computing and User Services

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Lo-yi Chung, BA, National Taiwan Univerisity; MA, Eastern Washington University; MS, Rochester Institute of Technology—Software Specialist; (Assistant Professor)
Donna C. Cullen, BA, Gordon College; MA, Northeastern University—Manager, Software Support; (Associate Professor)
Christine Geith, BS, SUNY Buffalo-Office Systems Specialist
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Christopher Haupt, BS< Rocchester Institute ofTechnology—Software Specialist; (Instructor)
Vincent Incardona, B.Tech., Rochester Institute ofTechnology—Software Specialist; (Assistant Professor)
David Keller—Technical Associate
Raymond Lance, AAS, Broome Community College—Technical Associate
Sheila Maas, AAS, State University of New York, Alfred—Office Systems Specialist
Andrew Mathews, AAS, Cayuga Community College—Facilities Coordinator
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C.R. Myers, BA, University of Rochester—Software Specialist; (Associate Professor)
Dianne Parker, B.Tech., Rochester Institute ofTechnology—Supervisor, Facilities Management
Mark Tremblay, AAS, Rochester Institute ofTechnology—Software Specialist; (Instructor)
Robert C. Weeks, Jr., BA, SUNY Geneseo; MS, Rochester Institute of Technology—Assistant Director for User Services
Stephen A. Wilkins, AAS, SUC at Morrisville; BSBA, Kansas State; MS, Rochester Institute ofTechnology—Software Specialist; (Associate Professor)

Data Center Operations and Technical Support

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Thomas Baily—Supervisor of Computer Operations, Second Shift
Jenny Beaven—Systems Programmer
Edgar Buffan, BS, MS, Rochester Institute ofTechnology—Systems Programmer
Steven Good—Network Administrator
Gregory Hawryschuk, AAS, Monroe Community College; BS, MBA, Rochester Institute ofTechnology—Assistant Director, Technical Support
Laura Jacobs, AAS, Monroe Community College; BS, Rochester Institute ofTechnology—Data Base Administrator
Carol Kephart—Data Base Technician
Andrew W. Ludwick, BS, Rochester Institute ofTechnology—Data Base Technician
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Tamara Bain, BS, SUNY at Brockport—Sr. Programmer
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Beth Dickinson—Designer
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Rev. Daniel Childs—Campus Minister for African/American Students
Rev. Mrs. Linda Dolby—Methodist/Protestant Campus Minister
Rabbi David Mockin—Chabad Director
Mrs. Sally Taylor—Baptist Student Activities Director

Complementary Education

Elaine M. Spaull, BA, George Washington University; MA, Georgetown University; Ph.D., SUNV Buffalo—Director
Patricia Buscemi—Coordinator, Outdoor Experiential Education
Joeann M. Humbert, BA, Villa Maria College; MS, Rochester Institute of Technology—Coordinator of Community Services Projects
Nancy Shapiro, BA, Immaculata College; MS, University of Rochester—Coordinator of Group Development

Counseling Center

Harry Merryman, BS, MS, Ph.D., University of Oregon—Director (Associate Professor)
Laura Cann, BA, Smith; MS, SUC at Brockport—Assistant Director (Associate Professor)
Gaillard Ashley, BS, University of Connecticut; Ph.D., Syracuse University—Counselor (Associate Professor)
Carolyn Buntich, BS, SUC at Brockport; MS, Nazareth College—Psychometrist
Carolyn Berquist DeHority, BA, Earlham College; MS, Rochester Institute ofTechnology—Counselor; (Assistant Professor)
Jean Donahue, AS, Empire State College—Psychometrist
Laura Fleming, BSW, SUNY Brockport; MSW, Syracuse University—Counselor (Assistant Professor)
Katherine Gaudreau, AB, SUNY Albany; MA, Cornell University; MSW, Smith College for Social Work—Counselor
Mahlon Gebhardt, AB, Albright; M.Ed., Lehigh University—Counselor; (Associate Professor)
Freyda Greenberger, BS, Syracuse University—Educational Specialist
Rosemary Infante, BA, SUNY, Plattsburgh; MA, MS, SUNY Albany; Ph.D., University of Texas at Austin—Counselor (Assistant Professor)
Kathleen Kane, BA, Kent State University; MS, SUC Brockport—Counselor (Assistant Professor)
John Mitchell, BS, Ohio State University; MS, Ph.D., University of Pittsburgh—Counselor; (Associate Professor)
Karen Pelc, BS, Nazareth College; MA, Pratt Institute—Coordinator, IMPACT (Instructor)
Patrick Walsh, BA, St. John Fisher; MS, SUNY Brockport—Counselor (Assistant Professor)

