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**General Information
& Undergraduate Programs
1986-87**

Rochester Institute of Technology
Rochester, New York

Rochester Institute of Technology

1986-87 Institute Calendar

• **FALL QUARTER**

July 7-August 8	Mail-In Registration
July 7-August 29	Walk-In Registration
September 3	Open Registration
September 4	Day College Open Registration (New Students)
September 5	Day College Open Registration (Returning Students)
September 6	Saturday Classes Begin
September 8	Day & Evening Classes Begin
September 8	Non-Matriculated Registration (Day College Students)
September 12	Physical Education Registration
October 31	Last Day to Withdraw with a Grade of "W"
November 8	Last Saturday Class (Day)
November 14	Last Day Class
November 15	Last Saturday Class (CCE)
November 17-20	Exam Week
November 21	Last Evening Class
November 22-29	Fall/Winter Break

• **WINTER QUARTER**

November 3-14	Mail-In Registration
November 3-21	Walk-In Registration
November 25	Open Registration
December 1	Evening Classes Begin
December 1	Day College Open Registration
December 2	Day Classes Begin
December 2	Non-Matriculated Registration (Day College Students)
December 6	Saturday Classes Begin
December 8	Physical Education Registration
December 20	Last Day of Classes Before Break
January 5	Classes Resume
February 6	Last Day to Withdraw with a Grade of "W"
February 23	Last Day Class
February 24	Reading Day (No Day Classes)
February 25-28	Exam Week
February 28	Last Evening & Saturday Class
March 1-8	Winter/Spring Break

• **SPRING QUARTER**

February 2-13	Mail-In Registration
February 2-27	Walk-In Registration
March 4	Open Registration
March 9	Day College Open Registration
March 9	Evening Classes Begin
March 10	Day Classes Begin
March 10	Non-Matriculated Registration (Day College Students)
March 14	Saturday Classes Begin
March 16	Physical Education Registration
May 1	Last Day to Withdraw with a Grade of "W"
May 16	Last Saturday Class (Day)
May 18	Last Day Class
May 19-22	Exam Week
May 23	Last Saturday Class (CCE)
May 23	COMMENCEMENT
May 24-28	Spring/Summer Break

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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 contractual obligation with its students for the contents of this Undergraduate Bulletin.

RIT admits and hires men and women, veterans and disabled individuals of any race, color, national, or ethnic origin, or marital status in compliance with all appropriate legislation, including the Age Discrimination Act. The compliance officer is James Papero.

General Information and Undergraduate Study 1985-86

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Produced by
RIT Communications

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
One Lomb Memorial Drive
P.O. Box 9887
Rochester, N.Y. 14623
(716) 475-6631

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RIT

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Overview of Rochester Institute of Technology

RIT at a Glance

FOUNDED IN 1829 and emphasizing career education, Rochester Institute of Technology 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, 1,450 graduate students and 4,500 part-time students. Enrolled students represent all 50 states and 63 foreign countries.

RIT alumni number 50,000 worldwide.

RIT is the fourth oldest and fourth largest cooperative education institution in the United States, annually placing 3,000 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.

President's View

"RIT means access to the future for thousands of young people and adults seeking a quality career education," says President M. Richard Rose. "For those of us who work and study here, RIT is a dynamic and progressive university that always has been willing to take those extra steps necessary to maintain relevant career and professional programs.

"In many ways, RIT also symbolizes much of what we find so desirable about our community, particularly through its attractive blend of tradition, culture, innovation, business and education.

"In many ways RIT has grown hand-in-hand with greater Rochester itself. Its very roots are in the area's early industry. Our link to business and industry can be seen

in our broad array of evening courses, focused on assisting individuals in career advancement.

"We are proud of our link with Rochester's history and growth. We hope you will share in our pride as RIT provides access to the future for our students and the entire community."

RIT's Mission and Goals

With a history of more than 150 years, Rochester Institute of Technology is a privately endowed, coeducational, nonsectarian major institute of higher education. Its principal task is preparing students for technological and managerial competence in a world of change.

RIT is composed of nine colleges: Applied Science and Technology, Business, Continuing Education, Engineering, Fine and Applied Arts, Graphic Arts and Photography, Liberal Arts, Science, and the federally funded National Technical Institute for the Deaf.

The Institute offers a variety of master's, bachelor's and associate degrees as well as certain certificate and diploma programs.

Some of these offerings are unique or unusual: imaging science, microelectronic engineering, printing, packaging science and the programs in the School for American Craftsmen and the National Technical Institute for the Deaf.

Many of RIT's degree programs offer co-op, a formal program of study augmented by work off campus in the student's chosen field. Pioneered by RIT in New York State, the cooperative educational concept enhances the Institute's "learn by doing" philosophy.

An increasing number of RIT alumni enter graduate schools, but an RIT education helps many graduates move directly into professional occupations.

RIT students

Reflecting the diversity of RIT's programs, students come from every state and many foreign countries. More than 45 percent 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 older 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. Veterans' programs at the Institute help vets

deal with the machinery of the Veterans' Administration and with the opportunities the government offers them.

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, 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 149.

An ongoing intent
When the Rochester Athenaeum was founded in 1829 its intent was to prepare students for "the making of a living and the living of a life." One hundred and fifty-seven years later, RIT's seventh president, Dr. M. Richard Rose, continues advocacy of that purpose: "This saying speaks of making a

living and living a life not as two distinct processes, but as one. It is an idea that is central to the type of education that we do best here at RIT."

RIT continues to emphasize teaching and research as the essential responsibilities of the faculty. In support of this are such activities as the Institute Committee on Effective Teaching, individual and group projects to improve teaching productivity and collegiate support for faculty who engage in business and industrial research.

Colleges and Schools

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

Business

Continuing Education

Engineering

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

Graphic Arts and Photography (Imaging Science, Printing, 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), 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).

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

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

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.

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 Team—ice hockey, tennis, track, swimming, cross country, soccer, Softball and volleyball

Over 60 percent of RIT students participate in one or more of our 19 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 your curriculum and offer eligible undergraduates excellent scholarship opportunities. All three ROTC branches are available. (For additional information, see page XX.)

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.

Undergraduate Full-Time Programs	College	AOS	Degree and HEGIS*					Page
			AS	AAS	BFA	BS	B.Tech	
Accounting	Business		5002			0502		39
Biology	Science		5604			0401		137
Biotechnology	Science					0499		138
Ceramics & Ceramic Sculpture	Fine & Applied Arts			5610	1009			90
Chemistry	Science		5619			1905		139
Communication, Tech. & Professional	LiberalArts**							129
Communications†								
Audiovisual	Applied Science 4 Technology					0605		9
Biomedical Photographic	Graphic Arts & Photography			5299		1217		102
Computer Science	Applied Science & Technology			5101		0701		11
Computer Technology	Applied Science & Technology			5399			0925	15
Computing, Biomedical	Science		***			1217		144
Craft Major, Double	Fine & Applied Arts				1009			91
Criminal Justice	Liberal Arts					2105		124
Design								
Graphic	Fine & Applied Arts			5012	1009			90
Industrial & Interior	Fine & Applied Arts			5012	1009			90
Diag. Med. Sonography (Ultrasound)	Science			5299		1299		143
Dietetics & Nutritional Care, General	Applied Science & Technology			5405		1306		28
Economics	Liberal Arts					2204		128
Engineering								
Computer Engineering	Engineering					0999		80
Electrical Engineering	Engineering					0909		81
Industrial Engineering	Engineering					0913		83
Mechanical Engineering	Engineering					0910		85
Microelectronic Engineering	Engineering					0999		87
Engineering Technology								
Civil Engineering Technology	Applied Science & Technology						0925	13
Electrical Engineering Technology	Applied Science & Technology						0925	17
Energy Engineering Technology	Applied Science & Technology						0925	20
Manufacturing Engineering Technology	Applied Science & Technology						0925	21
Mechanical Engineering Technology	Applied Science & Technology						0925	19
Film/Video	Graphic Arts & Photography			5008		1010		103
Food Service Administration	Applied Science & Technology			5405		1307		25
Glass	Fine & Applied Arts			5012	1009			90
Illustration								
Medical Illustration	Fine & Applied Arts					1299		90
Painting-Illustration	Fine & Applied Arts			5610	1002			90
Printmaking-Illustration	Fine & Applied Arts			5610	1002			90
Imaging Science	Graphic Arts & Photography			5007		1011		110
Imaging & Photographic Science	Graphic Arts & Photography			5007		1011		104
Information Systems	Business					0599		41
Interpreting (for hearing-impaired)	National Technical Institute for the Deaf			5506				152
Manufacturing & Materials Management*	Business							42
Mathematics								
Applied Mathematics	Science		5617			1703		141
Computational Mathematics	Science					1703		142
Medical Technology	Science					1223		145
Metalcrafts & Jewelry	Fine & Applied Arts			5012	1009			91
Newspaper Production Management	Graphic Arts & Photography					0699		117
Nuclear Medicine Technology	Science					1299		146
Optical Finishing Technology	NTID							
Packaging Science	Applied Science & Technology					4999		31
Packaging Science (design option)	Fine & Applied Arts					4999		90
Painting, Printmaking	Fine & Applied Arts			5610	1001			92
Photographic Illustration								
Professional	Graphic Arts & Photography			5007	1011			108
Photographic Marketing Management	Business			5004		0509		48
Photographic Processing & Finishing Management	Graphic Arts & Photography			5007		0599		107
Photography, Technical	Graphic Arts & Photography			5007		1011		104
Physics	Science		5619			1902		144
Polymer Chemistry	Science					1907		
Printing	Graphic Arts & Photography			5009		0699		113
Printing & Applied Computer Science	Graphic Arts & Photography					0699		117
Printing Systems Management	Graphic Arts & Photography					0699		116
Retailing	Business			5004		0509		46
Social Work	Liberal Arts					2104		126
Statistics, Applied	Science					1702		143
Weaving & Textile Design	Fine & Applied Arts			5012	1009			91
Woodworking & Furniture Design	Fine & Applied Arts			5012	1009			91

*Higher Education General Information Survey

†State Education Dept. approval pending

*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 & Television; Imaging & Photographic Science; Medical Illustration; Packaging Science (Design Option); Photographic Illustration (Professional); Printing; and Printing & Applied Computer Science.

Undergraduate Programs	Degree and HEGIS* Code					
	AS	AAS	BFA	BS	B.Tech	AOS
College of Applied Science & Technology						
Audiovisual Communications				0605		
Civil Engineering Technology					0925	
Computer Science		5101		0701		
Computer Technology		5399			0925	
Electrical Engineering Technology					0925	
Energy Engineering Technology					0925	
Food Service Administration		5405		1307		
General Dietetics & Nutritional Care		5405		1306		
Manufacturing Engineering Technology					0925	
Mechanical Engineering Technology					0925	
Packaging Science				4999		
College of Business						
Accounting		5002		0502		
Business Administration		5001		0506		
Information Systems				0599		
Manufacturing & Materials Management"						
Photographic Marketing Management		5004		0509		
Retailing						
College of Continuing Education						
Applied Arts and Science						
College of Engineering						
Computer Engineering				0999		
Electrical Engineering				0909		
Industrial Engineering				0913		
Mechanical Engineering				0910		
Microelectronic Engineering				0999		
College of Fine « Applied Arts						
Ceramics & Ceramic Sculpture		5610	1009			
Double Craft Major			1009			
Graphic Design		5012	1009			
Industrial & Interior Design		5012	1009			
Medical Illustration			1299			
Painting; Printmaking		5610	1002			
Painting-Illustration		5610	1002			
Printmaking-Illustration		5610	1002			
Glass		5012	1009			
Metalcrafts & Jewelry		5012	1009			
Packaging Science (Design option)				4999		
Weaving & Textile Design		5012	1009			
Woodworking & Furniture Design		5012	1009			
College of Graphic Arts and Photography						
Biomedical Photographic Communications		5299		1217		
Film & Television		5008		1010		
Imaging & Photographic Science		5007		1011		
Newspaper Production Management				0699		
Photographic Processing & Finishing Mgmt		5007		0599		
Printing		5009		0699		
Printing & Applied Computer Science				0699		
Printing Systems Management				0699		
Professional Photographic Illustration		5007	1011			
Imaging and Photographic Technology		5007		1011		
College of Liberal Arts						
Criminal Justice				2105		
Economics				2204		
Professional & Technical Communication"						
Social Work				2104		
College of Science		5617		1703		
Applied Mathematics		5617		1703		
Applied Statistics				1702		
Biology		5604		0401		
Biomedical Computing				1217		
Biotechnology				0499		
Chemistry		5619		1905		
Polymer Chemistry				1907		
Computational Mathematics				1703		
Diagnostic Med. Sonography (Ultrasound)				1299		
Medical Technology				1223		
Nuclear Medicine Technology				1299		
Physics		5619		1902		
National Technical Institute for the Deaf						
Interpreting (for the hearing-impaired)		5506				
Optical Finishing Technology						

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****Enrollment in other than registered or otherwise approved programs may jeopardize a student's eligibility for certain student aid awards. All the above programs are registered according to the indicated HEGIS* code.

*Higher Education General Information Survey

**State Education Dept. approval pending

***Students in these programs receive an AS in General Science (HEGIS #5649) upon successful completion of the first two years.

Undergraduate Part-Time Programs	College	Degree and HEGIS* Codes				Page
		Dipl.	AAS	BS	B.Tech	
Accounting	Continuing Education		5002			51
Accounting	Business			0502		39
Applied Arts and Science [†]	Continuing Education	†	†	†		00
Applied Science						
Chemistry	Continuing Education		5305	1905		62
Electrical	Continuing Education		5399	0909		63
Mechanical	Continuing Education		5301	0910		65
Mechanical/Industrial	Continuing Education		5301	0913		64
Architectural Drawing	Continuing Education	5304				71
Automated Equipment Technology	Continuing Education	5311**				73
Auto. Screw Mach. Oper.	Continuing Education	5312				72
Building Technology	Continuing Education	5317				71
Business Administration	Continuing Education		5001			51
Computer Systems	Continuing Education		5101			67
Criminal Justice	Liberal Arts			2204		124
Drafting Technology	Continuing Education	5303**				75
Economics	Liberal Arts			2204		128
Electronics	Continuing Education	5310				71
Engineering Science	Continuing Education		5609**			66
Engineering Technology						
Electrical	Applied Science & Technology				0925	17
Manufacturing	Applied Science & Technology				0925	20
Mechanical	Applied Science & Technology				0925	19
Finance	Business			0506		40
Fine and Applied Arts	Continuing Education	5012				57
General Education	Continuing Education		5699			55
Graphic Arts	Continuing Education		5012	1002		60
Industrial Technology						
Building Technology	Continuing Education		5317			69
Electrical	Continuing Education		5310			68
Electromechanical	Continuing Education		5311			69
Mechanical	Continuing Education		5315			70
Instrument Making & Experimental Work	Continuing Education	5312				71
Machine Design	Continuing Education	5303				71
Machine Shop	Continuing Education	5303				71
Machine Tool Technology	Continuing Education	5301 ***				75
Management	Business			0506		43
Management Development (also certificate, 5004)	Continuing Education	5004				52
Manufacturing Technology	Continuing Education		5399			70
Marketing	Continuing Education		5004			54
Marketing	Business			0506		45
Pkging. Machinery Mech.	Continuing Education	5311 ***				76
Personnel Administration	Continuing Education		5004			53
Personnel Administration	Business			0506		44
Photographic Science	Continuing Education		5007	0999		59
Photography	Continuing Education	5007				59
Printing	Continuing Education	5009				58
Production Management	Continuing Education		5004			54
Production Management	Business			0506		42
Professional Photography	Continuing Education		5007			59
Real Estate/Insurance*	Continuing Education					53
Social Work	Liberal Arts			2104		126
Tool & Die Making	Continuing Education	5312				71
Tool Design	Continuing Education	5303				71
Tool Engineering	Continuing Education	5303				71
Traffic & Transportation Management	Continuing Education		5004			54
Turret Lathe & Chucker Operation	Continuing Education	5312				54

*Higher Education General Information Survey

**AS degree

***Offered through School of Applied Industrial Studies

+Courses offered for NYS licensure

† State Education Dept. approval pending.

Students can also participate on a full time basis

College of Applied Science and Technology

Dennis C. Nystrom, Dean

Organized in 1972, the College of Applied Science and Technology incorporates the School of Engineering Technology; the School of Computer Science and Technology; the School of Food, Hotel and Tourism Management; the Department of Packaging Science, the Department of Instructional Technology; and the Department of Career and Human Resource Development. 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 34).

The School of Engineering Technology has primarily upper-division programs accepting transfer students with appropriate associate degrees. The exception is the school's new program in computer technology, which accepts freshman students. 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, production, construction, energy, and environmental concerns.

The School of Computer Science and Technology, started in 1971, is one of the most highly regarded schools of computer science in the nation. All programs in the school can be entered as a freshman or as a transfer student. To support its laboratories, the school is equipped with four VAX 11/780s, a Pyramid 90X RISC machine, a PDP 11/34 and an 11/70, and an array of mini, micro and graphics computer facilities. Most recently the school added five new Motorola 68000-based super microcomputers, and a new data communications and networking laboratory has been established through NSF funding. These all operate under the UNIX environment. A recent National Science Foundation grant is helping to equip a new networking and data communications laboratory. Cooperative education is required of all students.

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. With recently remodeled laboratories, the programs offer a variety of state-of-the-art equipment and systems. Cooperative education, which alternates periods of study and employment, is required of all students and provides the possibility of assignments at locations throughout the country. Graduates who earn a BS degree with a major in dietetics 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 science industry. The cooperative education program is optional in this department.

The Department of Instructional Technology offers both upper-division work in audiovisual communications and graduate programs in instructional technology. The audiovisual communications program is one of only a few such baccalaureate degree programs in the country. Students obtain direct experience in creating and running multi-image presentations requiring 15 or more slide projectors.

The Department of Career and Human Resource Development offers the master's degree program with an emphasis on human resource long-range forecasting and planning.

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. The extensive computer facilities mentioned previously are totally dedicated to academic support. 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. The audiovisual communications laboratory is probably the only one in the world with the resources required to produce and stage 30-projector multi-language shows on three different major programming systems.

Acceptance of the associate degree

With the exception of the computer technology program, the School of Engineering Technology and the Department of Instructional Technology (audiovisual communications) function as upper-division units. Holders of an appropriate associate degree from a community, junior, or technical college (or other similar two-year institutions) will receive full credit for those curricula leading to the bachelor's degree.

Engineering technology students may receive the engineering technology B.Tech. degree in three years of additional study in the cooperative educational program.

Audiovisual communications transfers may receive the BS degree with two additional years of study.

The School of Computer Science and Technology and the Department of Packaging Science admit students into upper-division years and accept the associate degree at full value if the associate degree is obtained in a computer-related program or a packaging science program, respectively. They also operate programs which accept high school graduates.

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. Teaching is their primary concern and they 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 service is included in detail on pages 153-154 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. The programs reflect RIT's goal of offering students relevant, leading-edge, career-oriented programs that lead to rewarding employment.

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

Computer Science: The 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 research programmers, systems programmers, applications specialists or computer systems analysts. Degrees granted: AAS-2 year; BS-5 year.

Computer Engineering: A program jointly offered with the Department of Electrical Engineering. Oriented to prepare students in hardware design, interface, and process control. Degree granted: BS-5 year with co-op.

Packaging Science: The two options—technical or management—prepare students for initial employment in the technical and engineering aspects of package development and production, structural 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 the broad range of skills which allow graduates to select from employment opportunities in environmental, construction and other civil professions. The program allows students to pursue career interests through the selection of technical electives. Degree granted: B.Tech.-3 year with co-op.

Computer Technology: A program of electronic hardware and computer software as applied to digital computers. Courses emphasize current technology in computers and graduates are prepared for employment in designing, manufacturing, and servicing computer systems. Transfer into the program with junior standing is available for those with associate degrees in appropriate fields. Degrees granted: AAS-2 year; B.Tech.-5 year with co-op.

• **Electrical Engineering Technology:** Early emphasis in this program is on further mastery in electronics, circuit theory, and mathematics. Later courses are elective options in electrical power, microelectronics, electronic communications, and digital computer design. Degree granted: B.Tech.-3 year with co-op.

• **Mechanical Engineering Technology:** Early emphasis in this program is on further mastery of mechanics, electricity, and mathematics. Later courses include electives in mechanical design and related areas. The practical and applied are emphasized. Degree granted: B.Tech.-3 year with co-op.

• **Manufacturing Engineering Technology:** A program to prepare persons to apply sophisticated techniques to production processes. Courses emphasize computer-aided manufacturing, productivity, and the related activities required to enter this increasingly complex field. Degree granted: B.Tech.-3 year with co-op.

Energy Engineering Technology: A program to prepare specialists in the field of energy management and control for industrial facilities, commercial establishments and residences. Degree granted: B.Tech.-3 years with co-op.

• **Audiovisual Communications:** Prepares students with production and design abilities to use various media. The graduate becomes an audiovisual communications specialist or an audiovisual producer. Degree granted: BS-2 year.

Food, Hotel and Tourism

Management: Prepares graduates for managerial positions in restaurants and other food service operations and hotels. The Hotel and Resort Management option develops comprehensive skills that prepare students for management training positions in the hotel/resort industry. The Travel Management option prepares graduates to plan, arrange, and coordinate travel for business and industry, wholesale tour operations, travel agencies and convention bureaus. Degree granted: BS-4 year.

Dietetics: Graduates can develop within a broad spectrum of interests from service to management positions in hospitals, nursing homes, and in the growing field of community nutrition (sponsored by national, state and local agencies). Also, large national restaurant chains often have dietitians in responsible staff positions. Degree granted: BS-4 year.

• Upper-division program only

Freshman Admission Requirements**Transfer Admission with junior standing**

Programt	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, data processing (with significant work in mathematics).
Packaging Science	Elem. Algebra; Inter. Algebra 1 year any science Additionally for the Technical option; Plane Geometry; Trigonometry	Additional mathematics, science	Packaging science, business administration, engineering technology, science, or equivalent.
Civil Engineering Technology	First years available at many two year colleges		Civil, construction technology, or equivalent.
Computer Technology	Elem. Algebra Inter. Algebra Plane Geometry Trigonometry Physics or Chemistry	Additional mathematics, science	Computer technology Electronics technology
Electrical Engineering Technology	First two years available at many two-year colleges and RIT's College of Continuing Education.		Electrical technology, electronics technology or equivalent.
Mechanical Engineering Technology	First two years available at many two-year colleges and RIT's College of Continuing Education		Mechanical technology, drafting and design technology or equivalent.
Manufacturing Engineering Technology	First two years available at some two-year colleges and RIT's College of Continuing Education		Manufacturing technology, mechanical technology, drafting & design technology or equivalent.
Energy Engineering Technology	First two years available at some two-year colleges		Air conditioning technology, energy technology, solar technology, environmental systems technology, mechanical engineering technology, or equivalent.
Audiovisual Communications	First two years available at some two-year colleges		Audiovisual technology, film/television production, media production, communications, or comparable programs.
Food Management, Hotel and Resort Management Travel Management	Elem. Algebra; Inter. Algebra; 1 year chemistry	Additional mathematics and science	Food service management; hotel-motel management, travel management or equivalent.
Dietetics a) General-Traditional Plan IV b) C.U.P.	Elem. Algebra; Inter. Algebra; 1 year chemistry	Biology; additional mathematics	Dietetics or equivalent.

*All options include electives in social science, literature and humanities.

*Four years of English are required in all programs, except where state requirements differ.

Department of Instructional Technology

Clint Wallington,
Director

Bachelor of Science in Audiovisual Communications

Audiovisual support for a speaker used to be something special. Now it is commonplace. Presentations that, a decade ago, would have used one slide projector, now use a half dozen. Not so long ago, audiovisual was thought of as an adjunct

to communications. Today it is hard to think of communications without thinking of audiovisual. Behind the scenes of every show, every presentation, every training package is a core of professional audiovisual communications specialists who translate ideas into the reality of media. While the growth of audiovisual communications brings about a need for specialists in a particular medium like television, there is also a demand for a generalist in audiovisual—someone who can work in a variety of media formats and who can work at any stage of the process, from determining the client's need to staging the final presentation.

RIT's audiovisual communications program is specifically designed to expand and improve the skills of graduates of two-year programs in media or audiovisual technology. The RIT program is an upper-division transfer program leading to a bachelor of science degree after only two years of study. It is one of a handful of programs in the nation featuring high technology in audiovisual communications.

RIT's audiovisual communications program is an important stepping stone to job opportunities with audiovisual production companies. The program is innovative in concept, pragmatic in its approach,

Yr.	AUDIOVISUAL COMMUNICATION, BS DEGREE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	
3	ICIC-401 Message Design	4			
	ICIC-430 Audiovisual Presentation Design	4			
	ICIC-489 Audio for AV Presentations	4			
	ICIC-440 Audiovisual Program Design 1		4		
	ICIC-424 Visual Production Techniques		4		
	ICIC-450 Audiovisual Program Design II			4	
	ICIC-510 Writing for AV Programs			4	
	GLLC-502 Group Communication & Problem Solving		4		
	SBIG-289 Contemporary Science-Biology or SCHG-289 Contemporary Science-Chemistry or SMAM-289 Contemporary Science-Mathematics or SPSS-289 Contemporary Science-Physics: Choose one only this year			4 -	
	*LiberalArts (concentration)	4	4	4	
	‡ Physical Education	0	0	0	
	4	ICIC-595 Senior Project I	2		
		ICIC-405 AV Seminar		2	
ICIC-596 Senior Project II			2		
Two additional Contemporary Science courses (courses numbers as listed in year 3)			4	4	
AV Production Elective		4			
Management Elective				4	
*LiberalArts		4		8	
*LiberalArts (Senior Seminar)			2		
Professional Elective		4			
Free Elective		4	4		
‡ Physical Education		0	0	0	

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

and stresses the experiential base required for a career in audiovisual communications. The program specializes in multi-image production and staging.

Objectives

The primary objective of the audiovisual communications program is to fully prepare qualified individuals for professional employment as audiovisual communications specialists. The program emphasizes the technical skills needed to enter the job market and the creative and management skills required for career advancement. To help meet these objectives, faculty and students in the program participate in professional audiovisual associations and are involved in the design, production, and staging of audiovisual presentations for a wide range of clients. An advisory committee composed of audiovisual leaders and practitioners from both the private and public sector reviews the program periodically to keep the curriculum and educational activities up to date and relevant.

Curriculum

The curriculum concentrates on three major areas: designing audiovisual presentations, producing audiovisual presentations, and designing and coordinating audiovisual programs, which have one or more audiovisual presentation. It includes other activities leading to

the communications goals of the program. Featured as a specialty within presentation design and production is multi-image—the use of multiple slide projectors for high impact communications.

The emphasis of the curriculum is on technical competence combined with creative design skills and the interpersonal skills needed to work with clients and other production team members. Course assignments stress direct, hands-on experience in technical skills. The practical skills are balanced with the theory of why and how audiovisual communications work. A project—the design and production of an audiovisual presentation for a client—is required.

Admission requirements

The two-year BS degree program accepts transfer students of two-year colleges who hold an associate degree in such areas as audiovisual technology, media technology, photography, film making, television production, graphic design, commercial art, or other related fields.

Graduates from other programs in two-year colleges will be considered but may be required to take courses to make up any deficiencies in audiovisual production skill.

Graduation requirements

The BS degree in audiovisual communications requires the completion of a minimum of 192 quarter credit hours. Normally, entering students will have completed one half of this amount in a two-year program. In addition to the course work, a design and production project is also required. All students must meet the writing competency requirements to the professional courses; courses in liberal arts, sciences, and physical education are required.

Audiovisual production electives

ICIC-503 Practicum in Production
ICIC-571 Staging Multi-image

Presentations

ICIC-580 Producing Multi-image
Presentations I

ICIC-581 Producing Multi-image
Presentations II

ICIC-583 Advanced Multi-image
Project

ICIC-585 Producing Special Effects
Slides

ICIC-586 Producing Special Effects
Slides

ICIC-587 Advanced Special Effects
Slides Production

Other electives may be taken in the College of Continuing Education, the School of Engineering Technology and the School of Photographic Arts and Sciences, with permission of the appropriate department and the student's academic advisor.

School of Computer Science and Technology

Wiley R. McKinzie, Director

At the undergraduate level, the School of Computer Science and Technology offers two programs leading to baccalaureate degrees. The school accepts both high school and two-year college graduates, as freshmen and upper-division classmen 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 School of Computer Science and Technology are fully prepared for employment in computer industries and computer applications departments, or for further study at the graduate level.

Computer science program

The Bachelor of Science program in the Department of Undergraduate Computer Science 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 business. In summary, the BS program 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 or data processing, backed up by significant course work in mathematics and science.

Computer science and technology covers a wide spectrum of the field of computing. A computer scientist or technologist can specialize in areas such as data communications and networking, digital design and computer architecture, systems software, programming languages, computing theory, scientific computing 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 and technology student is required to take a core of computer science courses providing 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 five 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 electives, liberal arts courses, and a minor in a second discipline.

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

1. Computer science: required and elective courses in the areas of program development,

Yr.	COMPUTER SCIENCE PROGRAM, BS DEGREE	Qtr. Credit Hour*		
		FALL	WTR.	SPG.
1	ICSS-202 Introduction to Computer Science	4		
	ICSP-241 Programming I-Algorithmic Structures	4		
	ICSP-242 Programming II-Data Structures		4	
	ICSP-243 Programming III-Design and Implementation			4
	SMAM-251, 252, 253 Calculus	4	4	4
	SPSP-311 University Physics (Mechanics)			4
	GLLC-220 English Composition	4		
	* Liberal Arts		8	4
	‡Physical Education Electives	0	0	0
2	ICSP-305 Assembly Language Programming	4		
	ICSS-315 Digital Computer Organization		4	
	ICSS-325 Data Organization and Management		4	
	Professional Computer Science Elective			4
	SPSP-313 University Physics (Electricity and Magnetism)	.4		
	SMAM-305 Calculus	4		
	SMAM-351 Probability		4	
	SMAM-352 Applied Statistics I			4
	SMAM-265 Foundations of Discrete Mathematics			4
	* Liberal Arts	4	4	4
	‡Physical Education Electives	0	0	0
3	ICIC-444 Technical Writing for Computer Scientists		2	
	ICSS-440 Operating Systems		4	
	ICSS-420 Data Communication Subsystems		4	
	ICSP-450 Programming Language Concepts		4	
	Computer Science Concentration		12	
	Computer Science Electives		16	
	Minor		18-20	
	* Liberal Arts		26	
	Free Electives		8	
	Cooperative Education (4 quarters)			

(1) The 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
- ICSP-319 Scientific Applications Programming

(2) The computer science concentration consists of one of the following course sequences:

- Systems Software
 - ICSS-520 Computer Architecture
 - ICSS-540 Operating Systems Laboratory
 - ICSS-560 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-470 Finite State Machines
 - ICSS-480 Formal Languages
 - ICSS-515 Analysis of Algorithms
- Computer Information Systems
 - ICSS-435 Systems Specification, Design and Implementation
 - ICSS-485 Database Concepts
 - ICSP-488 Programming Systems Workshop

(3) Computer science courses may be taken as computer science electives except as noted in the Course Description Catalog.

(4) A minor consists of a set of coherent courses giving the student significant expertise in an area other than computer science. Typical minors include mathematics, engineering technology, and business.

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

†See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

2. Mathematics and science: courses covering calculus, physics, probability, statistics, and discrete mathematics.
3. Liberal arts: courses in language and literature, humanities, and social sciences.
4. Minor: a coherent set of courses in a discipline other than computer science. Most programs in the Institute can form the basis for a minor.

5. Free electives: courses chosen by the student based on his or her personal preferences.

Computer systems program

The Bachelor of Technology program in the Department of Applied Computer Studies provides students with the skills and technology fundamental to a career in business applications computing. Graduates from this program must master the principles and skills which underlie the disciplines of business data processing and data

management. These include hardware organization and assembly language, data structures, file management, business applications programming, system specification and design, data communications, and data base design and implementation.

Positions in business data processing and data management not only require a strong computing background, but also a solid set of analytical and business skills. For this reason, students are required to take a basic sequence of courses from the College of Business and the Department of Mathematics. The student may continue his or her professional elective concentration in either business or mathematics or may choose yet another relevant discipline at RIT.

The computer systems curriculum is designed to facilitate transfer for graduates of two-year programs in data processing or business computing.

All students in the School of 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. This program is only offered at off-campus sites. Contact the chairman of the Department of Applied Computer Studies for program details.

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 recently, RIT again was a pioneer in the development of baccalaureate programs in engineering technology. The bachelor of technology degree in engineering technology is designed to meet the growing need for engineering technologists at the baccalaureate level in a technology oriented society.

The educational distinctions between a bachelor of technology degree and a bachelor of science degree in engineering can be seen in the relative breakdown of the typical curriculum requirements:

	Typical AS/BS Program	Typical AAS/B. Tech Program
Interdisciplinary Courses	50 %	25 %
General Education Courses	25 %	25 %
Professional Courses	25 %	50 %

In this context, interdisciplinary courses are considered to be math and science courses, while general education includes courses in the areas of communications, humanities, literature and social science. Professional courses refer to those courses directly related to the particular technical field of study.

Upper-division programs

The School of Engineering Technology offers the following upper-division (junior-senior) programs leading to the bachelor of technology (B.Tech.) degree:

1. Civil Engineering Technology
2. Electrical Engineering Technology
3. Mechanical Engineering Technology
4. Manufacturing Engineering Technology
5. Energy Engineering Technology

The School of Engineering Technology upper-division programs are 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 heavily involved in professional studies, coupled with liberal education, mathemat-

ics, and on-the-job experience. Through the selection of technical electives 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.

Five-year program

The School of Engineering Technology offers a five-year cooperative education program leading to the bachelor of technology degree in computer technology. Students have the option of exiting the program after two years with an AAS degree. Transfer into the upper division of the program is available to graduates of associate degree programs in related engineering technology fields.

Accreditation

The programs of study leading to the bachelor of technology degree in civil engineering technology, electrical engineering technology, mechanical engineering technology, manufacturing engineering technology, and energy engineering technology are all 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.

Careers

The B.Tech. 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. Technologists 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 B.Tech. graduate to achieve additional experience prior to becoming eligible for the New York State Professional Engineer examination. Requirements differ in other states.

The AAS 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 work 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 upper-division programs the entering (junior) class is divided into two sections with one half of the class beginning their RIT program on a co-op job, and the other half beginning with their academic work. Detailed schedules are provided in the description of the individual programs on the following pages.

Admission requirements

Admission to the upper-division programs in the School of Engineering Technology 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 depart-

ment requirements for a more complete definition of an acceptable degree.

Admission may be offered to students with other associate degrees or program backgrounds. In such cases, students should contact the School of Engineering Technology for an individual evaluation of the appropriateness of their previous academic experience.

Admission to the five-year computer technology program is opened 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 admission is open to graduates of appropriate two-year college programs.

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 B.Tech 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.
B.Tech degree— The bachelor of technology 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 programs during the evening hours for part-time students:

1. Electrical Engineering Technology
2. Manufacturing Engineering Technology
3. Mechanical Engineering Technology

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, Chairman

Civil Engineering Technology, upper division 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 engineering into functioning systems and structures, using the language of codes, work drawings, specifications, and construction.

Entering students have a choice of following either a curriculum oriented towards environmental controls or towards the construction industry. In addition, the program is sufficiently broad in scope and allows for elective courses so that graduates of the program should find wide-ranging employment opportunities. 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.

Admission requirements

All students enter this program at the third-year level or higher having already received an appropriate associate degree in civil engineering technology or an acceptable equivalent. An appropriate associate degree should include:

- Technical Math (2 college-level courses with introduction to calculus)
- Drafting
- Technical Physics
- Soil Mechanics
- Surveying (2 semesters including Route Surveying)
- Statics
- Strength of Materials

Students lacking these courses may be required to take the missing courses prior to entry into the program or concurrently within a reasonable time.

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

Cooperative education plan

Work experience gained while completing alternating work and study quarters is especially valuable. A typical co-op job at a 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 treatment plants, checking control panels; operating valves, pumps, and other equipment; performing laboratory tests; or doing maintenance work. Students working in the construction field typically work in a wide range of duties from construction mechanics to assistant project superintendents doing change orders, estimating, drafting "as built" drawings, and surveying.

The scope of work accomplished varies with the interests of each student and increases in complexity with each succeeding job. Construction companies, larger corporations' construction and engineering departments, testing agencies, and all branches of government employ our students. Some students work their co-op quarters with the same employer while others choose various work experiences. All are expected to use their education on the job and to

Civil Engineering Technology cooperative education plan

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

Yr.	CIVIL ENGINEERING TECHNOLOGY, B. TECH DEGREE	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	Completion of an appropriate Associate degree			
2	or equivalent			
3	ITEC-099 Introduction to CET	0		
	#ITEC-420 Hydraulics	3		
	#ITEC-421 Hydraulics Lab	1		
	ITEC-428 Technical Communications	4		
	"SMAT-420 Calculus for Technologists I	(4)		
	SMAT-421 Calculus for Technologists II	4		
	ICSP-220 FORTRAN Programming for Engineers	4		
	Physical Education Elective	0		
	ITEC-404 Applied Mechanics of Materials		4	
	SCHG-271 Basic Chemistry		4	
	SCHG-275 Basic Chemistry Lab		1	
	"SMAT-421 Calculus for Technologists II		(4)	
	SMAT-422 Solutions of Engineering Problems		4	
ITEC-513 Computer Techniques in CET		2		
• Liberal Arts		4		
• Physical Education Elective		0		
4	ITEC-490 Structural Analysis	4		
	SCHG-272 Chemistry of Water & Wastewater	3		
	SCHG-276 Chemistry of Water & Wastewater Lab	1		
	ITEC-432 Water and Wastewater Transport Systems	2		
	"SMAT-422 Solutions of Engineering Problems	(4)		
	Technical Elective	4		
		4		
	ITEC-466 Professional Principles and Practices			1
	ITEC-495 Structural Design			4
	ITEC-438 Principles of Treatment of Water and Sewage			4
ITEC-527 Soil Mechanics and Foundations			3	
ITEC-528 Soil Mechanics Lab			1	
• Liberal Arts (Concentration)			4	
5	ITEC-530 Transportation Engineering		4	
	ITEC-422 Elements of Building Construction		4	
	Technical Elective		4	
	Technical Elective		2	
	Liberal Arts (Concentration)		4	
	ITEE-414 Basic Electrical Principles			4
	Technical Elective			2-4
	Free Elective			4
	• Liberal Arts (Concentration)			4
* Liberal Arts (Senior Seminar)			2	

*Students who successfully complete proficiency exam will take a technical elective in lieu of ITEC-420-421.
 • Entering students will take SMA T-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 SMA T-422 or equivalent. Rearrangement of the above schedule will be allowed to meet the math/science requirements.
 • See page 122 for Liberal Arts requirements.
 † See page 177 for policy on Physical Education.

bring back innovative, new, and unusually successful technologies to share with classmates.

Graduates

Past graduates with their B.Tech. 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 titles 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.

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 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.
ITEC 526 Industrial Wastewater	4 cr.
Construction	
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	2 cr.
ITEC 535 Pavement Design	4 cr.
ITEC 444 Mechanical Equipment	2 cr.
Other Electives	
ITEF 436 Engineering Economics	4 cr.
ITEC 500 Labor Relations	2 cr.
SMAM 309 Elementary Statistics	4 cr.
ITEC 580 Senior Civil Seminar	4 cr.
ITEC-514 Land Planning	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.

Computer Engineering Technology Department

Thomas J. Dingman, Chairman

Computer Technology, AAS and baccalaureate program

Background

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 technology degree.

Based on a foundation in physics and applied mathematics, the computer 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.

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.

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 B.Tech 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 Engineering 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 Lab
- D. ITEE 520 Electrostatic and Magnetic Fields
- ITEE 534 Analog Communications
- ITEE 535 Telecommunication Systems
- E. ITEE 560 Microelectronics I
- ITEE 561 Microelectronics II
- ITEE 562 Construction and Failure Analysis

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 TECHNOLOGY, B. TECH 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-203 Electronic Devices			4	
	ITEP-305 Drafting and Fabrication	4			
	*LiberalArts (Core)	4	4	4	
‡PhysicalEducation	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-243 Programming III	4			
	ICSP-305 Assembly Language Programming		4		
	ITEP-301 Digital Fundamentals	4			
	SMAT-422 Solution of Engineering Problems (B. Tech) or Liberal Arts (AAS)	4			
	ITEP-302 Linear Electronics		4		
	*LiberalArts (Core)		4	4	
	(TEP-303 Microcomputers			4	
	SMAM-205 Mathematics for Computing I			4	
	Physical Education	0	0	0	
3	SMAM-206 Mathematics for Computing II	4			
	ICSS-325 Data Organization and Management	4			
	ITEP-538 Digital Systems Design I	4			
	GLLC-403 Effective Technical Communications	4			
	SMAM-207 Mathematics for Computing III			4	
	ITEP-403 Advanced Circuit Theory			5	
	ITEP-539 Digital Systems Design II			4	
ICSS-440 Operating Systems			4		
4	ITEP-429 Advanced Electronics		4		
	ITEP-405 Control Theory		4		
	ICSS-420 Data Communications		4		
	Liberal Arts (Core) (Concentration)		4		
	SPSP-300 Intro Semiconductor Devices Physics				4
	ICSS-520 Computer Architecture I				4
	ITEP-540 Digital Systems Design III				4
5	ITEP-471 Topics in Computer Engineering Technology		4		
	*LiberalArts (Concentration)		4	4	
	*LiberalArts (Senior Seminar)			2	
	Professional Electives		8	8	

*See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.

Computer Technology cooperative education plan (five-year program)

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

Computer Technology cooperative education schedule (sample transfer program)

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

Electrical Engineering Technology Department

John A. Stratton, Chairman

Electrical Engineering Technology, upper division baccalaureate program

Background

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

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

The term technologist is used to define the graduate of this program, one whose professional training is in the application of existing technology and devices to the solution of routine engineering design problems.

The bachelor of technology program in electrical engineering technology offered at Rochester Institute of Technology is an upper-division program. The upper-division feature of the program provides a viable transfer option to those students who have completed their associate degree and desire to continue their education in technology.

The first two quarters of course work are designed to provide uniform mastery in the fields of mathematics, electronics, and circuit theory. The remaining four quarters of course work consist of professional courses with elective options in the fields of electrical power, electronic communications, microelectronics and digital computer design.

Elective courses are available for the student to pursue his or her chosen option and to provide course work that complements his or her professional objectives. Professional electives are normally assumed to be those shown as technical electives. However, the Institute provides a wide variety of course offerings and students are urged to make full use of these offerings in developing their professional programs. Academic advisors are provided to assist the student in this selection process.

For students who wish to concentrate their electives in a particular area, a sequence of courses is shown which provides a strong program in this area.

The curriculum also includes one year of cooperative work experience, and thus provides important training in the solution of real technical problems.

Entering students are divided into two groups, A and B, and are assigned to work or school according to the schedules shown. Note that half of the entering students will begin their program of studies at RIT by working on their co-op job.

Admission requirements

All students enter the program at the third year or junior level as transfers from existing two-year associate degree electrical technology programs. Students currently enrolled in engineering science associate degree programs may also apply and will 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 take remedial courses prior to matriculating into the program.

Electrical Engineering Technology cooperative education plan

Year		Fall	Winter	Spring	Summer
3 and 4	A	RIT	Work	RIT	Work
	B	Work	RIT	Work	RIT
5	A	RIT	Work	RIT	-
	B	Work	RIT	RIT	-

Yr.	ELECTRICAL ENGINEERING TECHNOLOGY, B. TECH DEGREE*	Qtr. Credit Hours		
		FALL-WTR.		SPG. SMR.
1	Completion of an appropriate associate degree or equivalent			
2				
3	ITEE-401 Transformed Circuits	4		
	ITEE-424 Logic and Digital Devices	4		
	ITEE-437 Computer Programming Techniques (Pascal)	4		
	**SMAT-421 Calculus for Technologists II	4		
	ITEE-402 Transformed Circuits II			3
	ITEE-425 Power Concepts			3
	ITEE-428 Linear Amplifier Design			4
	**SMAT-422 Solution of Engineering Problems			4
	*GLLC-403 Effective Technical Communications			4
‡Physical Education Elective	0		0	
4	ITEE-404 Control Systems I	4		
	ITEE-530 Operational Amplifiers	4		
	ITEE-542 Microprocessors	4		
	*Liberal Arts (Core)	4		
	‡Physical Education Elective	0		
	SCHG-240 Fundamentals of Chemistry			4
	ITEE-532 Power Amplifier Design			4
	*Liberal Arts (Core)			4
	Technical Elective			4
5	ITEM-408 Introduction to Strength of Materials	4		
	*Liberal Arts (Concentration)	4		
	ITEF-436 Engineering Economics	4		
	Technical Elective	4		
	*Liberal Arts (Seminar)	2		
	Technical Elective			4
			8	
			4	

*The program shown is typical for those entering with an appropriate associate degree. Graduates will have to meet a minimum of 36 quarter credits of mathematics and science (including credits transferred) and include mathematics SMA T-422 or equivalent. Re-arrangement of the above schedule will be allowed to meet the math/science requirements.