Higher Education Opportunity Program

Linda Meyer, BA, University of Rochester; MA, SUNY Brockport—Director
Arlette Miller Smith, BA, Tougaloo College; MA, Michigan State University—Assistant Director
Hussain Ahmed, BS, MS, SUNY Cordand—Counselor; (Instructor)
Joyce H. Smith, BA, West Liberty State College; MS, West Virginia University—Counselor
Sandra Ebling, BS, MS, Fredonia State University—Academic Coordinator
Goldie D. Ross, AAS, Rochester Institute ofTechnology—Executive Secretary

Horton Child Care Center

Anne Hoenig, BA, The College of Wooster; MS Ed., Nazareth College—Director
Roberta D. Noto, BS, MS, Nazareth—Assistant Director
Lita Boudakian, BA, Queens College; MA, Southern Connecticut State College—Afternoon Coordinator
Carolyn Chizk, BA, Buffalo State—Teacher
Donna Gronemeyer, BA, Luther College—Teacher
Betty Sheridan, AAS, Monroe Community College— Teacher

International Student Affairs

Barbara Letvin, BS, Ohio State University; MS, SUNY at Brockport—Director
Mary Ann Campbell, BA, St. Mary's College—Assistant Director

Department of Intercollegiate Athletics and Department of Physical Education, Intramurals and Recreation

Louis W. Spiotti, Jr., BS, Ithaca; MS, Ed., SUNY at Brockport—Director, Department of Intercollegiate Athletics; Assistant Professor
Fred Bleiler, BS, MS, Ithaca College—Director, Department of Physical Education, Intramurals and Recreation; Professor
Neil A. Kromer, BA, Eisenhower College—Associate Director, Intercollegiate Athletics
Greg Moss, BS, SUNY at Oneonta—Assistant Director, Physical Education, Intramurals and Recreation
Daryl C. Sullivan, BS, Rochester Institute ofTechnology—Associate Director, Physical Education, Intramurals and Recreation; Assistant Professor
Louis A. Alexander, Jr., BS, University of Rochester—Chairman, Independent Study for Physical Education; Assistant to Director of Athletics; Professor
John P. Buckholtz, Jr., BS, SUNY at Cortland—Assistant Professor
Earl W. Fuller, BS, Waynesburg State College; M.Ed., Pittsburgh-Wrestling Coach; Professor
Eric Honberg, BS, Elmira College—Head Men's Hockey Coach, Coordinator of Eligibility
Janet Jones, BS, MS, SUNY at Brockport—Assistant Director, Athleics
Douglas J. May, BS, SUNY at Brockport; MS, University of North Carolina at Chapel Hill—Men's Soccer Coach; Associate Professor
Robert H. McVean, BS, SUNY at Brockport—Basketball Coach; Associate Professor
Ann Nealon—Women's Tennis Coach; Assistant Professor
Kathy Robords, BS, SUNY at Cortland—Women's Swim Coach; Assistant Professor
Linda Salladei—Administrative Assistant, Physical Education, Intramurals and Recreation
Diman Smith, BS, MS, SUNY Brockport—Head Trainer
Helen Smith—Professor
Peter J. Todd, BS, SUNY at Cortland—Men's Track and Cross Country Coach; Associate Professor
Guy VanArsdale, BA, Hobart—Men's Lacrosse Coach, Assistant Professor

Office of Minority Student Affairs

Michael Ayewoh, BS, Tennessee State University; MS, M.Ed., Ph.D., Pennsylvania State University—Director; (Assistant Professor)

Office of Special Services

Marie Giardino, BA, Nazareth College; Middlebury College—Director
Jacqueline Lynch Czamanske, MS. Ed., Nazareth College of Rochester—Coordinator/ Learning Disabilities Specialist
David L. Watson, BA, MA, University of Montana—Counselor,

Orientation and Special Programs

Dawn T. Murley, BS, Rochester Institute ofTechnology—Director
Cheryl H. Phillips—Assistant to the Director