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

... Liberal ...

Elective sequences**Computer Design**

ITEE 558 Digital Computer Design I
 ITEE 539 Digital Computer Design II
 ITEE 543 Peripherals and Interfacing

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 Electives:

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

Evening program

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.

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

Electrical Engineering Technology B. Tech., Evening Program		
Year	Quarter	Courses:
1	Fall Fall Winter Winter Spring Spring	SMAT 420 - Calculus for Technologists I ITEE 437 - Computer Techniques SMAT 421 - Calculus for Technologists II ITEE 424 - Logic & Digital Devices SMAT 422 - Solution of Engineering Problems ITEE 542 - Microprocessors
2	Fall Fall Winter Winter Spring Spring	ITEE 401 - Circuit Theory I SCHG 240 - Fundamentals of Chemistry ITEE 402 - Circuit Theory II ITEM 408 - Introduction to Strength of Materials ITEE 404 - Control Systems I ITEF 436 - Engineering Economics
3	Fall Fall Winter Winter Spring Spring	ITEE 428 - Linear Amplifier Design Liberal Arts ITEE 530 - Application of Discrete and Integrated Circuit Elements GLLC 403 - Effective Technical Communications ITEE 532 - Power Amplifier Design ITEE 425 - Power Concepts
4	Fall Fall Winter Winter Spring Spring	Technical Elective Liberal Arts Technical Elective Liberal Arts Technical Elective Liberal Arts
5	Fall Fall	Liberal Arts Senior Seminar

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 547 - Digital Processing of Signals
 ITEE 550 - Power Systems I
 ITEE 551 - Protective Relaying
 ITEE 552 - Power Systems II
 ITEE 554 - Electronic Optic Devices

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

Mechanical Engineering Technology Department

Burton S. Garrell, Acting
Chairman

**Mechanical Engineering
Technology, upper division
baccalaureate program**

Background

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 (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, 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 expand their skills in the fundamentals of mechanics, mathematics and materials technology.

In senior quarters, the main concentration is in machine design, and a range of electives are available in this area.

Individuals will be allowed to select electives from energy specialization or the manufacturing technology program, provided they satisfy the prerequisites for the courses elected.

A substantial measure of laboratory work is required, including the preparation of quality reports. Some use of the computer is included in most courses.

Admission requirements

All students enter this program at the third-year level having received an appropriate associate degree in mechanical technology, design-drafting technology or an acceptable equivalent. It is expected that these programs will have provided the entrant with background in the following:

Mathematics through
Introductory Calculus
Physics
Mechanical Drafting
Manufacturing Processes
Statistics and Elementary
Strength of Materials
Machine Design

Technical electives Mechanical Engineering Technology

ITEM-406 Dynamics of Machinery
ITEM-442 Heat Transfer
ITEM-451 Vibration and Noise
ITEM-512 Computer Integrated
Mechanical Design
ITEM-521 Logic Control Systems
ITEM-530 Instrumentation
ITEM-535 Analog Control Systems
ITEM-540 Applied
Thermodynamics II
ITEM-599 Independent Study

Students also may elect courses from the manufacturing engineering technology or energy engineering technology programs.

Yr.	MECHANICAL ENGINEERING TECHNOLOGY B. TECH DEGREE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	Completion of appropriate associate degree				
2	or equivalent				
3	ITEM-404 Applied Mechanics of Materials	4			
	SCHG-240 Fundamentals of Chemistry	4			
	SCHG-275 Basic Chemistry Lab	1			
	**SMAT-421 Calculus for Technologists II	4			
	ITEM-429 Technical Communications	4			
	‡Physical Education	0			
	ITEM-405 Applied Dynamics		4		4
	**SMAT-422 Solution of Engineering Problems		4		4
	ITEM-407 MET Laboratory I		2		2
	ITEM-414 Materials Technology I		3		3
ITEM-432 Computers in MET		3		3	
‡Physical Education		0		0	
4	ITEM-440 Applied Thermodynamics	4	4		
	ITEM-415 Materials Tech. II	3	3		
	ITEM-411 Electrical Principles for Design I	4	4		
	*Liberal Arts	4	4		
	ITEM-409 MET Laboratory II	2	2		
	‡Physical Education	0	0		
	ITEM-460 Applied Fluid Mechanics			4	4
	ITEM-506 Machine Design			4	4
	ITEE-412 Electrical Principles for Design II			4	4
	**Liberal Arts			4	4
5	ITEM-465 Thermofluids Laboratory	3	3		
	Technical Elective	4	4		
	*Liberal Arts (Concentration)	4	4		
	*Liberal Arts (Concentration)	4	4		
	ITEM-508 Machine Design II			4	
	Technical Elective			4	
	Technical Elective			4	
	*Liberal Arts			4	
	Liberal Arts (Senior Seminar)			2	

***Entering 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 SMA T-422 or equivalent. Rearrangement of the above schedule will be allowed to meet the math/science requirements.*

**See page 122 for Liberal Arts requirements.*

‡See page 177 for policy on Physical Education.

Evening program

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, mechanics and materials technology are emphasized to provide the background for later courses in design and technical electives.

A typical sequence of courses for a part-time student might be as follows:

Technical electives that are available and appropriate for the Mechanical Engineering Technology program include:

Course

ITEM-406 Dynamics of Machinery
 ITEM-442 Heat Transfer
 ITEM-451 Vibration and Noise
 ITEM-512 Computer Integrated Mechanical Design
 ITEM-521 Logic Control Systems
 ITEM-530 Instrumentation
 ITEM-535 Analog Control Systems
 ITEM-540 Applied Thermodynamics II
 ITEM-599 Independent Study

Students also may elect courses from the manufacturing engineering technology program.

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

Energy Engineering Technology upper division baccalaureate program

Background

Energy has been a topic of discussion in the news for the past decade or more as a result of the energy crisis. The energy crisis generated rapid development in the energy field. These developments encompass exciting new technologies such as computer-controlled building systems, energy efficient designs for factories, commercial buildings and homes. Traditional energy work involving the design of heating and air conditioning systems, cogeneration plants and conventional power plants continues to be a very important part of the

economy. This 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 Energy Engineering Technology Program was developed to provide a direct route for persons having an associate degree in an energy area (air conditioning technology, solar technology, etc) to gain professional positions in the energy field. Persons having other credentials and a strong desire to enter this field also are encouraged to apply. The program is designed to prepare individuals to work in industrial facilities design, energy management and control, energy conservation, and the design of building heating, air conditioning and energy systems. These positions are with industrial corporations, utility companies, engineering consulting firms and mechanical contractors.

The curriculum

The curriculum in energy engineering technology has been designed with the assistance of professionals in the field and educators from two-year programs in air condition-

ing technology. It includes courses which these professionals feel are fundamental for success in the field. There is a very strong emphasis on energy topics: thermodynamics, heat transfer, fluid mechanics and electrical energy. Integrated with the energy courses are supporting courses in mathematics, electrical principles, and engineering economics. In addition to the required courses, students are encouraged to select technical electives to enhance their particular area of interest.

Admission requirements

The Energy Engineering Technology Program admits students holding an associate degree in air conditioning technology, energy technology, solar technology, environmental system technology or the equivalent. Interested persons not holding an associate degree in one of these areas are advised to contact the department to discuss admission.

MECHANICAL ENGINEERING TECHNOLOGY—B.TECH EVENING PROGRAM		
Year	Quarter	Course
1	Fall	SCHG-240 Basic Chemistry
	Fall	SCHG-275 Chemistry Lab
	Fall	SMAT-421 Calculus for Technologists II
	Winter	ITEM-404 Applied Mechanics of Materials
	Winter	ITEM-414 Materials Technology I
	Spring	SMAT-422 Solutions of Engineering Problems
	Spring	ITEM-405 Applied Dynamics
2	Fall	ITEM-429 Technical Communications
	Fall	ITEM-407 Mechanical Engineering Technology Lab I
	Winter	ITEM-432 Computers in Mechanical Engineering Technology
	Winter	ITEM-415 Materials Technology II
	Spring	ITEM-409 Mechanical Engineering Technology Lab II
	Spring	Liberal Arts (Core)
3	Fall	ITEE-411 Electrical Principles for Design I
	Fall	ITEM-440 Applied Thermodynamics
	Winter	Liberal Arts (Core)
	Winter	ITEE-412 Electrical Principles for Design II
	Spring	ITEM-460 Applied Fluid Mechanics
	Spring	Liberal Arts (Concentration)
4	Fall	ITEM-506 Machine Design I
	Fall	Technical Elective
	Winter	ITEM-508 Machine Design II
	Winter	Liberal Arts (Concentration)
	Spring	ITEM-465 Thermofluid Laboratory
	Spring	Technical Elective
5	Fall	Liberal Arts (Concentration)
	Fall	Technical Elective
	Winter	Technical Elective
	Winter	Liberal Arts/Senior Seminar

Energy Engineering Technology cooperative education plan

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

Manufacturing Engineering Technology, upper division baccalaureate program

Background

Leaders in the manufacturing engineering profession estimate that the present shortage of qualified manufacturing technologists is between 50,000 and 100,000 people—and this need is increasing. The two principle 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 markets, domestic markets, and profits 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, often exotic, processes, equipment, and increased amounts of automation. This factor has created a demand for personnel well-versed in the new manufacturing technologies: numerical control, microprocessor controls, robotics, computer-aided manufacturing, and flexible manufacturing systems.

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

Yr. ENERGY ENGINEERING TECHNOLOGY, B. TECH DEGREE

Qtr. Credit Hour*

Yr.	Description	Qtr. Credit Hour*			
		FALL	WTR.	SPG.	SMR.
1	Completion of appropriate associate degree or equivalent				
3	**SMAT-421 Calculus for Technologists II	4			
	ITEM-408 Introduction to Strength of Materials	4			
	ITEF-436 Engineering Economics	4			
	ITEM-429 Technical Communications	4			
	**SMAT-422 Solution of Engineering Problems		4		
	ITEM-440 Applied Thermodynamics		4		
4	ITEM-542 HVAC System Engineering		4		
	*Liberal Arts		4		
	‡Physical Education		0		
	ITEE-411 Electrical Principles for Design I	4			
	ITEM-460 Applied Fluid Mechanics	4			
5	ITEM-540 Applied Thermodynamics II	4			
	*Liberal Arts	4			
	‡Physical Education	0			
	ITEM-465 Thermofluid Laboratory			3	
	ITEM-442 Heat Transfer			4	
	ITEE-412 Electrical Principles for Design II			4	
	*Liberal Arts (Concentration)			4	
‡Physical Education			0		
5	ITEM-546 Advanced HVAC Systems		4		
	Math/Science Elective		4-5		
	Technical Elective		4		
	*Liberal Arts (Concentration)		4		
	Technical Elective			4	
	ITEM-522 HVAC Control Systems			4	
	Technical Elective			4	
*Liberal Arts (Concentration)			4		
*Liberal Arts (Seminar)			2		

** Entering students will take SMA T-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 SMA T-422 or equivalent. Rearrangement of the above schedule will be allowed to meet the math/science requirements.
 *See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.

Technical electives

Energy Engineering Technology

- ITEC-544 Contracts and Specifications
- ITEC-550 Construction Practices
- ITEM-404 Applied Mechanics of Materials
- ITEM-405 Applied Dynamics
- ITEM-541 Alternative Energy Applications I

- ITEM-543 Energy Management I
- ITEM-544 Energy Management II
- ITEM-545 Solar Thermal Applications
- ITEM-547 Special Topics
- ITEM-530 Instrumentation
- ITEM-560 Pipe and Duct Design
- ITEM-570 HVAC Load Analysis
- ITEM-575 Computer-Aided HVAC Design
- ITEM-580 Power Plant Design

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

Yr.	MANUFACTURING ENGINEERING TECHNOLOGY B. TECH DEGREE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1 2	Completion of appropriate associate degree or equivalent				
3	**SMAT-421 Calculus for Technologists II	4			
	ITEM-404 Applied Mechanics of Materials	4			
	ITEF-405 Materials in Manufacturing	4			
	ITEM-429 Technical Communications	4			
	‡Physical Education	0			
	SMAT-422 Solutions of Engineering Problems		4		
	ITEF-406 Applied Kinematics		3		
	ITEF-420 Manufacturing Processes		4		
4	ITEE-411 Electrical Principles for Design I		4		
	ITEE-412 Electrical Principles for Design II	4			
	ITEF-471 Computer Numerical Control	3			
	*Liberal Arts	4			
	ITEF-436 Engineering Economics	4			
	Technical Elective	3			
	‡Physical Education	0			
	ITEM-521 Logic Control Systems			4	
	ITEE-413 Applied Microprocessors			4	
	SMAT-309 Statistics			4	
5	*Liberal Arts (Core)			4	
	ITEF-425 Statistical Quality Control II		3		
	Technical Elective		3		
	ITEF-485 Robots in Manufacturing		4		
	*Liberal Arts (Concentration)		4		
	*Liberal Arts (Concentration)		4		
	ITEF-475 Computer Aided Manufacturing			4	
	ITEF-472 Tool Engineering			4	
	Technical Elective/Liberal Arts			3-4	
	*Liberal Arts			4	
*Liberal Arts (Concentration)			2		

**Entering 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-422 or equivalent. Rearrangement of the above schedule will be allowed to meet the math/science requirements.
*See page 122 for Liberal Arts requirements.
‡See page 177 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 as manufacturing technologists. 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 are provided.

Curriculum

The manufacturing engineering technology curriculum has been designed with the aid and consultation of professionals in the field. It includes those courses which

these people feel are fundamental for professional success in industry. The program includes courses in Advanced Manufacturing Processes, Computer Numerical Control, Computer-Aided Design, Computer-Aided Manufacturing, Quality Control, and Robotics. Students are encouraged to select technical electives to enhance their particular areas of interest.

Admission requirements

The most appropriate qualification for students entering the third-year level of the program is the associate degree in mechanical or manufacturing technology. It is expected that these programs will have provided coverage in the following topics:

Mathematics through pre-calculus
Physics

Statics and Dynamics
Strength of Materials
Materials Technology
Manufacturing Processes
Numerical Control
Metrology

Students from other backgrounds will be considered, but they may be required to take additional courses as prerequisites to the main program of study.

Technical electives

Manufacturing Engineering Technology

ITEF-460 Computer-Aided Design
ITEF-485 Robots in Manufacturing
ITEF-491 Production Control
ITEF-425 Statistical Quality Control II
ITEF-526 Quality Systems
ITEF-481 Work Simplification and Measurement
ITEF-599 Independent Study
With departmental approval, technical electives may be selected from existing courses in other RIT colleges.

Evening program

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, machinery and management are emphasized to provide the background for later courses in processes and technical electives.

Technical electives that are available and appropriate for the Manufacturing Engineering Technology program include:

Course

ITEF-425 Statistical Quality Control II
ITEF-460 Computer Aided Design
ITEF-481 Work Simplification and Measurement
ITEF-485 Robots in Manufacturing
ITEF-491 Production Control
ITEF-526 Quality Systems

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

MANUFACTURING ENGINEERING TECHNOLOGY—B. TECH., EVENING PROGRAM		
Year	Quarter	Courses:
1	Fall Fall Winter Winter Spring Spring	SMAT-420 Calculus for Technologists 1 ITEF-405 Materials in Manufacturing item-404 Applied Mechanics of Materials SMAT-421 Calculus for Technologists II SMAT-422 Solutions of Engineering Problems ITEF-420 Manufacturing Processes
2	Fall Fall Winter Winter Spring Spring	ITEM-429 Technical Communications ITEF-406 Applied Kinematics ITEF-471 Computer Numerical Control Liberal Arts (Core) ITEF-436 Engineering Economics ITEM-521 Logic Controls
3	Fall Fall Winter Winter Spring Spring	ITEE-411 Electrical Principles for Oesign 1 Liberal Arts (Core) ITEE-412 Electrical Principles for Design II SMAT-309 Statistics ITEE-413 Microprocessors Technical Elective
4	Fall Fall Winter Winter Spring Spring	ITEF-425 Statistical Quality Control Liberal Arts (Concentration) ITEF-4SS Robots in Manufacturing Technical Elective ITEF-475 Computer Aided Manufacturing Liberal Arts (Concentration)
5	Fall Fall Winter Winter	ITEF-472 Tool Engineering Liberal Arts (Concentration) Technical Elective Liberal Arts Senior Seminar

1988-87 Evening Court* Offering* — Manufacturing Engineering Technology					
Courses: Registration Number	Subject and Credit	Fall	Winter	Spring	Summer
ITEF-403 0617-403-70	Machine Elements (4)	M-W 6:30-6:20			
ITEF-424 0617-424-70	Statistical Quality Control 1 (4)		TR-6:30-6:20		TR-6:30-8:20
ITEF-425 0617-425-70	Statistical Quality Control II (3)			TR-6:30-6:20	
ITEF-434 0617-434-70	Operations Management (4)		MW-6:30-8:20		
ITEF-436 0617-436-70	Engineering Economics (4)			TR-8:30-10:20	TR-S:30-10:20
ITEF-437 0617-437-70	Value Analysis (3)	TR-6-10:20			
ITEF-460 0617-460-70	Computer Aided Design (4)	M-6-950			
ITEF-471 0617-471-70	Computer Numerical Control (3)			MW-6:30-8:20	
ITEF-472 0617-472-70	Tool Engineering (4)			TR-8:30-10:20	
ITEF-475 0617-475-70	Computer Aided Mfg.		TR-6:30-8:20		
ITEF-461 0617-461-70	Work Meas- urement & Simpl. (4)		MW- 8:30-10:20		
ITEF-485 0617-485-70	Robots in Mfg. (4)		MW-6:30-6:20		
ITEF-491 0617-491-70	Production Control (4)			TR-6:30-6:20	
ITEF-502 0617-502-70	Non-Trad. Mfg. Processes (3)	TR-6:30-6:20			
SMAT-420 1019-420-70.	Calc Teen 1 (4)	MW-8:30- 10:20 TR-6:30-6:20	MW-6:30- 10:20 TR-6:30-6:20		
SMAT-421 1019-421-70. 71	Calc Tech II (4)	MW-830- 10:20 TR-6:30-10:20	MW-8:30- 10:20 TR-6:30-10:20	MW-6:30- 10:20 TR-6:30-10:50	
SMAT-422 1019-422- 70. 71	Sol. Eng. Prb (4)		MW-8 30- 10:20 TR-630-820	MW-830- 10:20 TR-6:30-8:20	TR-6:30-8:20

1986-47 Evening Course Offerings — Electrical Engineering Technology					
Course Registration Number	Subject and Credit	Fall	Winter	Spring	Summer
ITEE-401 0609-401-70	Transformed Circuits I (4)	TR 6-8:20			
ITEE-402 0609-402-70	Transformed Circuits II (3)		TR 6-7:50		
ITEE-404 0609-402-70 81.62	Control Systems I HI			TR- 7:30-8:20 M-6:30-8:20 8:30-10:20	
ITEE-411 0609-411-70 81.62	Electrical Principle Des I (4)	MW 7-8:20 R-6:30-8:20 8:20-10:20			
ITEE-412 0609-412-70 61.82	Electrical Principle Des. II (4)		M-W 7-8:20 R-6 30-8:20 8:30-10:20		
ITEE-424 0609-424-70 81.82	Logic Dig. Dev (4)		TR-8:30-9:50 M-6:30-8:20 M-6:30-10:20		
ITEE-425 0609-425-70	Power Concepts (3)			TR-6:30-8:20	
ITEE-428 0609-428-70 81.62	Linear Amp Des. (4)	TR-8:30-9:50 M-6:30-8:20 8:30-10:20			
ITEE-437 0609-437-70	Comp. Prog. Tech (4)	TR-8:30-10:20		TR-6:30-8:20	
ITEE-520 0609-520-70	EM Fields (4)	TR 6:30-8:20			
ITEE-524 0609-524-70	Microwave Systems (4)	(Not offered 1986-87)			
ITEE-530 0609-530-70 81.82	Operational Amplifiers (4)		TR-8:30-9:50 M-6:30-8:20 8:30-10:20		
ITEE-532 0609-532-70 81.62	Power Amp. Des. (4)			TR-8:30-9:50 M-6:30-8:20 M-8:30-10:20	
ITEE-534 0609-534-70 81	Analog Communication Systems (4)	TR-7-8:20 M-6:30-8:20	(With Sufficient Demand Only)		
ITEE-535 0609-535-70	Telecommunication Systems (4)		TR-6:30-8:20	(With Sufficient Demand Only)	
ITEE-536 0609-536-70 81	Controls II (4)		TR-7-8:20 M-6:30-8:20		
ITEE-538 0609-538-70 81.82	Dig. Comp. Des. 1 (4)	TR-7-8:30 M-8:30-10:20 TBA	(With Sufficient Demand Only)		
ITEE-539 0609-539-70 61.82	Dig. Comp. Des. II (4)		TR-7-8:20 M-6 30-10 20	(With Sufficient Demand Only)	
ITEE-542 0609-542-70 81.82	Microprocessors (4)		TR-8:30-9:50 M-5:30-8:20 TBA	T-5:30-8:20 R-5 30-8 20 TBA	
ITEE-543 0609-543-70	Peripherals and Interfacing (4)	(With Sufficient Demand Only)		TR-7-8:20 M-6 30-6 20	
ITEE-547 0609-547-70	Dig. Processing Signals (4)	(With Sufficient Demand Only)		TR-4-550	
ITEE-550 0609-550-70	Power Systems 1 (4)		MT 6-8:20		
ITEE-551 0609-551-70	Protective Relaying (4)			TR-6-820	
ITEE-552 0609-552-70	Power Systems II (4)	(Not offered 85-66)			MW-4-5 50
ITEE-554 0609-554-70	Elec. Optic Devices (4)			TR 8:30-10:20	
SCHG-240 1011-240-70 1011-275-81	Fund. of Chemistry Lab	MW-6:30-6:20 R-6:30-9:20			
GLCC-403 0502-403	Effective Technical Communication	(Anticipated Offering 1987-88)			
SMAT-420 1019420-70, 71	Calc. Tech 1	MW 8:30-10:20 TR-6:30-8:20	MW 8:30-10:20 TR-6:30-8:20		
SMAT-421 1019-421-70, 71	Calc Tech II	MW 8:30-10:20 TR-6:30-8:20	MW 8:30-10:20 TR-6 30-8 20	MW 8:30-10:20 TR-6:30-8:20	
SMAT-422 1019-422-70, 71	Sol. Eng. Prb. (4)		MW 8:30-10:20 TR-6:30-8:20	MW 8:30-10:20 TR-6:30-8:20	TR-6 30-8 20

1985-86 Evening Course Offerings — Mechanical Engineering Technology				
Course Registration Number	Subject and Credit	Fall	Winter	Spring
ITEM-404 0610-404-70	Applied Mechanics of Mat'ls. (4)	6:30-10:20	MW 6-8:20	
ITEM-405 0610-405-70	Applied Dynamics (4)			MW 6-8:20
ITEM-407 0610-407-70 81.62	Mechanical Eng. Tech. Lab (2)	R-8 30-10 20 M-6:30-10:20 W-6:30-10:20		
ITEM-408 0610-408-70	Int. to Strength of Mat'ls. (4)	TR 8:30-10:20		
ITEM-409 0610-409-70 81.62	Mech Eng. Tech. Lab II (2)			R-8:30-9:50 M-6:30-9:20 W-6 30-9 20
ITEM-411 0610-411-70 61-62	Engineering Materials (4)			TR-8:30-9:50 M-6:30-8:20 W-8:30-10:20
ITEM-414 0610-414-70	Materials Technology I (3)	TR-6 30-7 50		
ITEM-415 0610-415-70	Materials Technology III (2)		TR-6:30-7:50	
ITEM-440 0610-440-70	Applied Thermodynamics (4)	TR-6:30-6:20		
ITEM-442 0610-442-70	Heat Transfer (4)		TR-8:30-10:20	
ITEM-451 0610-451-70	Vibration and Noise (4)			TR-6:30-10:20
ITEM-460 0610-460-70	Applied Fluid Mechanics (4)			TR-6:30-8:20
ITEM-465 0610-465-70 81.82	Thermofluid Laboratory (3)			M-6:00-6:50 M-7:00-8:50 R-6:00-6:50 R-7:00-8:50
ITEM-506 0610-506-70	Machine Design I (4)		MW-6:30-8:20	
ITEM-508 0610-508-70	Machine Design II (4)	MW-6:30-8:20		
ITEM-521 0610-521-70	Logic Control Systems (4)			MW-6-8:20
ITEM-530 0610-530-70	Instrumentation (4)		MW-8:30-10:20	
SCHG-24070 SCHG-27581	Chemistry Lab (1)	MW-6:30-8:20 R-6 30-9 20		
SMAT-420 1019-420-70, 71	Calc Tech I (4)	MW-8:30-10:20 TR-6:30-8:20	MW-8:30-10:20 TR-6:30-8:20	
SMAT-421 1019-421-70, 71	Calc Tech II (4)	MW-8:30-10:20 TR-6:30-8:20	MW-8:30-10:20 TR-6:30-6:20	MW-8 30-10:20 TR-6:30-8:20
SMAT-422 1019-422-70, 71	Sol Eng. Prb. (4)		MW-8:30-10:20 TR-6:30-8:20	MW-8:30-10:20 TR-6:30-8:20

School of Food, Hotel and Tourism Management

George Alley, Director

RIT's School of Food, Hotel and Tourism Management prepares students for a wide variety of careers ranging from restaurant, hotel, resort, and travel management to dietetics. A career in the hospitality industries has become highly specialized in today's business world. Efficient and sophisticated management is vital and requires a diversity of skills from many disciplines. The curriculum encompasses a broad liberal education, a firm foundation in business administration and extensive study in the student's chosen major.

The curriculum has been designed to be fully integrated so that the competencies acquired in earlier courses are used in more advanced courses. Students may take electives that will build a strong conception of the total industry. Students study accounting, marketing, finance, economics, computer science, business management, behavioral science, food preparation, hotel operations, nutrition and other related topics.

Our goal is to offer students a rigorous, challenging and interdisciplinary program of study in order to develop their talents to the fullest. Our commitment to excellence gives students the opportunity to become all that they can become in a managerial environment of small classes which result in a dynamic learning interaction between faculty and students.

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 philosophy of the school requires that each student must combine 1600 hours of practical experience with classroom theory to meet graduation requirements.

Cooperative education is one of the many ways that the School of Food, Hotel and Tourism Management works to introduce students and hospitality firms to one another through hands-on learning and employment in the hospitality industry. Co-op is usually taken during the summer quarters after the freshman and sophomore years; co-ops may be taken during any academic quarter in the junior year. Seniors are expected to be in residence on campus in their final year. 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 more refined as they progress. Students may select co-op employers that are located away from Rochester or their hometown. They have decided that the experience of relocating, testing their independence in a major metropolitan area, is one of their personal goals for the co-op work period. In general, co-op provides the student with the opportunity to apply much of the theory of classroom instruction to the actual work setting. The experience also enables the student to verify career goals, obtain earnings that will help finance his or her education and develop important personal and professional maturational skills, such as being able to handle independence and interpersonal relations as well as gain in the areas of self-confidence and judgement. Their diversified academic and practical backgrounds place RIT students in a more secure position to make career decisions that will be both personally and professionally rewarding.

Faculty

The faculty members are outstanding in regard to their academic qualifications and hospitality industry experience. Their background and training allows for full coverage of all areas within the hospitali-

ty industry. Our School of Food, Hotel and Tourism Management offers one of the most comprehensive hospitality management programs among four-year colleges today.

Facilities

Our contemporary facilities provide students with the service-oriented atmosphere of a hotel/restaurant environment.

As you arrive on our concierge floor, our student concierge will acquaint you with Henry's, our full-service 80-seat restaurant, operated and managed by students, complete with the most sophisticated computer equipment.

Our 35-seat, fully-equipped beverage laboratory, provides students with the traditional beverage operation as well as the latest in computerized beverage dispensing equipment.

Our concierge floor provides office room service, banquet and catering service and a travel laboratory equipped with an online American Airlines SABRE System, which allows travel and hotel management students to plan business and pleasure trips for our campus constituency.

Our students can immediately relate to their careers by functioning and studying in a hospitality, business-oriented environment.

Programs of study foodservice management

The foodservice industry employs more people than any other in the nation. The industry covers the wide scope of public feeding, lodging and tourism. The program is designed to prepare persons for management training positions in restaurants and foodservice operations of differing types of institutions such as hotels, resorts, clubs, airlines, colleges, schools, business firms and governmental agencies.

Students in food management have membership available to them in the Restaurant Management Society (RMS). The Restaurant Management Society was the first student chapter in the nation to be chartered by a state restaurant association. The New York State Restaurant Association's goal is to make students aware of their career field of food management and to foster a strong working relationship with local chapters. The society exists to provide a forum for the

Yr.	FOODSERVICE MANAGEMENT	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	ISMF-210 Introduction to Food, Hotel & Tourism Management	4			
	ISMF-220 Hospitality Career Seminar	1			
	ISMF-314 Fund. of Food Sanitation	2			
	GLLC-220 English Composition	4			
	SMAM-225 Algebra for Mgmt. Sciences	4			
	GSSE-210 Intro to Economics		4		
	GLLL-332 Literature		4		
	SMAM-226 Calculus for Mgmt. Sciences		4		
	ISMF-215 Principles of Food Production		5		
	BBUA-301 Financial Accounting			4	
	ISMD-213 Nutrition Sciences			4	
	SBIG-210 Microbiology OR			4	
	*SCHG 289 Cont. Science Chem.			4	
	*Liberal Arts			4	
	‡Physical Education	0	0	0	0
ISMF-499 Cooperative Education				0	
2	ISMF-321 Menu Planning & Merchandising	4			
	Elective	4			
	BBUQ-330 Data Analysis	4			
	ICSS-200 Survey of Computer Science	4			
	ISMF-424 Food/Labor/Cost Control		4		
	ISMF-425 Purchasing & Inventory Control		3		
	ISMF-435 Purchasing Lab		2		
	ISMF-311 Equipment Design & Engineering		4		
	ISMF-331 Food Systems Management			5	
	*Liberal Arts		4	12	
	‡Physical Education	0	0	0	
ISMF-424 Food/Labor/Cost Control		4			
ISMF-499 Cooperative Education				0	
3	BBUM-463 Principles of Marketing	4			
	BBUA-431 Cost Accounting OR	4			
	BBUF-441 Corporate Finance				
	ICIC-426 Personnel & Training	4			
	BBUB-430 Organizational Behavior		4		
	ISMF-340 Beverage Operations		3		
	ISMF-341 Beverage Operations Lab		2		
	ISMF-416 Product Development		4		
	ISMF Elective			4	
‡Liberal Arts	4		12		
ISMF-499 Cooperative Education				0	
4	ISMF-430 Restaurant Management		5		
	Electives		8		
	ISMF-499 Cooperative Education			0	
	ISMF-511 Banquet & Catering				4
	Electives				8
	*Liberal Arts (Senior Seminar)				2
*Liberal Arts		4		4	

*See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.

interchange of ideas between students and businessmen and businesswomen. The society also seeks to provide recognition of students, to unify them through mutual interests and educational and social activities, and to foster lasting friendships.

Students with junior standing are encouraged to attend the National Restaurant Association Show in Chicago each year.

Hotel and resort management

Hotel and resort management is a professionally oriented curriculum for students seeking careers involving the development, management, and operation of hotel and recreation enterprises. The composite of

discipline areas allows the student to understand the physical characteristics of hotel and recreation properties, as well as gaining the business expertise to manage and successfully market their hotel attributes.

The Hotel Sales Management Association (HSMA) offers its student members unique opportunities to learn about aspects of sales and marketing in the hospitality industry, knowledge which will be of use in a career in sales, as well as in management in the hotel/resort/restaurant fields.

Students with senior standing are encouraged to attend the New York International Hotel and Restaurant Show or the New England Hotel and Restaurant Show.

Travel management

The dynamic growth of modern travel 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 myriad alternatives for transportation, accommodations and other travel services, and are increasingly beginning to rely 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 firms (food service, lodging, transportation) which supply services to tourists.

Travel 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 business theory. This is necessary to further their understanding of why the travel industry operates as it does in its business environment. Thus, this career education orientation provides both the four-year student and the transfer student with a balance of theoretical classroom-based instruction with the experiential opportunities that are furnished by cooperative education.

American Airline's SABRE reservation system

The students in the School of Food, Hotel and Tourism Management have begun using the advanced, automated reservation system that was designed by American Airlines to allow travel planners to serve the public faster and handle the complex details of their business more efficiently. The system, known as SABRE, enables travel planners to give their clients immediate confirmation for flights operated by 567 airlines worldwide. These flights serve some 6,000 individual cities and over 100,000 city pairs.

With SABRE, the students no longer work at conventional desks, instead, they are seated, airline fashion, at SABRE reservation sets that use video screens and typewriter-like keyboards and are linked directly to American's worldwide travel information, which also includes: accommodations at more than 9,500 hotels, domestic and international; 16 major car rental firms; and 12 different wholesale tour operators with tour information on all major vacation destinations (such as Hawaii, the Caribbean, Mexico, Canada, and major U.S. mainland sun and ski resorts).

SABRE provides the student with an immediate display of flights and seat availability for a desired departure time. 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, billing procedures, and the like.

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 education.

Yr. HOTEL AND RESORT MANAGEMENT		Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	ISMF-210 Introduction to Food, Hotel & Tourism Management	4			
	ISMF-220 Career Seminar	1			
	ISMF-215 Principles of Food Production	2			
	GLLC-220 English Composition	4			
	SMAM-225 Algebra for Mgmt. Sciences	4			
	GSSE-210 Intro to Economics		4		
	GLLL-332 Literature		4		
	SMAM-226 Calculus for Mgmt. Sciences		4		
	ISMF-314 Sanitation and Safety		5		
	BBUA-301 Financial Accounting				4
	ISMD-213 Nutrition Sciences				4
	SBIG-210 Microbiology OR				4
	SCHG 289 Cont. Science Chem.				4
	*Liberal Arts				4
‡Physical Education	0	0	0	0	
ISMF-499 Cooperative Education				0	
2	Elective	4			
	BBUQ-330 Data Analysis	4			
	ICSS-200 Survey of Computer Science	4			
	ISMH-400 Resort & Recreation Enterprises		4		
	ISMH-401,402,403,404,405,406 Resort & Rec. Ent. Lab.		1		
	BBUA-302 Managerial Accounting		4		
	ISMF-331 Food Systems Management				5
	ISMF/ISMH/ISMT Elective				4
	*Liberal Arts	4	4		8
	‡Physical Education	0	0	0	0
	ISMF-499 Cooperative Education				0
ISMF-424 Food/Labor/Cost Control		4			
3	BBUM-463 Principles of Marketing	4			
	ISMF-426 Personnel & Training	4			
	ISMH-423 Hotel Operations	5			
	ISMT-220 Travel Intermediaries	4			
	BBUB-430 Organizational Behavior		4		
	ISMF-340 Beverage Operations		3		
	ISMF-341 Beverage Operations Lab		2		
	ISMH-420 Hotel & Travel Law		4		
	Liberal Arts		4		
	ISMF/ISMH/ISMT Elective				4
*Liberal Arts				12	
ISMF-499 Cooperative Education				0	
4	BBUA-431 Cost Accounting OR	4			
	BBUF-441 Corporate Finance				
	ISMH-412 Maint. Hotel/Resort	4			
	ISMF/ISMH/ISMT Elective	4			
	Liberal Arts	4			
	ISMF-499 Cooperative Education		0		
	ISMF-511 Banquet & Catering				4
	ISMH-450 Hotel Marketing/Convention Sales				4
	ISMF/ISMH/ISMT Elective				4
*Liberal Arts (Senior Seminar)				2	
*Liberal Arts				4	

*See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.

Yr.	TRAVEL MANAGEMENT	Qtr. Credit Hour*			
		FALL	WTR.	SPG.	SMR.
1	ISMF-210 Introduction to Food, Hotel & Tourism Management	4			
	ISMF-220 Career Seminar	1			
	GLLC-220 English Composition	4			
	SMAM-225 Algebra for Mgmt. Sciences	4			
	GLLL-332 Literature	4			
	GSSE-210 Introduction to Economics		4		
	SMAM-226 Calculus for Mgmt. Sciences		4		
	ICSS-200 Survey of Computer Science		4		
	ISMT-210 Introduction to AA SABRE			4	
	BBUA-301 Financial Accounting			4	
	ISMF/ISMH/ISMT Elective			4	
	*Liberal Arts		4	4	
	‡Physical Education	0	0	0	
	ISMF-499 Cooperative Education or Language Instr				0
2	BBUQ-330 Data Analysis	4			
	ISMT-201 Travel Lab I	3			
	ISMH-400 Resort & Recreation Enterprises	4			
	ISMH-401, 402, 403, 405, 406 Res. & Rec. Ent. Lab	.1			
	BBUA-302 Managerial Accounting		4		
	ISMH-420 Hotel & Travel Law		4		
	ISMT-202 Travel Lab II		2		
	Elective		4		
	ISMT-220 Travel Intermediaries			4	
	ISMF/ISMH/ISMT Electives			8	
	*Liberal Arts	4	4	4	
	‡Physical Education	0	0	0	
	ISMF-499 Cooperative Education or Language Instr				0
	3	BBUM-463 Principles of Marketing	4		
ICIC-426 Personnel 4 Training		4			
ISMH-423 Hotel Operations		5			
ISMT-320 Passenger Transportation Systems		4			
ISMT-303 Travel Lab III			2		
BBUB-430 Organizational Behavior			.4		
ISMT-370 Passenger Transportation Policy				4	
*Liberal Arts			8	8	
ISMF/ISMH/ISMT Elective			4	4	
ISMF-499 Cooperative Education					0
4		BBUA-431 Cost Accounting OR	4		
	BBUF-441 Corporate Financing				
	ISMT-410 Tourism Consumption Analysis	4			
	ISMF/ISMH/ISMT Electives	8			
	ISMF-499 Cooperative Education		0		
	ISMH-450 Hotel Marketing Convention Sales			4	
	ISMT-550 Seminar in Travel Management			4	
	*Liberal Arts (Senior Seminar)			2	
‡Liberal Arts			8		

See page 122 for Liberal Art requirements.
‡See page 177 for policy on Physical Education.

Opportunities

Our nation is now a service economy, which means that the majority of employment will be service oriented. The food service area ranks as the nation's fourth largest industry while hotels rank seventh. Combined, they enjoy a rank of third. The closely interrelated tourism industry is one of the fastest developing businesses in the United States. With the continued expansion of

U.S. food companies and hotels into foreign markets, international tourism offers ever increasing opportunities for professionally trained individuals. More people are expected to travel for pleasure as well as business, and they will do so more frequently than in the past. To meet the demand for travel-related activities, students will find management career opportunities in tour promotion, corporate travel planning, federal and state tourist boards, convention bureaus, airline/steamship/motor coach companies, retail and wholesale travel bureaus, hotel/resorts and a variety of leisure business industries.

Dietetics and nutritional care
Today's public is becoming increasingly interested in nutritional dining away from home and special menu selections which offer a diet selection to persons with serious ailments. Physical fitness programs seek educated advice as to meal planning. Clients of hotels, restaurants and cruise ships are seeking nutritional and well-balanced meals. Nursing homes in New York State require registered dietitians to be on their staff for purposes of adequate diet planning.

The dietetic programs at RIT prepare graduates for careers in food systems management, nutritional counseling, clinical dietetics, and as nutritionists in community nutrition programs. These programs combine physical, biological, and social sciences with courses in food management, food science, nutrition and diet therapy. Courses in management, computer science, and accounting strengthen management skills while instructional techniques and community nutrition help develop skills required to give nutrition information to the public. The implementation of several computer systems in our school offers students the opportunity to utilize the latest state-of-the-art equipment in their own student-operated restaurant facility. The use of the computers enables the students to assess sales mix, monitor inventory and develop purchasing and menu data quickly to assist in their supervisory decisions.

Opportunities

As a dietitian, you will be involved with people of all ages, cultures and economic means. If you enjoy people and learn to understand them as individuals, then you can help solve their food needs. Dietitians are health professionals who apply the science and art of human nutrition.

Recent graduates in dietetics are clinical dietitians in hospitals and nursing homes, nutritionists in community nutrition programs, instructors of nutrition, managers of food service in health care facilities and commercial food services, and salespersons for companies selling nutritional products. Many graduates also play a major consulting/management role in hotels, resorts, and the recreation industries.

Yr.	GENERAL DIETETICS' & NUTRITIONAL CARE PLAN IV	Otr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	ISMF-215 Principles of Food Production		5		
	**SCHG-201,221 Survey of General Chemistry (plus lab)	4			
	GLLC-220 English Composition	4			
	SMAM-225 Algebra for Mgmt. Sciences	4			
	BBUA-301 Financial Accounting			4	
	GSSE—210 Introduction to Economics		4		
	**SCHG-202, 222 Survey of Organic Chemistry (plus lab)		4		
	GLLL-332 Literature		4		
	ISMD-213 Nutrition Science	4			
	ICSS 200 Survey of Computer Science			4	
	**SCHG-203 Biochemistry I			4	
	*LiberalArts			4	
	‡Physical Education	0	0	0	
2	ISMF-321 Menu Planning & Merchandising	4			
	**SBIG-210, 220 Microbiology (plus lab)	4			
	**SCHG-204 Biochemistry II	4			
	ISMF-311 Equipment Design & Engineering		4		
	BBUQ-330 Data Analysis		4		
	**SBIB-305, 306 Physiology & Anatomy (plus lab) OR		4	4	
	SBIG-211, 212 Human Biology II, III				
	ISMF—314 Sanitation and Safety			2	
	ISMF/ISMH/ISMT Elective			4	
	*LiberalArts	4	4	8	
	ISMF-499 Cooperative Education				0
	‡Physical Education	0	0	0	
	3	ISMF—416 Product Development	4		
ISMF-425 Purchasing & Inventory		3			
ISMF-435 Purchasing Lab		2			
ISMF-331 Food Systems Management			5		
BBUB-430 Organizational Behavior			4		
ICIC-426 Personnel & Training			4		
*LiberalArts		8	4		
ISMF—499 Cooperative Education				0	0
4	ISMF-424 Food and Labor Cost Control	4			
	**ISMD-525 Advanced Nutrition/Diet Therapy I	5			
			2	*	
	**ISMD-526 Advanced Nutrition/Diet Therapy II		4		
	**ISMD-554 Nutrition in Life Cycle		4		
	ICIC-519 Educational Methods		4		
	**ISMD-550 Community Nutrition			4	
	ISMF-511 Banquet & Catering			4	
	*LiberalArts	4	4	4	
	Elective.	4		4	

* 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.

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Programs

The School of Food, Hotel and Tourism Management offers two options in dietetics: the Traditional Program in general dietetics and the Coordinated Undergraduate Program (CUP) in general dietetics.

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 second year) courses, students may apply for admission into the coordinated dietetics program. Applications for the Coordinated Undergraduate Program must be submitted by March 1 to be considered for admission into the professional phase the following September.

The traditional program in

general dietetics. The curriculum in general dietetics leading to a BS degree at RIT meets the education requirements of the American Dietetic Association. Four-year students must complete three quarters of approved cooperative work experience.

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 in General Dietetics must be determined by evaluation of each individual's record.

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.

In addition to completing an approved academic program, persons

seeking certification as a Registered Dietitian (R.D.) need to have approved clinical experience and pass the qualifying comprehensive examination of the American Dietetic Association.

Coordinated Undergraduate Program (CUP) in general dietetics. The Coordinated Dietetics program combines the undergraduate curriculum and planned clinical study to meet the academic and clinical requirements for membership in the American Dietetic Association (ADA).

This program is planned to integrate formal teaching and over 900 hours of planned, supervised clinical experience in hospitals, nursing homes, school food services and community health agencies. Clinical facilities in several large hospitals provide a comprehensive health care environment for student learning. Academic and clinical 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.