Residence Life

Daniel Ambrose—Coordinator, Staff Training & Development for Student Development
Nancy Burgess, BA, M.Ed., Alfred University—Acting Director of Off Campus and Apartment Life
Renee Camerlengo, BA, SUNY Oswego; M.Ed., University of Vermont—.Area Complex Director
Frank Ciccia, BA, D'Youville College; MA, Buffalo State College—Area Complex Director
Carla DiLella—Coordinator of Assignments
Geraldine Drum—Coordinator, Budget/Dept. Auditor
Anne Dohrenwend, BA, SUNY Geneseo; MS, University of Vermont—Area Complex Director
Karen Ely, BA, Thiel College; MA, College of Saint Rose—Area Complex Director
Mary Every—Coordinator of Summer Conferences/Special Projects
Jane Hendriksma, BA, Calvin College; MA, Michigan State University—Assistant Director for Student Development
Carol Reed, BA, Ladycliff College; M.Ed., University of Southern Maine—Assistant Director for Administrative Services
Nancy Rienzo—Administrative Assistant, Off Campus and Apartment Life
John Weas, BA, MA, Indiana University—Director of Off Campus and Apartment Life
Lillie Williams—Coordinator of Purchasing

Student Health Service

E. Cassandra Jordan, BA, Clark College; BS, Meharry Medical College; MS, SUNY at Geneseo—Director
Igor Mihajlov, MD, Faculty of Medicine, Zagreb University—Medical Director
Beth White—Administrative Assistant
Martin Zinaman, MD, Downstate Medical Center—Staff Physician
Sharon Emerson, BSN, Northeastern University—Nurse Practitioner
Julie Leonardo, BS, MS, University of Rochester School of Nursing—Nurse Practitioner
Marsha Robinson, BSN, University of Pittsburgh; MS, University of Rochester —Nurse Practitioner
Alice Cutaiar, RN, Highland Hospital School of Nursing; AAS, Monroe Community College—Staff Nurse
Donna Dietz, BSN, Alfred University —Head Nurse
Laura McGrath, BSN, SUNY, Brockport—Staff Nurse
Deanna Turner, RN, Swedish Covenant Hospital School of Nursing—Staff Nurse
Manizheh Eghbali, BS, University of Arizona; MPH—Health Education Coordinator
Jill Travers-Crumb, BS, Empire State College—Interpreter

Student Activities and Union Services

Helene K. Mangiaris, BS, MS, SUC Brockport—Director
Michael T. D'Arcangelo, BA, Westminster College; MA, Bowling Green State University—Assistant Director
Dorothy J. Brown, BA, Daemen College; MS, SUNY at Buffalo-Coordinator of Greek Affairs/ Student Affairs
Richard Morse, AAS, CCFU-Coordinator for Program/Building Support Services
Kelly Thompson, BS, Rochester Institute ofTechnology—Temporary Coordinator of Campus Information & Reservations

EMERITUS FACULTY

Charles Arnold, Jr., Professor Emeritus, Photographic Arts and Sciences
Bekir Arpag, Professor Emeritus, Printing Management and Sciences
Hans J. Barschel, Professor Emeritus, Art and Design
Edward Brabant, Professor Emeritus, Printing
Evelyn Brandon, Professor Emeritus, Liberal Arts
Harold J. Brennan, Dean Emeritus, College of Fine and Applied Arts
Mary E. Burnet, Professor Emeritus, Business Administration
William Burns, Professor Emeritus, College of Science
Henry Cassia, Associate Professor Emeritus, College of Business
You-Keng Chiang, Professor Emeritus, College of Business
Frank A. Clement, Professor Emeritus, Liberal Arts

Margaret D'Ambruso, Professor Emeritus, College of Science
Silvio DeCristofaro, Professor Emeritus, College of Continuing Education
Stanley M. Dye, Distinguished Lecturer Emeritus, College of Business
Mark Ellingson, President Emeritus
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Albert Erskine, Professor Emeritus, College of Science
Dale F. Gibson, Associate Professor Emeritus, Business
Loy Golladay, Professor Emeritus, English, National Technical Institute for the Deaf
Ruth E. Gutfrucht, Professor Emeritus, Art and Design
William F. Halbleib, Professor Emeritus, Mechanical Engineering
Frances H. Hamblin, Professor Emeritus, Liberal Arts
A. Ronald Handy, Associate Professor Emeritus, School of Photographic Arts and Sciences
William J. Hayles, Professor Emeritus, College of Science
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Warren L. Hickman, Professor Emeritus, College of Liberal Arts
Richard J. Hoerner, Professor Emeritus, College of Science
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Charles W. Hunt, Associate Professor Emeritus, Printing
Harold Kentner, Professor Emeritus, Continuing Education
Lakshmi Mani, Professor Emeritus, Liberal Arts
Marion L'Amoreaux, Associate Professor Emeritus, Reading and Study Clinic
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Douglas M. Marshall, Associate Professor Emeritus, Mechanical Engineering
Lane McCord, Associate Professor Emeritus, College of Science
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Russell A. Norton, Professor Emeritus, College of Continuing Education
Robert Panara, Professor Emeritus, National Technical Institute for the Deaf
Egidio Papa, Associate Professor Emeritus, Liberal Arts
Robert D. Pease, Dean Emeritus, College of Continuing Education
Daniel Petrizzi, Professor Emeritus, Eisenhower College
James Philbin, Professor Emeritus, College of Liberal Arts
Harold Raphael, Professor Emeritus, Packaging Science
George W. Reed, Professor Emeritus, Electrical Engineering
Albert D. Rickmers, Professor Emeritus, Photographic Arts and Sciences
Donald L. Ritchie, Professor Emeritus, Printing
Donald C. Robinson, Department Head Emeritus, Electrical Engineering
Nile Root, Professor Emeritus, School of Photographic Arts and Sciences
Nina M. Sandberg, Associate Professor Emeritus, College of Science
Julian Salisnjak, Professor Emeritus, Liberal Arts
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Gerhard Schumann, Professor Emeritus, Photographic Arts and Sciences
Norris Shea, Professor Emeritus, Liberal Arts
Edward L. Scouten, Professor Emeritus, English, National Technical Institute for the Deaf
Anthony Sears, Professor Emeritus, Printing
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Leo F. Smith, Vice President Emeritus, Academic Administration
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G. Hollister Spencer, Professor Emeritus, Business Administration
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John Trauger, Professor Emeritus, Photographic Arts and Sciences
Arden L. Travis, Professor Emeritus, College of Business
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Robert Webster, Associate Professor Emeritus, College of Graphic Arts and Photography
Norman J. Weinreber, Associate Professor Emeritus, College of Applied Science and Technology
Mason E. Wescott, Professor Emeritus, Statistics
Helen W. Wheeler, Associate Professor Emeritus, Reading and Study Clinic
Dorothy Widmer, (Professor Emeritus), Student Affairs
Edwin M. Wilson, Professor Emeritus, Photographic Arts and Sciences
Eugene O. Wilson, Associate Professor Emeritus, Business
Stanley H. Witmeyer, Professor Emeritus, College of Fine and Applied Arts

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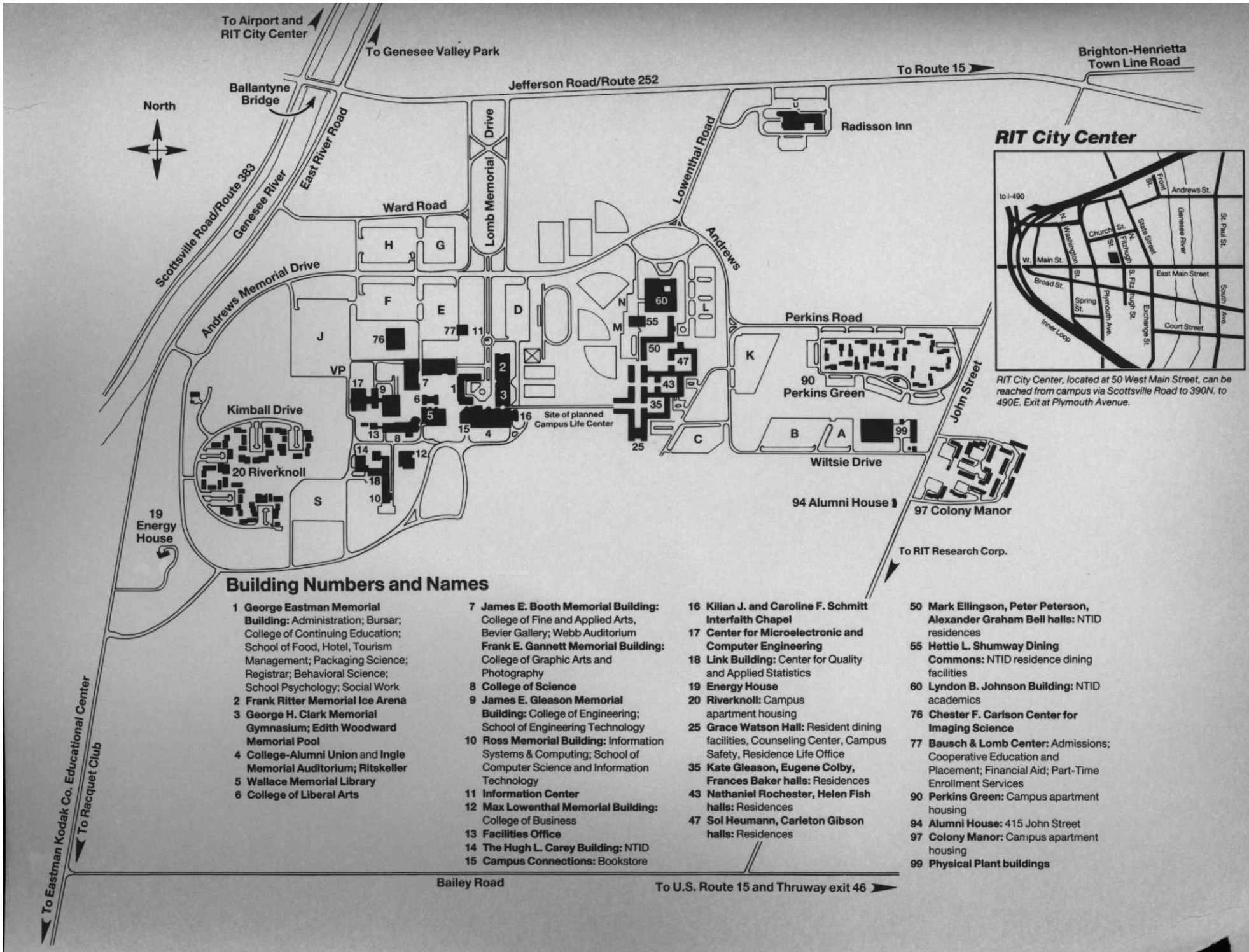