Cooperative work experience is not required of students in the coordinated program because clinical hours have been planned in the junior and senior years of the professional phase.

Completion of the program leads to a bachelor of science degree plus ADA membership. Successful completion of a national examination qualifies the member to become a registered dietitian (R.D.).

Note – CUP application forms from the school must be completed and submitted to the department by March 1.

Yr.	GENERAL DIETETICS (Coordinated Undergraduate Program)**	Quarter Credit Hours			
		FALL	WTR.	SPG.	SMR.
3	ISMD-402 Dietetic Environment	4			
	ISMF-416 Product Development	4			
	ISMF-425 Purchasing	3			
	ISMF-435 Purchasing Lab		2		
	ISMF—331 Food Systems Management		5		
	ICIC-519 Educational Methods		4		
	BBUB-430 Organizational Behavior		4		
	*LiberalArts	4	4		
	ISMF-424 Food & Labor Cost Control			4	
	ICIC-426 Personnel & Training			4	
ISMD-551 Food Systems Management II (Clinical Course)...		8			
4	ISMD-560 Clinical Dietetics I	4			
	ISMD-561 Clinical Dietetics II	4			
	Liberal Arts (Senior Seminar)	2			
	ISMD-562 Clinical Dietetics III		4		
	ISMD-563 Clinical Dietetics IV		6		
	ISMD-554 Nutrition for Life Cycle		4		
	ISMD-550 Community Nutrition			4	
	ISMF-511 Banquet & Catering			4	
	*LiberalArts	8		8	

**Changes in the dietetics program are subject to approval by the American Dietetics Association.
*See page 122 for Liberal Arts requirements.

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 CUP 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.

Two-year transfer program for food management, hotel and resort management, and travel 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 two quarters of cooperative employment experience.

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.

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 packaging 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.

All of these educational disciplines are found in the department curricula at RIT. This interdisciplinary program synthesizes these existing and recognized strengths with additional offerings recommended by representatives of the industry.

Yr.	BS DEGREE IN PACKAGING SCIENCE-TECHNICAL OPTION	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	IPKG-201 Principles of Packaging	4		
	IPKG-301 Engineering Design Graphics		3	
	IPKG-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
2	• Physical Education i	0	0	0
	IPKG-310 Methods of Evaluation	2		
	IPKG-312 Packaging Materials II	3		
	IPKG-321 Rigid Containers		4	
	IPKG-322 Flexible Containers			4
	ICSA-205 Computer Techniques			3
	ITEF-424 Statistical Quality Control I			4
	SCHO-231, 232 Organic Chemistry	3	3	
	SCHO-235, 236 Organic Chemistry Lab	1	1	
	• Liberal Arts (Foundation)	4	4	4
3	Free Electives	4	4	
	• Physical Education	0	0	0
	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,
	SPSP-211, 212, 213 College Physics	3	3	3
	SPSP-271, 272, 273 College Physics Lab	1	1	t
	SPSP-341 Foundations of Scientific Thinking	2		
4	PPRT-200 Introduction to Printing	3		
	BBUB-430 Organizational Behavior			4
	• Liberal Arts (Concentration)	4	4	4
	IPKG-562 Packaging Regulations		3	
	IPKG-585 Shock and Vibration	4		
	Professional (Packaging) Electives		4	4
	BBUM-463 Principles of Marketing		4	
	* Liberal Arts (Electives and Senior Seminar)	6	4	4
Free Electives	6		8	

*See page 122 for Liberal Arts requirements.

tSee page 177 for policy on Physical Education.

Characteristics of the program

The program has these characteristics:

1. It is career oriented—the graduate is ready to enter directly 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 two options, management and technical, with ample opportunity for electives according to interest.
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.

Admission requirements

The four-year BS degree program considers for admission high school graduates who meet the following requirements: English, 4 years; mathematics, elementary al-

gebra 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 developing 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 se-

Yr.	BS DEGREE IN PACKAGING SCIENCE--MANAGEMENT OPTION	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	IPKG-201 Principles of Packaging	4		
	IPKG-301 Engineering Design Graphics		3	
	IPGK-311 Packaging Materials I			3
	ICSA-200 Survey of Computer Science	4		
	SCHG-201, 221 Survey of General Chemistry/Lab	4		
	SCHG-202, 222 Survey of Organic Chemistry/Lab		4	
	SMAM-204 College Algebra			4
	GSSE-301, 302 Principles of Economics I, II		4	4
	*LiberalArts (Foundation)	4	4	4
	‡PhysicalEducation	0	0	0
2	IPKG-310 Methods of Evaluation	2		
	IPKG-312 Packaging Materials II	3		
	IPGK-321 Rigid Containers		4	
	IPKG-322 Flexible Containers			4
	SPSP-211, 271 College Physics/Lab	4		
	SPSP-341 Foundations of Scientific Thinking		2	
	PPRT-200 Introduction to Printing	3		
	BBUA-301 Financial Accounting		4	
	GLCC-501 Effective Speaking			4
	*LiberalArts (Foundation)	4	8	4
	Free Elective			3
	‡PhysicalEducation	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
	ITEF-424 Statistical Quality Control I			4
	BBUB-430 Organizational Behavior			4
	BBUM-463 Principles of Marketing	4		
	*LiberalArts (Concentration)	4	4	4
	Printing Elective		3	
	Free Elective		4	
4	IPKG-562 Packaging Regulations		3	
	IPKG-585 Shock and Vibration	3		
	Professional (Packaging) Electives		4	4
	*LiberalArts (Electives and Senior Seminar)	6	4	4
	Management Electives	4		4
	Free Electives	4	6	4

*See page 122 for Liberal Arts requirements.
‡See page 177 for policy on Physical Education.

lective 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 Held 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 Departments as well as the required courses in the College of Science for the Technical Option, and the required courses in the colleges of Business and Science for the Management 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.

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

LTC Thomas D. Reddick,
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).

Yr.	DEPARTMENT OF MILITARY SCIENCE FOUR-YEAR PROGRAM	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1 MS	•‡MMSM-201 Introduction to Military Science and Basic Map Reading OR XPEF-Orienteering	2	2	2
	•‡MMSM-202 Applied Health Dynamics	1		
	•‡MMSM-203 Military Heritage			
2 MS	*MMSM-301 Military Geography	2	5	2
	*MMSM-302 Psychology and Leadership OR			
	*MMSM-310 History of the Military Art			
	*MMSM-303 The Military and American Society			
3 MS III	*MMSM-401 Military Tactics	3	3	3
	*MMSM-402 Military Communications			
	*MMSM-403 Military Operations			
4 MS IV	*MMSM-501 Combined Arms Operations	3	3	3
	*MMSM-502 Military Administration and Logistic Management			
	*MMSM-503 Military Ethos			
	MMSM-510 Senior Seminar			

*A Leadership Lab which is conducted on a weekly basis for 1 hour is an integral part of each course offered throughout the year. Class 1, Lab 1 = Credit 2
 ‡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	3	3
	MMSM-402 Military Communications			
	MMSM-403 Military Operations			
4 MS IV	MMSM-501 Combined Arms Operation	3	3	3
	MMSM-502 Military Administration & Logistic Management			
	MMSM-503 Military Ethos			
	MMSM-510 Senior Seminar	2		

Financial benefits

A subsistence allowance of \$100 per month is provided, tax free, directly to each junior- and senior-year 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.

Scholarship opportunities

Our program offers each student the opportunity to compete for two 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)

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.

Veterans

Students with prior military service and members of the Army National Guard and Army Reserve are eligible to be considered for entry into the Advanced Course once they have completed one year of college.

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 within 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.

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 activities after commissioning.

After graduation

Today's ROTC graduates are working in commissioned officer positions that range from commanding units overseas to writing computer programs in North Carolina. RIT ROTC graduates have been trained as pilots, linguists, lawyers, engineers and scientists. Many are now serving in the defense of our nation.

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 ex-

pense. 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).

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. 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. Cadets in the GMC are afforded cadet enlisted rank while POC cadets hold cadet officer rank. 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 a 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.

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

Lt. Col. James W. Jacobs, Jr.,
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 Program, 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 Depart-

ment 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

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

***NOTE:**

1. This is a typical low. Certain degree programs may desire the Air Force Junior- and Senior-Level courses to be taken in any one combination listed below.
Years 3 and 5, Years 4 and 5, 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 taught are exactly as specified by AFROTC/Hdqtrs.

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 scholarship 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. The majority of scholarships pay full college tuition and most textbooks, laboratory and incidental fees, plus a \$100 a 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. In addition, during field training, transportation is paid, room and board provided and salary equal to one-half month second

lieutenant pay is provided. Other student loan programs are available to cadets both from the Air Force and RIT.

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

Walter F. McCanna, Dean

The College of Business offers programs in accounting, finance, information systems, international business, marketing, management, manufacturing and materials management, personnel and human resource management, retail 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 and humanities 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 13 courses (nearly one third of the total program) in the humanities, social sciences and sciences. Within this component the student is expected to display writing proficiency 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 Major**

Management

General Business Management Option
Small Business Management Option

Manufacturing and Materials Management

Marketing

Personnel and Human Resource Management

Photographic Marketing Management*

Retail Management*

RIT/FIT Joint Degree Option

By building on the liberal arts and the 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 cooperative organization and so that advanced course work taken between cooperative work terms will become more meaningful. A major impact of the cooperative experience is that it makes the student a more attractive candidate for employment following graduation.

The rigorous, challenging program described above is designed to provide a unique level of compe-

tence 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 either an area related to their chosen field of interest or an area they may wish to investigate further. 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 expected to complete two successful cooperative work experiences. These "work blocks" take place following the completion of the sophomore year. One or more of the cooperative education experiences may be waived at the discretion of the faculty based upon prior work experience in the student's field of study. 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 assigned individual faculty advisors in their area of specialization. This assignment is made at the appropriate time in their academic program.

*Majors offered daytime only
**State Approval Ending

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 cooperative 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, personnel and human resource management, and manufacturing and materials management. These upper division 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 beginning their college studies and who are interested in pursuing an associate degree. Upon successful completion of the associate degree, students may apply to the College of Business for admission.

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 and materials management, personnel and human resource management, retail management, and photographic marketing management.

Graduation requirements

The minimum academic requirements in the College of Business for the bachelor of science degree are: 1) earned minimum grade point average of 2.0 in the departmentally approved program, and 2) completion of required number of supervised cooperative education blocks for the program.

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 a lab with 20 new 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 multi-media resource center featuring a computerized on-line catalog with remote terminal access.

Professional affiliation

The public accounting curriculum of the School of Business Administration is registered with the New York State Education Department, and graduates meet the educational requirements for candidacy for the Certified Public Accountant examination.

Memberships in professional organizations contribute to the quali-

ty of the programs in the College of Business. The College of Business maintains membership in the American Assembly of Collegiate Schools of Business and the Middle Atlantic Association of Colleges of Business Administration. 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.

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. 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 Programs

General Information on RIT's admission requirements, procedures and service is included in detail on pages 153-154 of this Bulletin.

The College of Business offers several programs of study. The programs are referred to as majors and often have 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—Students majoring in accounting may choose the public accounting option or the general accounting option. Graduates of the public accounting option meet requirements of the CPA examination. Students interested in the certification in management accounting (CMA) are encouraged to follow the general accounting option. The accounting major is designed to provide career opportunities in public accounting as well as in accounting departments in corporate organizations.

Finance—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 the general business management or small business management option. Both areas have been developed to prepare students for positions in the field of management consistent with their personal characteristics and career goals.

Personnel and Human Resource Management—This highly specialized program provides the opportunity for students to concentrate in the field of personnel, developing skills necessary for a professional career in the area of human resource management.

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 was developed to maximize career options for students who want to pursue an education in the application of computer science and technology to business and government. The program is centered in the College of Business as a response to industry's demand for individuals with backgrounds in both business and computer applications. RIT provides the analytical, technical and management education needed for a unique career in information systems.

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

Manufacturing and Materials Management—This up-to-date, specialized program prepares students for entry-level positions in manufacturing management and materials management. Because its curriculum is based 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 APICS, NAPM, or ASQC.

Retail Management—The retail management major is an industry-oriented field of study. It is designed to focus the managerial skills acquired in the College of Business core curriculum on specific managerial issues and problems facing the contemporary retail industry. Students interested in a managerial career in fashion and its many allied industries should consider the Rochester Institute of Technology/Fashion Institute of Technology Joint Degree Program.

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 multi-faceted 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
The transfer student should have an earned associate degree or the equivalent. Every effort is made to recognize the past academic work of each transfer student. The College of Business has agreements with many two-year schools in New York State that are 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, production management and the behavioral, social and organizational knowledge necessary for successful management. They also 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
Organizational Behavior
Management Science
Data Analysis
Corporate Finance
Information Systems
Principles of Marketing
Operations Management
Business Environment
Integrated Business Analysis

Department of Accounting

Bruce L. Oliver, Chairman

The accounting major provides fundamental theory and practice of accounting in the accounting core courses which are required for all accounting majors. Beyond this core, students must 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 entrance requirements. Candidates must have earned at least a C grade in each accounting course 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 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 their advisor before choosing electives in this option.

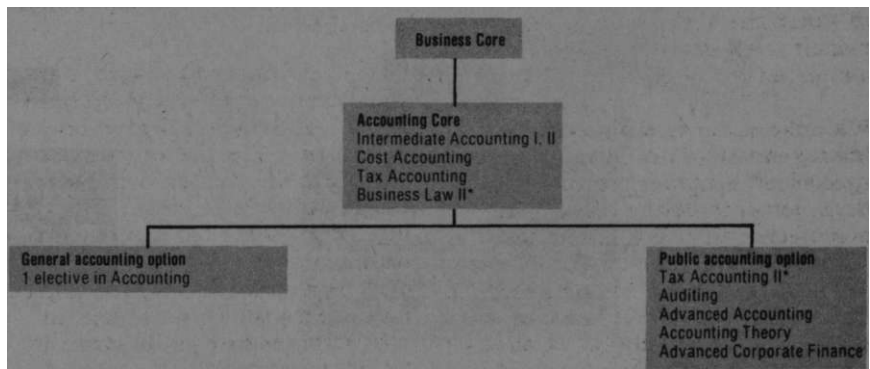
Yr.	ACCOUNTING—TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	0106-330 Data Analysis			4	
	0511-301, 302 Principles of Economics I & II	4	4		
	0602-200 Survey of Computer Science		4		
	1016-225, 226 Alg. for Mgmt. Sci.; Calc. for Mgmt. Sci	4	4		
	*LiberalArts (lower division core)	4	4	8	
	Contemporary Science Electives	4		4	
		0	0	0	‡
2	0101-301, 302 Financial and Managerial Accounting	4	4		
	0102-310 Career Seminar	2			
	0102-315 Legal Environment of Business	4			
	0102-318 Business Law		4		
	0102-430 Organizational Behavior			4	
	0105-463 Principles of Marketing			4	
	0106-334 Management Science	4			
	*LiberalArts (lower division core)	4	4	4	
	*LiberalArts (upper div. concentration or elect.)		4	4	
	‡Physical Education	0	0	0	
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 Accounting Elective	4	4		
	Free Electives.~n		4	8	
	*LiberalArts (upper div. concentration or elect.)		4	4	
4	0102-507 Business Environment	4			
	0102-551 Integrated Business Analysis			4	
	0106-505 Information Systems	4			
	Free Electives	8			
	*LiberalArts (upper div. concentration or elect.)			8	
				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 36.

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Accounting Major Curriculum Chart



*These courses are required for New York State certification. If certification in another state is desired, the appropriate course will be selected

Department of Finance

John S. Zdanowicz, Chairman

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, and real estate firms.

Yr.	FINANCE—TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	0106-330 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		
	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		
	0102-310 Career Seminar	2			
	0102-315 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		
3	0103-405 Intermediate Microeconomics	4			
	0103-406 Intermediate Macroeconomics		4		
	0104-441 Corporate Finance	4			
	0104-445 Advanced Corporate Finance		4		
	0104-507 Security Analysis		4		
	0104-525 Theory of Finance			4	
	0106-401 Operations Management	4			
	"Liberal Arts (upper div. concentration or elect.)			4	
	Free Elective	4	4	8	
4	0102-507 Business Environment	4			
	0102-551 Integrated Business Analysis			4	
	0104-510 Financial Institutions and Markets			4	
	0106-505 Information Systems	4			
	"Liberal Arts (upper div. concentration or elect.)	4		8	
	"Liberal Arts (Senior Seminar)	2			
	Free Electives	4			

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 36.

"See page 122 for Liberal Arts requirements.

tSee page 177 for policy on Physical Education.

Finance Major Curriculum Chart



Department of Decision Sciences

George A. Johnson, Chairman

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 development, design and implementation of computer-based and manual information systems. As a result, they are able to design practical, cost-effective information systems that will satisfy an organization's needs.

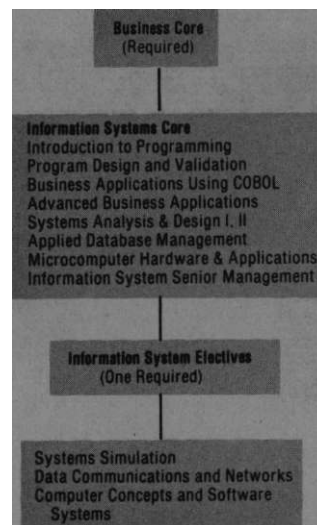
Yr.	INFORMATION SYSTEMS-TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	0602-200 Survey of Computer Science	4			
	0602-208 Introduction to Programming		4		
	0602-210 Program Design and Validation			4	
	0511-301, 302 Principles of Economics I & II		4	4	
	1016-225, 226 Alg. for Mgmt. Sci.; Calc. for Mgmt. Sci	4	4		
	Contemporary Science	4		4	
	*Liberal Arts (lower division)	4	4	4	
	‡Physical Education	0	0	0	
2	0602-300 Business Applications Using Cobol	4			
	0602-303 Advanced Business Applications		4		
	0602-363 Systems Analysis & Design I			4	
	0101-301, 302 Financial & Managerial Accounting	4	4		
	0102-310 Career Seminar			2	
	0102-315 Legal Environment of Business			4	
	0106-334 Management Science		4		
	0106-330 Data Analysis	4			
	*Liberal Arts (lower division core)	4	4	8	
	‡Physical Education	0	0	0	
3	0602-483 Applied Database Management		4		
	0106-464 Systems Analysis & Design II	4			
	0106-540 Micro Computer Hardware & Applications			4	
	0102-430 Organizational Behavior			4	
	0104-441 Corporate Finance		4		
	0105-463 Principles of Marketing			4	
	0106-401 Operations Management	4			
	*Liberal Arts (upper div. concentration or elect.) Free Electives	4 4	4 4	4	
4	0106-553 Information Systems Senior Management	4			
	Information Systems Elective		4		
	0102-507 Business Environment	4			
	0102-551 Integrated Business Analysis		4		
	*Liberal Arts (upper div. concentration or elect.)	4	8		
	*Liberal Arts (Senior Seminar) Free Electives	2 4			

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 36.

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Information Systems Major Curriculum Chart



Yr.	MANUFACTURING ft MATERIALS MGMT.—Typical Schedule	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	0106-330 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		
	Contemporary Science	4		4	
	*LiberalArts (lower division core)	4	4	8	
	‡PhysicalEducation	0	0	0	
2	0101-301, 302 Financial & Managerial Accounting	4	4		
	0102-310 Career Seminar		2		
	0102-315 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	
	*LiberalArts (lower division core)	8	4		
	*LiberalArts (upper div. concentration or elect.)	4		4-	
	‡PhysicalEducation		0	0	
3	0106-406 Quality & Reliability	4			
	0106-412 Inventory Management & Materials Ctrl			4	
	0106-408 Project & Master Planning	4			
	0106-409 Material & Capacity Planning & Ctrl		4		
	0106-444 Productivity Improvement		4		
	0102-534 Purchasing			4	
	*LiberalArts (upper div. concentration or elect.)	4	4	4	
	Free Electives	4	4	4	
4	0102-430 Organizational Behavior		4		
	0102-507 Business Environment		4		
	0102-551 Integrated Business Analysis			4	
	0106-505 Information Systems			4	
	*LiberalArts (upper div. concentration or elect.)			4	
	*LiberalArts (Senior Seminar)		2		
	Free Electives		8	4	

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 36.

**See page 122 for Liberal Arts requirements.
‡See page 177 for policy on Physical Education.

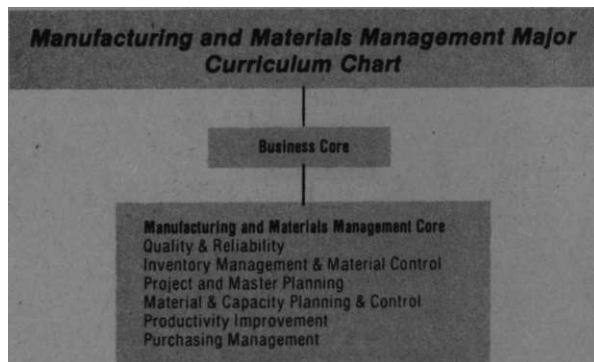
Manufacturing and Materials Management

The manufacturing and materials management program is designed to give students an integrated view of what it takes 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 production and inventory planning and control, purchasing management, quality assurance (including statistical process control) 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 annual **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.



Department of Management

Robert F. Pearse, Chairman

Management major

The management major is designed for students who wish to occupy general management positions in a business organization. Careers may develop in areas as diverse as sales or production, and while most students will work in middle management, many will rise to the executive level.

The two options in this major are general business management and small business management. Although the two options are quite similar, small business management requires course work in areas such as entrepreneurship, small business administration and intermediate microeconomics.

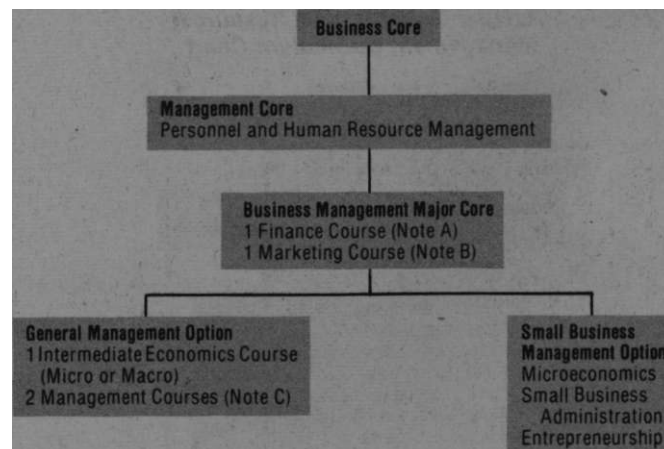
Yr.	MANAGEMENT MAJOR-TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	0106-330 Data Analysis			4	
	0511-301, 302 Principles of Economics I & II	4	4		
	0602-200 Survey of Computer Science		4		
	1016-225, 226 Alg. for Mgmt. Sci.; Calc. for Mgmt. Sci	4	4		
	Contemporary Science	4		4	
	*LiberalArts (lower division core)	4	4	8	
	‡PhysicalEducation	0	0	0	
2	0102-315 Legal Environment of Business		4		
	0101-301,302 Financial & Managerial Accounting	4	4		
	0102-310 Career Seminar	2			
	0102-430 Organizational Behavior			4	
	0105-463 Principles of Marketing			4	
	0106-334 Management Science	4			
	*LiberalArts (lower division core)	4	4	4	
	*FLiberalArts (upper div. concentration or elect.)	4		4	
	Free Elective		4		
	‡PhysicalEducation	0	0	0	
3	0102-455 Personnel & Human Resource Management	4			
	0104-441 Corporate Finance	4			
	0106-401 Operations Management	4			
	Major Electives	4	8	8	
	Free Electives		8	8	
4	0102-507 Business Environment			4	
	0102-551 Integrated Business Analysis			4	
	0106-505 Information Systems	4			
	*LiberalArts (upper div. concentration or elect.)	8		8	
	*LiberalArts (Senior Seminar)	2			
Free Electives	4				

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 36.

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Business Management Major Curriculum Chart



Yr.	PERSONNEL & HUMAN RESOURCE MANAGEMENT MAJOR—Typical Schedule	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	0106-330 Data Analysis			4	
	0511-301, 302 Principles of Economics I & II	4	4		
	0603-200 Survey of Computer Science		4		
	1016-225, 226 Alg. for Mgmt. Sci.; Calc. for Mgmt. Sci. ... Contemporary Science	4	4	4	
	*Liberal Arts (lower division core)	4	4	8	
	tPhysical Education	0	0	0	
2	0101-301,302 Financial & Managerial Accounting	4	4		
	0102-310 Career Seminar	2			
	0102-430 Organizational Behavior			4	
	0105-463 Principles of Marketing			4	
	0102-315 Legal Environment of Business		4		
	0106-334 Management Science	4			
	*Liberal Arts (lower division core)	8	4		
	*Liberal Arts (upper div. concentration or elect.)			8	
	Free Elective		4		
	lPhysical Education	0	0	0	
3	0102-445 Personnel & Human Resource Management...	4		4	
	0102-470 Compensation & Appraisal			4	
	0102-475 Human Resources Planning			4	
	0102-554 Seminar in Management		4		
	0104-441 Corporate Finance		4		
	0106-401 Operations Management	4			
	*Liberal Arts (upper div. concentration or elect.)	4	4	4	
Free Electives	4	4	4		
4	0102-480 Training & Development	4			
	0102-485 Employee & Labor Relations	4			
	0102-507 Business Environment			4	
	0102-551 Integrated Business Analysis			4	
	0106-505 Information Systems	4			
	*Liberal Arts (upper div. concentration or elect.)	4			
	*Liberal Arts (Senior Seminar)			2	
Free Elective			8		

Personnel and human resource management major

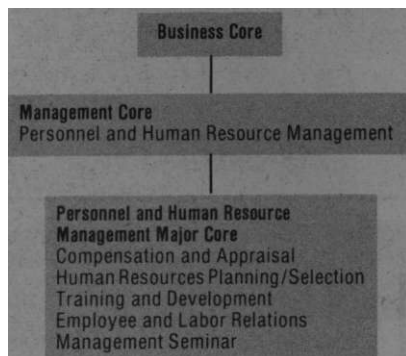
This major is designed to provide students with the knowledge and skills necessary to pursue a career in personnel administration. Course work in labor relations, compensation, human resource planning, etc. will provide the academic background necessary for one to be effective in this rapidly changing profession.

NO TE: 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 36.

*See page 122 for Liberal Arts requirements.

tSee page 177 for policy on Physical Education.

Personnel and Human Resource Management Curriculum Chart



Department of Marketing

Eugene H. Fram, Chairman

Marketing major

The marketing major prepares students to develop qualifications for entry-level 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.

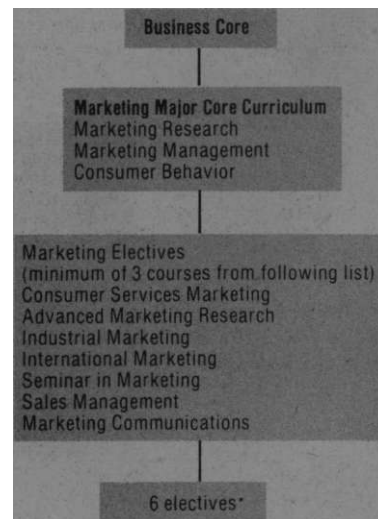
Yr.	MARKETING MAJOR—TYPICAL SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	0106-330 Data Analysis			4	
	0602-200 Survey of Computer Science		4		
	1016-225, 226 Alg. for Mgmt. Sci.; Calc. for Mgmt. Sci	4	4		
	0511-301, 302 Principles of Economics I & II	4	4		
	Contemporary Science	4		4	
	"Liberal Arts (lower division core)	4	4		8
	tPhysical Education	0	0	0	
2	0101-301,302 Financial & Managerial Accounting	4	4		
	0102-310 Career Seminar	2			
	0102-315 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		
tPhysical Education	0	0	0		
3	0104-441 Corporate Finance	4			
	0105-505 Consumer Behavior	4			
	0105-551 Marketing Research		4		
	0106-401 Operations Management			4	
	Marketing Electives		4	4	
	"Liberal Arts (upper div. concentration or elect.)	4	4		8
	Free Electives	4	4		
4	0102-507 Business Environment	4			
	0102-551 Integrated Business Analysis			4	
	0105-550 Marketing Management Problems			4	
	0105-505 Information Systems	4			
	Marketing Elective	4			
	"Liberal Arts (Senior Seminar)	2			
Free Elective	4		8		

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 36.

*See page 122 for Liberal Arts requirements.

tSee page 177 for policy on Physical Education.

Marketing Major Curriculum Chart



Yr.	RETAIL MANAGEMENT—Typical Schedule	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	1016-225 Algebra for Management Science	4			
	0511-301 Principles of Economics I	4			
	0109-201 Introduction to the Retail Industry		4		
	1016-226 Calculus for Management Science		4		
	0511-302 Principles of Economics II		4		
	0602-200 Survey of Computer Science			4	
	0101-301 Financial Accounting			4	
	*Liberal Arts (lower division core)	8	4	8	
	‡ Physical Education	0	0	0	
2	0101-302 Managerial Accounting	4			
	0102-310 Career Seminar		2		
	0102-315 Legal Environment of Business		4		
	0102-430 Organizational Behavior			4	
	0106-330 Data Analysis	4			
	0106-334 Management Science		4		
	0109-301 Retail Accounting and Merchandise Control	4			
	Contemporary Science			4	
	*Liberal Arts (lower division core)	4	4		
	*Liberal Arts (upper div. concentration or elect.)	4	4	8	
‡Physical Education	0	0	0		
3	0104-441 Corporate Finance		4		
	0105-463 Principles of Marketing		4		
	0106-401 Operations Management				4 i
	0109-401 Retail Store Operations & Management		4		
	*Free Electives		4	8	8
Liberal Arts (upper div. concentration or elect.)			8	4	
4	0102-507 Business Environment		4		
	0109-501 Senior Seminar in Retail Management		4		
	0106-505 Information Systems			4	
	0102-551 Integrated Business Analysis		4		
	Free Electives		4	8	
	*Liberal Arts (upper division elective)			4	
*Liberal Arts (Senior Seminar)			2		

Retail management major

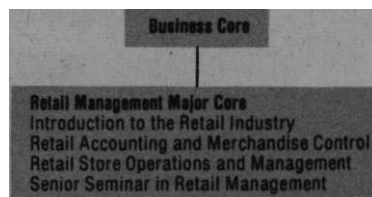
The retail management major is an industry-oriented field of study. It is designed to focus the managerial skills acquired in the College of Business core curriculum on specific managerial issues and problems facing the contemporary retail industry. The retail management major employs all the functional areas of business, such as accounting, finance, personnel, marketing and information systems management, but places them in a distinctive industry framework. Thus, the major—like the industry—is broad based, with the opportunity for students to design a unique curriculum to prepare for a managerial career in any functional area of the industry.

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 36.

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Retail Management Major Curriculum Chart



Rochester Institute of Technology—Fashion Institute of Technology Joint Degree Program

Students enrolled in the Retail Management major will have the option of selecting sub-specializations related to the fashion industry by attending the Fashion Institute of Technology (FIT) during their junior year, located in New York City. FIT is a specialized college under the program of the State University of New York and is devoted exclusively to developing students for creative careers in fashion and its many allied industries.

Students selecting the FIT option will enroll for specific classes during the fall and spring semesters at FIT and will return to RIT for their senior year. Upon completion of all requirements for their bachelor of science degree from the College of Business, students also will be certified for their associate in applied science (AAS) degree from FIT in their area of specialization.

Students who select this joint degree program will be required to complete only one quarter of full-time, paid, cooperative work experience. Additional co-ops are available for students who wish to gain additional experience.

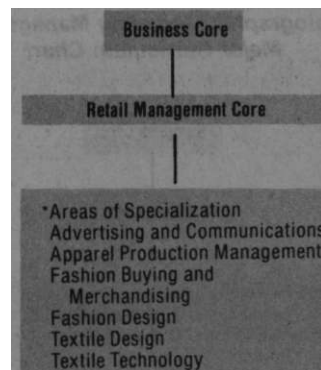
Yr.	RETAIL MANAGEMENT FASHION INSTITUTE OF TECHNOLOGY OPTION SCHEDULE	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	1016-225 Algebra for Management Science	4			
	0511-301 Principles of Economics I	4			
	0109-201 Introduction to the Retail Industry		4		
	1016-226 Calculus for Management Science		4		
	0511-302 Principles of Economics II		4		
	0602-200 Survey of Computer Science			4	
	0101-301 Financial Accounting			4	
	*Liberal Arts (lower division core)	8	4	8	
	0	0	0		
2	0101-302 Managerial Accounting	4			
	0102-310 Career Seminar			2	
	0102-315 Legal Environment of Business		4		
	0102-430 Organizational Behavior			4	
	0106-330 Data Analysis	4			
	Management Science		4		
	0109-301 Retail Accounting and Marketing Control	4			
	Contemporary Science		4	4	
*Liberal Arts (lower division core)	4	4			
* Liberal Arts (upper division concentration)			8		
3	0106-401 Operations Management		Fashion Institute of Technology		4
	* Liberal Arts (upper division concentration or elect.)				12
	* Physical Education				0
4	0105-463 Principles of Marketing		4		
	0104-441 Corporate Finance		4		
	0109-401 Retail Store Operations and Management		4		
	0102-507 Business Environment	C	4		
	0109-501 Senior Seminar in Retail Management	O		4	
	0106-505 Information Systems	O		4	
	0102-551 Integrated Business Analysis	P		4	
	*Liberal Arts (upper division electives)			4	
	*Liberal Arts (Senior Seminar)			2	
	tPhysical Education		0		0

Students are granted junior status upon completion of five academic quarters

*See page 122 for Liberal Arts requirements.

†See page 177 for policy on Physical Education.

RIT-FIT Joint Degree Program Chart



•The areas of specialization listed represent the seven majors in which students may receive an AAS degree upon completion of the RIT BS degree program in retail management. Details on each of these areas may be obtained from the School of Retail Management

Photographic marketing management major

The photographic marketing management major is a joint degree program offered by the Center for Retail Management 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 these 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.

Cooperative work experience is optional for students majoring in photographic marketing management.

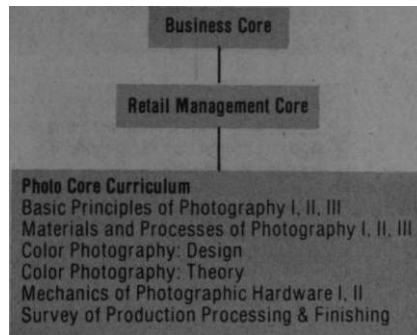
Yr.	PHOTOGRAPHIC MARKETING MANAGEMENT-Typical Schedule	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	0106-225 Algebra for Management Science	4		
	0511-301 Principles of Economics I	4		
	0109-201 Introduction to the Retail Industry		4	
	1016-226 Calculus for Management Science		4	
	0511-302 Principles of Economics II		4	
	0602-200 Survey of Computer Science			4
	0101-301 Financial Accounting			4
	*LiberalArts (lower division core)	8	4	8
	‡PhysicalEducation	0	0	0
2	0905-201, 202, 203 Principles of Photography I, II, III	4	4	4
	0109-301 Retail Accounting and Merchandising Control	4		
	0106-330 Data Analysis	4		
	0101-302 Managerial Accounting	4		
	0106-334 Management Science		4	4
	0102-310 Career Seminar			2
	*LiberalArts (lower division core)		8	
	*LiberalArts (upper division concentration)			8
3	0903-211, 212, 213 Materials & Processes of Photography	3	3	3
	0104-441 Corporate Finance		4	
	0105-463 Principles of Marketing	4	4	
	0109-401 Retail Store Operations and Management			4
	0106-401 Operations Management			4
	0102-430 Organizational Behavior			4
	*LiberalArts (upper division concentration or elect.)	4	8	
	‡PhysicalEducation	0	0	0
	0102-315 Legal Environment of Business	4		
4	0106-505 Information Systems		4	
	0102-507 Business Environment	4		
	0920-311 Color Photography: Design	4		
	0109-501 Senior Seminar in Retail Management			4
	0920-312 Color Printing: Theory		4	
	0905-320 Mechanics of Photographic Hardware I	4		
	0102-551 Integrated Business Analysis			4
	0905-321 Mechanics of Photographic Hardware II		4	
	0905-310 Survey of Production Processing & Finishing		2	
	Free Electives	4		4
	*LiberalArts (upper division elective)			4
*LiberalArts (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 36.

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Photographic Marketing Management Major Curriculum Chart



International business co-major*

The International Business co-major has been designed to meet the growing interest of American business in global markets. This major is open to students majoring in marketing, management or finance as a coordinated field of study.

The education acquired through this co-major will provide the student with a number of career options.

Graduates should be able to obtain:

- an entry level position in domestic marketing, management or finance;
- an entry level international business position that requires a background in marketing, management or finance;
- a middle level international business position after some years of domestic business experience.

Degree requirements for the program include liberal arts courses, language courses, business core courses, international business courses, functional major in marketing, management or finance and nine months of foreign work experience or work experience in an international department of a domestic firm in the United States.

A graduate from this co-major should be able to function well in an exciting business world that is becoming more global in character every day.

Yr.	INTERNATIONAL BUSINESS CO-MAJOR—Typical Schedule	Qtr. Credit Hours			
		FALL	WTR.	SPG.	SMR.
1	0102-310 Career Seminar		2		
	0102-515 Legal Environment of Business	4			
	Algebra, Calculus, Philosophy/Science	4	4	4	
	0602-200 Survey of Computer Science			4	
	English Comp., Literature, Liberal Arts Cone. I	4	4	4	
	History, Fine Arts	4	4		
	0511-301, 302 Principles of Economics I and II		4	4	
2	0101-301, 302 Financial and Managerial Accounting	4	4		
	Data Analysis, Liberal Arts Cone. II		4	4	
	Mgmt. Science, Contemporary Science I	4	4		
	Liberal Arts Core	4	4		
	Liberal Arts Cone. III, Language I	4		4	
	Contemporary Science II, Intercultural Com			8	
	Intermediate Macro, Principles of Marketing				8
Corp. Finance, Contemporary Economic Prob				8	
3	Organizational Behavior, Dec. Support Sys	8			
	Business Environment, Comparative Mgmt	8			
	Overseas Experience — Language II, III, IV		12		Foreign Experience
	Co-op and Other Studies	—	—		
4	International Finance, International Mktg	8			
	Liberal Arts Senior Seminar	2			
	Functional Area Elective (1-6)	4	12	8	
	0102-551 Integrated Business Analysis			4	
	**Liberal Arts Electives.	4	4	4	

NO TE: 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 36.
 **See page 122 for Liberal Arts requirements.

Elements	Courses	Credit Hours
Liberal Arts Core	7	28
Liberal Arts Concentration	3	12
Liberal Arts Electives	3	12
Four courses in a language	4	16
Liberal Arts Senior Seminar	1	2
Contemporary Science	2	9
Business Core	18	70
International Bus. Co-major Core	5	20
Functional or Mgmt. Business Major	6	24
	49	192

*State approval pending

College of Continuing Education

The College of Continuing Education has entered its 157th year of providing quality professional and technical programs for the part-time and evening student. Working closely with the other eight RIT colleges, CCE develops flexible educational opportunities with classes scheduled to meet the specific needs of employers, employees and non-working individuals. Through unique certificates, diplomas and degrees and by scheduling courses and programs at night, on weekends, or during the day, it is possible to attain educational goals not otherwise attainable.

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.

A new, flexible interdisciplinary degree program is being introduced this year to allow students to tailor their education to their needs. Or, if a student chooses to follow a specific program of study, the CCE Academic Division offers numerous options in areas such as management, photography, the technologies, machine tool and general education. CCE offers certificate programs and diplomas in 19 fields. And if a student is interested in earning an associate degree, CCE has 23 options to choose from. In addition, a bachelor of science degree can be earned in six CCE programs.

Through its many telecourses the college strives to make learning more convenient by bringing courses to the student at home or at several off-campus locations through cable and public television. Students learn through a unique system using televised, printed and personalized teaching materials. Regular correspondence with an RIT course facilitator via telephone and mail allows students to learn and earn college credits in the comforts of home, occasionally coming to campus for meetings or tests.

Another unique feature of CCE is the School of Applied Industrial Studies (SAIS), offering full-time, one-year diploma programs in drafting, computer services, automated equipment, machine tool technology and packaging machinery mechanics.

The Center for Quality and Applied Statistics offers a master of science degree in applied and mathematical statistics available for part-time or full-time students. New summer study and co-op program opportunities begin this year. In addition, the center presents short courses and seminars through its "Quality and Productivity Series" for individuals and industry.

Through the Training and Professional Development Division, the college offers over 300 non-credit workshops, seminars and short courses yearly to meet the specific needs of individuals, community groups, professional organizations, industries, government and businesses in areas of managerial and technical advancement. Some of the topics presented are related to communications, computer applications, health issues, management and marketing, small business, real estate, and professional and personal development.

The Training and Professional Development Division works with local industry and business in the development of contract and training programs in all phases of technology and management skills development.

The department of Career and Human Resource Development provides graduate study leading to a master of science degree.

The Administrative and Academic Services Division provides an extensive support network for students, faculty, staff and administration. This division provides admissions, advising, registration, and student services information, as well as publications and marketing support services for the college.

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 475-2471 for further 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.

Do the views of students count?

Yes! Courses are evaluated by each student. Also, faculty visit others classes to share ideas with the goal of improving instructional quality; workshops on teaching effectiveness also are provided.

If you have a concern about any aspect of a course, first talk it over with your instructor. He or she is interested in your view. If you have a problem that cannot be resolved with your instructor, call the associate director, appropriate chairperson, or make an appointment with an advisor (475-2471).

Business and the Arts

The Business and the Arts Division of CCE provides a wide variety of technical and professional programs of study at several 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 your interests and the interests of Rochester's expanding business, artistic and industrial complex. Advisory committees composed of representatives from local businesses, industries and professional groups contribute to an ongoing assessment of courses and programs of study to assure a high-quality education.

Business and the Arts includes the following:

- Weekend College - new this year, a program that allows you to accelerate your studies by attending four weekend sessions.
- Small Business Management Sequence
- Management Certificate
- Certificates* in Basic and Advanced Technical Communication
- Management Diploma (7 options)
- AAS in accounting, business administration, marketing, personnel administration, production management, and traffic and transportation.
- AA in general education (with career options)
- Deaf studies concentration
- 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)
- AAS/BS in photographic science

Business and Management Studies

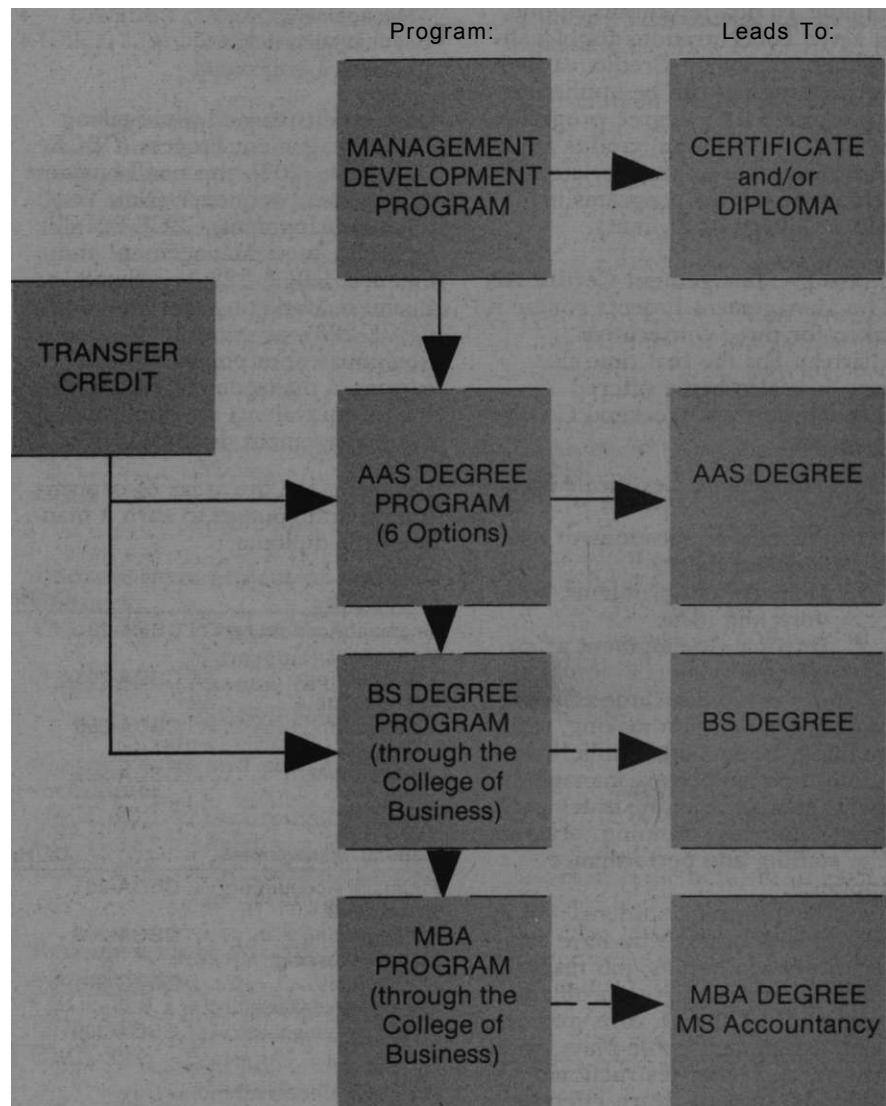
Approximately 50 credit-bearing courses in business and management subjects are available through the College of Continuing Education.