RIT City Center, located at 50 West Main Street, can be reached from campus via Scottsville Road to 390N. to 490E. Exit at Plymouth Avenue.

Building Numbers and Names

1 **George Eastman Memorial Building:** Administration; Bursar; College of Continuing Education; School of Food, Hotel, Tourism Management; Packaging Science; Registrar; Behavioral Science; School Psychology; Social Work
2 **Frank Ritter Memorial Ice Arena**
3 **George H. Clark Memorial Gymnasium; Edith Woodward Memorial Pool**
4 **College-Alumni Union** and **Ingle Memorial Auditorium; Ritskeller**
5 **Wallace Memorial Library**
6 **College of Liberal Arts**
7 **James E. Booth Memorial Building:** College of Fine and Applied Arts, Bevier Gallery; Webb Auditorium
Frank E. Gannett Memorial Building: College of Graphic Arts and Photography
8 **College of Science**
9 **James E. Gleason Memorial Building:** College of Engineering; School of Engineering Technology
10 **Ross Memorial Building:** Information Systems & Computing; School of Computer Science and Information Technology
11 **Information Center**
12 **Max Lowenthal Memorial Building:** College of Business
13 **Facilities Office**
14 **The Hugh L. Carey Building:** NTID
15 **Campus Connections:** Bookstore
16 **Kilian J. and Caroline F. Schmitt Interfaith Chapel**
17 **Center for Microelectronic and Computer Engineering**
18 **Link Building:** Center for Quality and Applied Statistics
19 **Energy House**
20 **Riverknoll:** Campus apartment housing
25 **Grace Watson Hall:** Resident dining facilities, Counseling Center, Campus Safety, Residence Life Office
35 **Kate Gleason, Eugene Colby, Frances Baker halls:** Residences
43 **Nathaniel Rochester, Helen Fish halls:** Residences
47 **Sol Heumann, Carleton Gibson halls:** Residences
50 **Mark Ellingson, Peter Peterson, Alexander Graham Bell halls:** NTID residences
55 **Hettie L. Shumway Dining Commons:** NTID residence dining facilities
60 **Lyndon B. Johnson Building:** NTID academics
76 **Chester F. Carlson Center for Imaging Science**
77 **Bausch & Lomb Center:** Admissions; Cooperative Education and Placement; Financial Aid; Part-Time Enrollment Services
90 **Perkins Green:** Campus apartment housing
94 **Alumni House:** 415 John Street
97 **Colony Manor:** Campus apartment housing
99 **Physical Plant buildings**