Courses leading to an AAS degree and transferable to appropriate baccalaureate degree programs in RIT's College of Business are available in business administration, accounting, marketing, per-

sonnel administration, production management, and traffic and transportation. If you are interested in a short-term concentration in one of these business or management fields, CCE also offers a Management Development Program leading to a management certificate and management diploma.

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

Business/Management Program Paths



- Completion, of the necessary quarter credits (12 for a certificate and 16 for a diploma; 92 for an AAS)
- Following the program outline when selecting courses
- Achieving a program GPA of at least 2.0 in order to be certified

The Management Development Program

This program has two components: a 12-credit course (The Management Process) in practical supervision, management, and communication skills, leading to a management certificate; further study totaling 16 quarter credits in one of seven concentrations for a management diploma. Credits earned in this program can be applied to appropriate AAS degree programs in CCE. In addition, credits are also transferable to appropriate baccalaureate degree programs in RIT's College of Business.

Phase I - Management Certificate: The Management Process course is taken for three consecutive quarters. For the first time this year, it is also being offered through our new Weekend College program.

The Management Certificate focuses on:

- Practical applications of management theory
- Management problems, solutions and ideas
- Personal development as an effective manager

Topics covered include effective motivation, decision making, team building, leadership, conflict resolution, time and stress management, communication strategies and techniques, planning, organizing, staffing and performance appraisal.

In this program, students will associate with others who have similar career aspirations, job responsibilities and challenging problems on the job. Through case studies, team assignments, 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.

Phase II - Management Diploma: In the Management Diploma Program, students concentrate their studies in a specific area of business and management, such as accounting or marketing, that may be immediately relevant on the job.

A management diploma may be earned by completing a total of 16 quarter credits upon earning a management certificate or completing three foundation courses as specified below:

<u>Foundation Courses</u>	<u>Cr. Hrs.</u>
Dyn. Comm. CGHL-205	
or	
Communications. CHGL-220	4
Organization and Management CBCE-203	4
1-additional business course	4

Only credits earned while taking The Management Process (CBCE-200, -201, -202), the small business management sequence (New Ventures Development, CBCE-221; Small Business Management and Finance, CBCE-222; and Small Business Marketing and Planning, CBCE-223), or equivalent foundation courses, or completed after earning a management certificate (or its equivalent) are applicable to the management diploma.

Following are the areas of concentration and courses to earn a management diploma:

<u>Accounting</u>	<u>Cr. Hrs.</u>
Financial Accounting . . . CBCA-201	4
Managerial Accounting CBCA-203	4
Intermediate Accounting I. CBCA-308	4
Intermediate Accounting II. CBCA-309	4
	16

<u>General Management</u>	<u>Cr. Hrs.</u>
Financial Accounting . . . CBCA-201	4
Managerial Accounting CBCA-203	4
Data Processing Principles CBCC-321	4
Principles of Marketing or a Business elective. CBCA-309	4
	16

<u>Marketing</u>	<u>Cr. Hrs.</u>
Principles of Marketing. CBCG-361	4
Effective Selling. CBCG-210	4
Advertising Principles .. CBCG-213	4
1-Business Elective	4

<u>Personnel Administration</u>	<u>Cr. Hrs.</u>
Personnel Administration. CBCI-229	4
Interviewing Techniques CBCI-224	4
Business Law I. CBCB-301	4
1-Business Elective	4
	16

<u>Industrial Management</u>	<u>Cr. Hrs.</u>
Production Management CBCJ-209	4
Fundamentals of Industrial Engineering. CBCJ-305	4
Industrial Engineering Economy. CBCJ-306	4
Data Processing Principles	4
	16

<u>Traffic & Transportation</u>	<u>Cr. Hrs.</u>
Traffic & Transportation Principles and Practices. CBCL-234	4
Traffic & Transportation Rates and Classifications I . . . CBCL-239	4
1-Traffic & Transportation Elective	4
Principles of Marketing	4
	16

<u>Real Estate Management</u>	<u>Cr. Hrs.</u>
Basic Real Estate Principles CBCM-201	4
Advanced Real Estate Principles	4
Real Estate Investment and Finance. CBCM-203	4
Real Estate Evaluation	4
	16

You can apply credit hours earned in the diploma programs to appropriate AAS degree programs in CCE. In addition, diploma courses are also transferable to appropriate baccalaureate degree programs in RIT's College of Business.

Business and Management AAS degree programs

Programs leading to an AAS degree in business administration are available in accounting and business administration and 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, and traffic and transportation. The management programs are designed to give specialized skills in these areas, with the course work being transferable to a BS degree program in the 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. In addition, all degree programs include a broad spectrum of courses in communications, behavioral sciences, humanities, and science.

Core requirements

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

Professional requirements

Courses and sequences of special interest

Own, Manage or Invest in a Small Business

A certificate of completion in small business management may be earned by completing three, four-credit courses dealing with managing, financing, and marketing small businesses. These courses are:

CBCE-221	New Venture Development
CBCE-222	Small Business Management & Finance
CBCE-223	Small Business Marketing & Planning

Students may want to consider taking one or more business and management courses that will help them advance in their careers, enable them to enter a new career, or just add to their understanding of an area they find interesting. Here are several courses that are particularly popular with those who want to become a supervisor or improve their supervisory skills.

CBCE-200	The Management
201, 202	Process
CBCI-224	Interviewing Techniques-

Improve management of personal finances

CBCD-204	Personal Financial Management
CBCD-304	Personal Financial Decision Making

Sharpen sales and marketing techniques

CBCG-210	Effective Selling
CBCG-213	Advertising Principles
CBCG-214	Advertising Evaluation and Techniques

Become a more effective administrator

CBCE-200,	The Management
201, 202	Process
CBCI-229	Personnel Administration

Prepare for New York State license exams in real estate and insurance

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

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

Core Requirements, All Business and Management 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.
	Financial Accounting CBCA-201	4	Communications (3) CHGL-220	8	Science Electives (2)	8
	Managerial Accounting CBCA-203	4	Literature ^{and} CHGH-260	8	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 (3) CHGL-204	8		
	Principles of Marketing CBCG-361	4	Dyn. Comm. II CHGL-205	8		
	Management Science CBCE-353	4	Economics CHGS-221, 222	8		
	Professional Concentration		Psychology CHGS-211	4		
	Courses	20	Sociology CHGS-231	4		
	Total		44	Total:	24	Total

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

(3) Communications courses require pretest, see page 55. Students who take CHGL-204 should also take CHGL-205. Students who take CHGI-220 should also take CHGH-260.

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

	Organization & Management (CBCE-203)	Qtr.	Cr.
	1- Business Elective		4
(2)	Science electives may include any of the following:		
	Dynamic Comm. I (204)		4
	Contemporary Science/Biology CTCS-221		
	Contemporary Science/Chemistry CTCS-222		
	Contemporary Science/Physics CTCS-223		
	Contemporary Science/Oceanus CTCS-224		
	Engineering Chemistry CTCC-241, 242, 243 or		
	College Physics CTCP-201, 202, 203		

Business and Management Programs (Professional Program Requirements)

<u>Accounting (CBCA)</u>	<u>Cr. Hrs.</u>
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
	<u>20</u>

<u>Production Management (CBCJ)</u>	<u>Cr. Hrs.</u>
Production Management CBCJ-209	4
Fundamentals of Industrial Engineeringt CBCJ-305	4
Industrial Engineering Economyt CBCJ-306	4
Business Law I CBCB-301	4
Electivet	4
	<u>20</u>

<u>Business Administration (CBCE)</u>	<u>Cr. Hrs.</u>
History or Fine Arts Elective	4
Legal Environment of Business CBC8-310	4
3-Business Electives	12
	<u>20</u>

<u>Traffic & Transportation (CBCM)</u>	<u>Cr. Hrs.</u>
Traffic & Transportation Principles and Practicest CBCL-234	4
Traffic & Transportation Rates and Classifications 1† CBCL-239	4
1-Traffic & Transportation Electivet	4
Business Law I CBCB-301	4
Business Electivet	4
	<u>20</u>

<u>Marketing (CBCG)</u>	<u>Cr. Hrs.</u>
Effective Sellingt CBCG-210	4
Advertising Principlest CBCG-213	4
Business Law I CBCB-301	4
2-Business Electives	8
	<u>20</u>

<u>Personnel Administration (CBCI)</u>	<u>Cr. Hrs.</u>
Personnel Administration CBCI-229	4
Interviewing Techniquest CBCI-224	4
Business Law I CBCB-301	4
2-Business Electives	8
	<u>20</u>

* To transfer these courses to RIT's College of Business you will be required to complete subsequent courses in the same subject area.

† Acceptable as free elective transfer credit into baccalaureate degree programs in RIT's College of Business.

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* and a concentration in deaf studies also are available.

General Education

General education courses serve a pivotal 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, humanities, communication, and the behavioral 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 1(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 writing 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

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
- Communication
- Fine Arts
- Home Design
- Human Development
- 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 262-3061 (or 475-5027 on/about October 17).

Course requirements for General Education, CHGE—AA Degree

		Qtr. Cr.		Qtr. Cr.		
Required Courses 92 Credits	Humanities	CHGH-201,202,203	12	Economics	CHGS-221	4
	Introduction to Literature	CHGH-260	4	Psychology	CHGS-211	4
	Introduction to Art			Philosophy	CHGH-270	4
	Appreciation	CHGH-210	4	Electives		20
	Introduction to Music	CHGH-230	4	Career Skills Area		20
	History	CHGH-220	4			
	Political Science	CHGS-261	4			
	Contemporary Science Elective		4			
	Science, Technology & Humanity					
	Elective		4			

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

Technical Communication Certificates*

In this age of information, all kinds of organizations, large and small, have increasing needs for individuals skilled in documenting, packaging, presenting, and managing technical and scientific information. Whether done within the company or by contract, companies 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.

Basic Technical Communication Certificate*		Qtr.	Cr.
Phase I:			
Technical Writing & Editing	CHGL-323	4	
Research Techniques . . .	CHGL-324	2	
Phase II:			
Instructional Design Principles	CHGL-325	2	
Document Design Principles	CHGL-326	2	
Practicum: Designing Manuals	CHGL-327	2	
Total Credits			12

Up to four credits may be awarded by examination or for courses taken at another college. Prerequisite for the Basic sequence is demonstration (by examination, portfolio, or transcript) of a command of standard written English. Students must achieve a program GPA of at least 2.0 in order to be certified.

For those interested in further professional development and instruction in more specialized topics, the following sequence of courses, designed to be completed in two quarters of study, is available.

Advanced Technical Communication Certificate*		Qtr.	Cr.
Phase I:			
Writing in the Sciences	CHGL-328	2	
Oral Communication Skills for Technical Communicators	CHGL-329	2	
Communicating Online	CHGL-330	2	
Phase II:			
Promotional Writing . . .	CHGL-331	2	
Managing the Project ..	CHGL-332	2	
Audiovisual 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, 262-2604 (or 475-4936 on/about October 17).

Deaf studies concentration

With the growing awareness and integration of deaf community members, there is a need to understand hearing-impaired people.

Many have deaf family members, co-workers, clients or friends. The courses in the Deaf Studies Program are designed to enable hearing persons to communicate with deaf people and to develop some understanding of the experience of being deaf through courses related to the linguistic, psychological, social, and physical aspects of deafness.

Rochester has the second highest population per capita of hearing-impaired individuals in the United States, resulting in extensive community and educational resources. Rochester is a center for habilitation, rehabilitation, social services and educational services for deaf people in New York State and across the country.

Deaf studies courses include:

CHGD-211	Sign Language & Manual Communications Systems I, II & III
CHGD-311	Aspects & Issues of Deafness I & II
CHGD-241	Aspects & Issues of Deafness I & II

*Core requirements are prerequisite for all CHAA and CHAC diploma programs.

Fine and Applied Arts and Crafts Diploma Programs

Fine and applied arts courses are designed to contribute to the student's personal growth and cultural 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, fashion illustration, 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 five areas. Students may want to include printing and photography electives in their programs after receiving an advisor's approval. Some electives are offered only in alternate years.

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 262-3061 (or 475-5027 on/about October 17).

Fine and Applied Arts and Crafts Diploma Program (CHAA)

***Core requirements are prerequisite for all diploma programs: CHAA and CHAC**

<u>Core Requirements:</u>	<u>Qtr. Cr.</u>
Basic Drawing and Media. CHAF-201, 202, 203	6
Basic Design. CHGH-201, 202, 203	6
Introduction to Art Appreciation. CHGH-210	4
	<hr/> 16
Program Requirements:	Qtr. Cr.
Craft (CHAC) In addition to the core requirements each student must become familiar with three of four areas.	
*Core Requirements.	16
Major craft courses.	18
Minor craft courses.	6
3rd craft choice.	2
Electives	6
	<hr/> 48

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

<u>Advertising Design (CHAA)</u>	<u>Qtr. Cr.</u>
*Core requirements.	16
Display Design. CHAD-211, 212, 213	6
Lettering and Layout. 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
Electives with advisor's approval.	6
	<hr/> 48

<u>Fashion Illustration (CHAA)</u>	<u>Qtr. Cr.</u>
*Core requirements.	16
Basic Figure Drawing. CHAF-207	2
Figure Drawing (5 qtr.). CHAF-307	10
Fashion Illustration. CHAD-331, 332, 333	6
Marketing. CBCG-361	4
Lettering and Layout. CHAD-261, 262, 263	6
Electives with advisor's approval.	4
	<hr/> 48

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, programs leading to an AAS in professional photography and an AAS/BS in photographic science are available.

Diploma programs in printing and photography

Printing

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 letterpress, lithography and gravure. 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.

Printing (CHGV) diploma program requirements

CHGT-201	Introduction to Printing	202, 203
CHGT-227	Copy Preparation	
CHGT-101	Process Camerawork	102, 103
CHGT-111	Color Separation Camerawork	112, 113
CHGT-121	Offset Layout and Stripping	122, 123
CHGT-131	Offset Platemaking	132
CHGT-141	Offset Presswork	142, 143
CBCE-101	Human Relations	102, 103

Photography

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 applied science degree in professional photography.

Photography (CHGN) diploma program requirements:

CHGP-201	Basic Professional Photography	202, 203
CHGP-211	Color Photography	212, 213
CHGP-241	Commercial Photography	242, 243
CHGP-231	Portrait Photography	232, 233
CHGP-331	Portrait Retouching	332, 333
or		
CHGP-321	Commercial Retouching	322, 323
CBCE-101	Human Relations	102, 103
or		
CHGS-211	Psychology: Introduction	

Course requirements, CHGR-AAS and BS degrees

		Mathematics and Science	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr.
102 Quarter Credits	Phase I	Algebra & Trigonometry CTAM-210	4	Communications†† CHGL-220 and Literature CHGH-260	8	Fundamentals of Photographic Science CHGR-207, 208, 209 Black and White Sensitometry CHGR-227,228,229	12
		Engineering Chemistry CTCC-241,242,243 (lec) -246,247,248 (lab)	12	Dynamic Comm. I†† CHGL-204 and Dynamic Comm. I CHGL-205 Communications Elective.....	8 4		12
	Phase II	Calculus CTAM-251,252,253	12	Psychology CHGS-211	4	Radiometry CHGR-237,238	6
		College PhysicsCTCP-201,202,203 (lec) -206,207,208 (lab)	12	Economics CHGS-221	4	Photographic Chemistry CHGR-217,218,219 (lec) 224,225,226 (lab)	12
92 Quarter Credits	Phase III	Calculus CTAM-305	4	Electives	8	Optics CHGR-407,408,409	9
		Differential Equations CTAM-306	4			Image Evaluation CHGR-417,418,419 or Quality Control of Photo-Solutions CHGR-307,308,309 Color Sensitometry .. CHGR-414,415,416	9 10
	Phase IV	Elective (Statistics)	8	Electives	8	Theory of Photo Process CHGR-527	4
		Electives (Computer Programming)	4			Theory of Color Process CHGR-528 Non-silver Imaging Systems .. CHGR-529 Technical Electives	4 4 16

In order to meet program objectives and prerequisites of later courses, transfer students who have an associate degree may be required to take courses with Phase III and IV for appropriate work completed by the time of transfer.
The AAS degree is awarded upon the student's satisfactory completion of all courses in Phase I and II. In the case of transfer students seeking a degree, 45 credits must be completed in CCE.

††Communications courses require pretest, see page 55.

Students who take CHGL-204 should also take CHGL-205; students who take CHGL-220 should also take CHGH-260. All BS students must also satisfactorily pass a communications competency test.

AAS and BS Degree Programs in Photographic Science, Professional Photography and Graphic Arts (CHGR)

Today, the complexity of the photographic process and its manufacturing technology is easily matched by its multitude of uses. From its very beginnings, photography attracted the interest of many famous scientists. Photographic materials, for example, triggered the discovery of x-rays and enabled the discovery of distant galaxies in space and elementary particles on earth.

As a result, photography's impact on society has been tremendous and continues to increase. The graphic arts industry is now almost completely dependent on photographic processes. New light-sensitive processes have found numerous applications, particularly in the duplicating field, and hold much promise for other future non-silver imaging processes. Photosensitive resins are essential to the manufacture of microcircuits in the electronics industry. Electronic image retrieval, analysis and management systems are a powerful new force in the field.

It is evident that a field of such variety and growth potential should provide interest, challenge and reward to a substantial number of technicians, scientists and engineers for years to come.

The degree program in photographic science provides students with a thorough understanding of the photographic process, from fundamental laws and principles in sensitometry, photographic chemistry and radiometry, to state of the art research and practice in emul-

sion chemistry, color theory, non-silver processes, image evaluation and photographic optics.

These topics combined with a solid background in mathematics, chemistry, physics and statistics prepare students for a promising career as an engineering technician at the completion of the associate degree or as a photographic technologist at the bachelor's level.

Beyond the requirements in the photographic science area students are encouraged to examine other fields of interest through elective courses in electronics, chemistry, physics, or other appropriate subjects.

The program prepares students for an interdisciplinary relationship with chemists, physicists, electrical and mechanical engineers developing new photosensitive systems, improving existing products, or finding new applications for a variety of imaging systems in science, medicine or industry.

Most courses are designed to also meet the needs of local engineers and scientists who wish to refresh their background in the photographic process, or who want to explore a new or specialized subject.

Technical electives for photographic science (CHGR)

The following is a partial list of courses that fulfill the technical elective requirements for the photographic science program:

- CHGR-421 Mathematical Methods in Photographic Science
- CHGR-520 Electrostatic Imaging Methods
- CHGP-351 Industrial Photography Instrumentation
- CQAS-711 Fundamentals of Statistics

- CQAS-721 Control Charts
- CTDS-202 Introduction to Computer Science
- CTDP-304 Assembly Language Programming
- 305, 306 COBOL
- CTIL-201 Elements of Electricity and Electronics
- 202, 203
- CTEM-301 Applied Mechanics and Strength of Materials

Other courses not listed above are acceptable. These include advanced topics in chemistry, physics, statistics, electronics, and mechanics. Up to six quarter credits may be scheduled in management. You should schedule all electives with your advisor's approval.

AAS Program in Professional Photography (CHGP)

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 communications, 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 free lance 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, CHGP-AAS degree

		Mathematics and Science	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr. Cr.
95 Quarter Credits	Phase I	Technical Mathematics ... CTAM-201,202 or Mathematical Thought and Processes ... CTAM-205 And Modern Mathematical Methods ... CTAM-206	8	Communications ^{††} CHGL-220 Literature and CHGH-260 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 Professional Electives	12 12
	Phase II	Electives	12	Economics CHGS-221 Electives	4 4	Color Photography ... CHGP-211,212,213 Professional Electives	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 area
^{††} Communications courses require pretest, see page 55. Students who take CHGL-204 should also take CHGL-205; students who take CHGL-220 should also take CHGH-260. All BS students must also satisfactorily pass a communications competency test.

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 within CCE.

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 photography (CHGP) degree

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

The Graphic Arts Degree Program (CHGT)

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 broad 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.

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, CHGT-AAS and BS degrees with options in design, printing or photography

		Mathematics and Science	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr.
94 Quarter Credits	Phase I	Technical Mathematics ... CTAM-201,202 or Mathematical Thought and Processes ... CTAM-205 And Modern Mathematical Methods ... CTAM-206	8	Communications ^{††} and Literature ... CHGL-220 or CHGH-260 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 ... CHAD-201,202,203	6 12 5
	Phase II	Contemporary Science ... CTCS-221,222,223 or Engineering Chemistry ... CTCP-201,202,203 (lec) -246,247,248 (lab) or Physics ... CTCP-201,202,203 (lec) -206,207,208 (lab)	12	Economics ... CHGS-221 Electives (Humanities) ...	4 6	Paper and Printing ... CHGT-251,252 Copy Preparation ... CHGT-227 Technology of Typesetting ... CHGT-237 Graphic Design ... CHAD-311,312,313 Professional Electives ...	4 3 2 6 9
94 Quarter Credits	Phase III	Science, Technology and Society Electives ...	8	Electives ...	20	Reproduction Camerawork ... CHGT-301,302,303 Printing Plates ... CHGT-231,232 Printing Process ... CHGT-341 Advertising ... CHAD-301,302	6 4 2 8
	Phase IV			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.

††Communications courses require pretest, see page 55. Students who take CHGL-204 should also take CHGL-205; students who take CHGL-220 should also take CHGH-260. AIIBS students must also satisfactorily pass a communications competency test.

Science and Technology

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

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

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. Advisory committees from local industry contribute to a continuing program of course revision and updating to insure a professional education of lasting value.

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 offered on both a day and evening schedule. They are taught by the same instructor, and may be attended day sessions or evening sessions.

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 475-2471 to arrange an appointment to take the math exam. There is no charge for this exam.

Breakage deposit cards

For some courses, students need to purchase a Breakage Deposit Card for \$5 from the cashier. A refund can be received for unused amounts at the end of the school year.

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 the ability to pursue the BS program but having a deficient mathematics background may complete CTAM-101, 102, 103 before entering this program.

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.

Applied science—chemistry program (CTCC)

The chemistry curricula leading to the AAS and BS degrees are designed to provide students with a sound background in the fundamental principles in a broad spectrum of various chemistry disciplines. Strong emphasis is on mathematical and physical aspects of the science of chemistry, and the more practical aspects of the science are presented in various laboratory courses. In the BS degree program professional elective

courses provide students with the opportunity for specialization in the area of their choice.

Courses need not be taken within any phase in the sequence 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. Transfer students must complete 45 credits of this program at RIT before receiving a degree.

Course requirements, CTCC-AAS and BS degrees

	Mathematics and Science	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr. Cr.
Phase I	College Algebra and Trigonometry CTAM-210	4	Communications ^{††} CHGL-220 Literature CHGH-260	8	General Chemistry CTCC-211,212,213 Qualitative Inorganic Analysis CTCC-216 Quantitative Analysis CTCC-217,218	9 4 4
	Calculus CTAM-251,252 Computer Techniques CTDP-201	8 2	Dynamic Comm. I ^{††} CHGL-204 and Dynamic Comm. II CHGL-205 Communications Elective CHGL-205	8 4	Organic Chemistry CTCC-231,232,233 (lec) 237,288 (lab)	13
Phase II	Calculus CTAM-253 Physics CTCP-301,302,303 (lec) CTCP-306,307,308 (lab)	4 12	Psychology CHGS-211 Economics CHGS-221 **Electives	4 4 4	Analytical Chemistry— Instrumental Analysis CTCC-311 (lec) -316 (lab)	5
					Analytical Chemistry— Separations CTCC-312 (lec) -317 (lab)	5
Phase III	Calculus CTAM-305 Engineering Statistics CTAM-341 Mathematics Elective	4 4 4	History or Political Science Elective Literature Elective	4 4	Introduction to Physical Chemistry CTCC-313 (lec)	3
					Chemical Literature and Technical Writing CTCC-417	2
Phase IV	Modern Physics CTCP-457,458	8	**Electives	16	Qualitative Organic Analysis CTCC-525 (lec) -535 (lab)	3
					Physical Chemistry CTCC-401,402,403 (lec) 405,406,407 (lab)	15
					Instrumental Analysis CTCC-511,512 Inorganic Chemistry CTCC-551 +Professional Electives	8 4 21

** These electives must be selected from the areas of humanities, communications or behavioral sciences offered in the Humanistic Studies area subject to the advisor's approval.
+ At least one of these professional elective courses must be taken in the area of organic chemistry. The selection of all professional elective courses is subject to advisor's approval.

In order to meet program objects and prerequisites of later courses, transfer students who have an associate degree may be required to take courses within Phases I and II. In many instances, such transfer students will be granted credit within Phases III and IV for appropriate work completed by the time of transfer.

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

†† Communications courses require pretest, see page 55. Students who take CHGL-204 should also take CHGL-205; students who take CHGL-220 should also take CHGH-260. All BS students must also satisfactorily pass a communications competency test.

Applied science—electrical program (CTBE)

This intensive program in the electrical field includes a sound basis in mathematics, science and general engineering. This broad fundamental curriculum will provide a solid technical foundation for later specialization in the numerous branches of the electrical industry. The remainder of the curriculum is devoted primarily to developing methods of analysis and applying them to the solution of problems in the electrical field.

Courses need not be taken within any phase in the sequence listed, as long as 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. If a transfer student is seeking a degree, he or she must complete 45 credits of this program at RIT and meet with an advisor before registering in order to obtain a preliminary evaluation of all previous course work.

Course requirements, CTBE-AAS and BS degrees

	Mathematics and Science	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr. Cr.
Phase I	College Algebra and Trigonometry CTAM-210	4	Communications†† CHGL-220	4	Engineering Graphics CTID-211,212	4
	Calculus CTAM-252,252	8	Literature and CHGH-260	8		
Phase II	Computer Techniques CTDP-201	2	or	or	Engineering Mech. CTBM-341,342	8
	Engineering Chemistry CTCC-241,242,243 (lec)	12	Dynamic Comm. I†† CHGL-204	8		
	© -246,247,248 (lab)		and			
			Dynamic Comm. II CHGL-205	4		
Phase III			Communications Elective CHGS-211	4	Circuit Analysis CTBE-401,402,403 (lec)	12
	Calculus CTAM-253	4	Economics CHGS-221	4		
Phase IV	Calculus CTAM-305	4			-406,407,408 (lab)	
	Physics CTCP-301,302,303 (lec)	12			Engineering Materials ... CTBM-347 (lec)	4
	-306,307,308 (lab)				-357 (lab)	
	Engineering Math CTAM-328	4				
Phase III	Differential Equations CTAM-306	4	History or Political Science Elective 4	4	Electric and Magnetic Fields CTBE-411,412,413	12
	Modern Physics CTCP-457,458	8			Electronics CTBE-421,422,423	12
Phase IV	Math Elective 4	4			Thermodynamics CTBM-401	4
	Nuclear Physics CTCP-459	4	**Electives 12			
Phase IV	Complex Variables CTAM-420	4	Literature Elective 4	4	Electromechanical Energy Conversion CTBE-501	4
					Control Systems CTBE-511,512	8
					Electives 14	

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 Phases I and II.

In many instances, such transfer students will be granted credit within Phases III and IV for appropriate work completed by the time of transfer.

All electives must be selected with advisor's approval.

* 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.

††Communications courses require pretest, see page 55. Students completing BS or B. Tech degrees must also pass a communications competency test.

Mechanical-industrial program (CTBI)

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 CCE 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 I	College Algebra and Trigonometry CTAM-210	4	Communications ^{††} CHGL-220	8	Machine Shop CTIS-201,202,203 (lec)	6
	Calculus CTAM-251,252	8	Literature and CHGH-260		Engineering Graphics CTID-211,212,213	
Phase II	Computer Techniques CTD-201	2	Dynamic Comm. I ^{††} CHGL-204	8	Accounting for Engineers ...CBCA-207,208	8
	Physics CTCP-301,302,303 (lec)	12	and Dynamic Comm. II CHGL-205			
Phase III	-306,307,308 (lab)		Communications Elective CHGS-211	4	Organization and Management CBCE-203	4
	Calculus CTAM-253	4	Economics CHGS-221		4	
Phase IV	Calculus CTAM-305	4		4	Manufacturing Analysis CTEF-201,202,203	9
	Engineering CTCC-241,242,243 (lec)	12	Psychology - Behavior in Industry CHGS-316		4	
Phase III	-246,247,248 (lab)			4	-354 (lab)	1
	Engineering Statistics CTAM-341,342	8			Data Processing CBCC-321	4
Phase IV	Mathematics Elective	4	Sociology CHGS-231	4	Electrical Engineering Principles CTBE-461,462,463	12
			Effective Speaking CHGL-301		4	
			**Electives	12	Industrial Engineering Economy CBCJ-306	4
					Electives	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 Phases I and II. In many instances, such transfer students will be granted credit within Phases III and IV for appropriate work completed by the time of transfer.

All electives must be selected with advisor's approval.

** 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.

iiCommunications courses require pretest, see page 55. Students completing BS and B. Tech degrees must also pass a communications competency test.

Mechanical program (CTBM)

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.
Phase I	College Algebra and Trigonometry..... CTAM-210	4	Communications ^{††} CHGL-220	8	Machine Shop CTIS-201,202,203 (lec)	6
	Calculus CTAM-251,252	8	Literature and CHGH-260	8	-206,207,208 (lab)	
	Computer Techniques.....CTDP-201	2	Dynamic. Comm. I ^{††} CHGL-204	8	Engineering Graphics.....CTID-211,212,213	6
	Engineering Chemistry CTCC-241,242,243 (lec)	12	and Dynamic Comm. II CHGL-205	4		
	-246,247,248 (lab)		Communications Elective.....	4		
			Psychology..... CHGS-211	4		
Phase II	Calculus CTAM-253	4	Economics CHGS-221	4	Engineering Mechanics .. CTBM-341,342	8
	Calculus CTAM-305	4			Manufacturing Analysis CTEF-201,202,203	9
	Physics CTCP-301,302,303 (lec)	12			Strength of Materials CTBM-344 (lec)	3
	-306,307,308 (lab)				Math Elective -354 (lab)	1
Phase III	Differential Equations CTAM-306	4	History or Political Science	4	Strength of Materials CTBM-345	4
	Boundary Value Problems CTAM-318	4	Electives		Engineering Materials ... CTBM-347 (lec)	3
	Modern Physics.....CTCP-457,458	8			CTBM-357 (lab)	1
	Nuclear PhysicsCTCP-459	4			Thermodynamics CTBM-401,402	8
Phase IV			**Electives.....	12	Electrical Engineering Principles	12
			Literature Elective.....	4	Machine Design CTBM-551,552,553	9
					Fluid Mechanics CTBM-411,412	8
				Electives	8	

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 Phases I and II. In many instances, such transfer students will be granted credit within Phases III and IV for appropriate work completed by the time of transfer.

All electives must be selected with advisor's approval.

** 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.

††Communications courses require pretest, see page SS. Students completing BS or B. Tech degrees must also pass a communications competency test.

Engineering Science (CTSE)

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, (CTSE) Engineering Science AS degree

		Mathematics and Science	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr. Cr.
48 Quarter Credits	Phase I	Calculus CTAM-251,252,253	12	Dynam. Comm. I Comm.	(4)	Engineering Graphics CTID-211	2
		Physics CTCP-301,302,303 (lec) -306,307,308 (lab)	15	CHGL-204 (4) and CHGL-220 OR Dynamic. Comm. II Lit. CHGL-205 (4) CHGL-260	(4)	Engineering Mechanics .. CTBM-341,342 Computer Programming for Engineers CTDP-320	8 4
48 Quarter Credits	Phase II	Calculus CTAM-305	4	Psychology CHGS-211	4	Circuit Analysis CTBM-401 (lec)	
		Differential Equations CTAM-306	4	Economics CHGS-221	4	-406 (lab)	4
		Engineering Math CTAM-328	4	***Sociology CHGS-231	4	Digital Systems CTEE-321	3
		Engineering CTCC-241,242 (lec)		Literature CHGL-260	4		
		Chemistry -246,247 (lab)	8				

* These courses to be selected with advisor's approval dependent upon future major in College of Engineering.
 These electives to be chosen with advisor's approval subject to current requirements of the College of Liberal Arts.
 For all upper division courses refer to College of Engineering. Graduates of this AS Engineering Science program must transfer to the College of Engineering and pursue the BSEE on the Extended Day schedule.
 In sequentially numbered courses, the lower number course is prerequisite.
 †† Communications courses require pretest, call 475-2234 for information.

Computer Programs AAS and B.Tech. Degrees

Computer systems (CTDC)

The goal of this program is to provide students with the skills and technology fundamental to a career in business applications computing. Graduates from this program must master the principles and skills which underlie the disciplines of business data processing and data management. These include hardware organization and assembly language, data structures, file management, business programming

system specification and design, business applications programming, data communication, and data base design and implementation.

Positions in business data processing and data management not only require a strong computing background, but also a sound foundation in analytical and business skills. For this reason, students are required to take a basic sequence of courses from business and other technical studies majors. The student may continue to pursue a professional electives concentration in business or may choose

another curriculum at RIT.

After completing approximately one half of the program students are eligible for the AAS degree.

The computer systems curriculum is designed to facilitate transfer for graduates of two-year degree programs in data processing or business.

Transfer students with AAS degrees in data processing or similar programs can expect up to 100 quarter hours of transfer credit. They will enter as third-year students.

Computer Systems Bachelor of Technology Degree (CTDC)

	Mathematics and Science	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr. Cr.
Phase I	Business Statistics CBCH-351	4	Communications ^{††} CHGL-220	8	Intro to Computer Science CTDS-202	4
	Calculus for Technologists I CTEM-420*	4	Literature and CHGH-260	8	Intro to Programming CTDP-208	4
	Calculus for Technologists II CTEM-421*	4	or Dynamic. Comm. I ^{††} CHGL-204	8	Program Design and Validation CTDP-210	4
Phase II			and Dynamic Comm. II CHGL-205	8	Assembly Language Programming CTDP-305	4
			Communications Elective CHGL-205	4	Digital Computer Organization CTDS-315	4
			Science and Humanities Elective CHGL-205	8	Data Structure Analysis CTDS-320	4
			Electives (Lower Division) CHGL-205	8	Data Organization and Management CTDS-325	4
			Social Science Electives CHGL-205	8	Business Applications Programming CTDP-307	4
					Systems Specification, Design and Implementation CTDS-335	4
Phase III & IV					Organization and Management CBCE-203	4
					Financial Accounting CBCA-201	4
					Computer Science Elective** CTDS-335	4
					Professional Elective CTDS-335	4
					Data Comm. Systems CTDS-420	4
					Data Base Concepts CTDS-485	4
				Computer Science Electives** CTDS-485	32	
				Restricted Computer Science Electives*** CTDS-485	8	
				Programming Systems Workshop CTDP-488	4	
				Management Science CBCE-353	4	
				Professional Electives CTDS-485	28	

*Or equivalent — see advisor before enrolling.

**Must be selected from Computer Science courses — notice exceptions listed under course descriptions.

***Restricted Computer Science electives — students must take one course from group A and one course from group B.

Group A: Software Emphasis

- 1) CTDS-440 Operating Systems
- 2) CTDS-530 Discrete Simulation
- 3) CTDP-350 Programming Language Concepts
- 4) CTDS-525 Assemblies, Interpreters and Compilers

Group B: Hardware Emphasis

- 1) CTDS-565 Computer Systems Selection
- 2) CTDS-S75 Minicomputer Systems and Applications
- 3) C TDS-520 Computer Architecture

†Upon successful completion of Phase I and Phase II, students are eligible for AAS Degree.

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

††Communications courses require pretest, see page 55. Students completing BS or B. Tech degrees must also pass a communications competency test.

Associate in Applied Science Programs (AAS)

Industrial technology

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 this area may qualify by completing

mathematics CTAM-101, 102, 103.

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. Tech. 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 degrees

		Mathematics and Science	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr. Cr.
95 Quarter Credits	Phase I	Technical Mathematics ... CTAM-201,202 Technical Calculus ... CTAM-203 College Physics ... CTCP-201,202,203 (lec) -206,207,208 (lab)	8 4 12	Communications ^{††} ... CHGL-220 Literature ^{and} ... CHGH-260 or Dynamic Comm. I ^{††} ... CHGL-204 and Dynamic Comm. I ... CHGL-205	8 8 8	Engineering Drawing ... CTID-201,202,203 Elements of Electricity and Electronics ... CTIL-201,202,203 (lec) -206,207,208 (lab)	6 12
	Phase II			Psychology ... CHGS-211 Economics ... CHGS-221	4 4	Applied Electronics ... CTEE-361,362,363 366,367,368 Machines and Power ... CTIL-301,302 Systems ... 306,307 Mechanical Components and Mechanisms ... CTIL-221 Electives ...	12 8 4 12

All electives must be selected with advisor's approval.

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

^{††}Communications courses require pretest, see page 55.

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 recog-

nized 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	Phase I	Technical Mathematics ... CTAM-201,202 College Physics...CTCP-201,202,203 (lec) -206,207,208 (lab)	8 12	Communications ^{††} CHGL-220 Literature and CHGH-260 or Dynamic. Comm. I ^{††} CHGL-204 and Dynamic Comm. II CHGL-205	8 or 8	Engineering Drawing...CTID-201,202,203 Elements of Electricity and Electronics CTIL-201,202,203 (lec) -206,207,208 (lab) Mechanical Components and Mechanisms CTIL-221,222	6 12 8
	Phase II			Psychology CHGS-211 Elective	4 4	Machine and Power Systems CTIL-301,302 (lec) -306,307 (lab) Pneumatic and Hydraulic Systems CTIL-303 (lec) -308 (lab) Digital Systems CTEE-321 Computer Systems CTEE-323 Electromechanical Devices and Systems CTIL-351,352,353 Elective	8 4 3 3 12 3

^{††}Communications courses require pretest, see page 55.

Building Technology (CTIJ)

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.

Course requirements, CTIJ-AAS degree

Students by choice of electives may develop a concentration in either architecture or construction.

The construction technology ma-

ior 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 and Science	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr. Cr.
95 Quarter Credits	Phase I	Technical Mathematics ... CTAM-201,202 College Physics...CTCP-201,202,203 (lec) -206,207,208 (lab)	8 12	Communications ^{††} CHGL-220 Literature and CHGH-260 or Dynamic. Comm. I ^{††} CHGL-204 and Dynamic Comm. I CHGL-205	8 or 8	Architectural Drawing CTIB-201,202,203,204,205,206	12
	Phase II			Economics CHGS-221 Elective	4 4	Architectural Drawing ^{**} CTIB-207,208,209 Applied Mechanics and Strength of Materials CTEM-301,303 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 Electives	6 8 4 6 3 3 3 4 4 4 8

All electives must be selected with advisor's approval.

^{**}Required for Architectural Technology.

^{***}Required for Construction Technology.

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

^{††} Communications courses require pretest, see page 55.

Mechanical Technology — mechanical program (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 techni-

cal 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 I	Technical Mathematics ... CTAM-201,202	8	Communications†† CHGL-220	8	Engineering Drawing ... CTID-201,202,203	6
		Technical Calculus CTAM-203	4	Literature and CHGH-260		or	
		College Physics CTCP-201,202,203	12	Dynamic. Comm. I†† CHGL-204	8	-206,207,208 (lab)	6
				and			
				Dynamic Comm. II CHGL-205	4		
				Communications Elective CHGS-211		4	
				Psychology CHGS-211	4		
	Phase II			Economics CHGS-221	4	Manufacturing Analysis ... CTEF-201,202	6
						Applied Mechanics and Strength of Materials CTEM-301,302,303	12
						Metallurgy CTEF-211,212	6
						Production Control CTEF-391	3
						Principals of Mechanical Design CTEM-315,316,317	6
						Elective	6

All electives must be selected with advisor's approval.

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

††Communications courses require pretest, see page 55.

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-210 Industrial Plastics
- CTEF-211 Metallurgy
- CTEF-328 Report Writing
- CTEF-360 Introduction to Numerical Control

Course requirements, CTED-AAS

		Interdisciplinary	Qtr. Cr.	General Education	Qtr. Cr.	Professional	Qtr. Cr.
95 Quarter Credits	Phase I	Technical Mathematics ... CTAM-201,202	8	Communications†† CHGL-220	8	Machine Shop CTIS-201,202,203	6
		Technical Calculus CTAM-203	4	Literature and CHGH-260		or	
		Introduction to Computer and Programming CTDS-200	4	Dynamic. Comm. I†† CHGL-204	8	Engineering Drawing ... CTID-201,202,203	6
				and		Materials Technology I CTEF-314	
				Dynamic Comm. I CHGL-205	4	Materials Technology II CTEF-315	3
				Psychology CHGS-211		4	
	Phase II	College Physics ... CTCP-201,202,203 (lec)	12	Economics CHGS-221	4	Manufacturing Analysis ... CTEF-201,202	6
		-206,207,208 (lab)				Intro to Numerical Control CTEF-360	4
						Applied Mechanics CTEM-301,303	8
						Report Writing CTEF-328	2
						Time Study CTEF-380	3
						Tool Design CTEF-370	4
						Technical Electives	6

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

††Communications courses require pretest, see page 55.

Diploma Programs

A diploma of the Institute can be earned by completing one of 14 technical diploma programs. These programs 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 in the Technical Studies Division: architectural drawing; automatic screw machine operation and set-up; building technology; electronics; instrument making and experimental work; machine design; machine shop; photography; printing; tool design; tool and die making; tool engineering; turret lathe and chucker operation and set-up.

Architectural Drawing (CTID)

CTIB-201	Architectural Drawing
202, 203	
CTIB-204	Architectural Drawing
205, 206	
CTIB-207	Architectural Drawing
208, 209	
CBCE-101	Human Relations
102, 103	
CTIB-251	Elective (any one of the following):
	Construction Contracting
CTIB-252	Building Estimating
253	
CTIB-231	Surveying I
CTIB-311	Architectural Projects
312, 313	
CTIB-241	Building Construction (Materials)

Building Technology (CTID)

CTIB-201	Architectural Drawing
202, 203	
CTIB-101	Architectural and Structural Blueprint Reading
and	
CTIB-252	Building Estimating
253	
CTIB-241	Building Construction (Materials)
CTIB-242	Building Construction (Methods and Procedures)
243	
CTIB-251	Construction Contracting
CBCE-101	Human Relations
102, 103	
CTIB-201	Elective (any one of the following):
202, 203	Architectural Drawing
CTIB-204	Architectural Drawing
205, 206	
CTIB-231	Surveying I
CTIB-252	Building Estimating
253	

Electronics (CTIA)

CTEE-101	Basic Mathematics for Electronics
102, 103	
CTEE-105	Electrical Schematics
106, 107	
CTIL-201	Elements of Electricity and Electronics
202, 203	
CBCE-101	Human Relations
102, 103	
CTEE-321	Digital and Analog Systems
322	

Machine Shop (CTIH)

CTIS-201	Machine Shop
202, 203	
(lec)	
CTIS-206	
207, 208	
(lec)	
CTID-201	Engineering Drawing
202, 203	
CTAM-101	
102, 103	
CTID-212	Engineering Graphics
213	
CTID-151	Machine Design
152, 153	
CBCE-101	Human Relations
102, 103	
CTEF-210	Elective (any one of the following):
	Industrial Plastics
CTIS-281	Numerical Control
282	

Tool Design (CTIS)

CTIS-201	Machine Shop
202, 203	
(dec)	
CTIS-206	
207, 208	
(lab)	
CTID-201	Engineering Drawing
202, 203	
CTAM-101	Mathematics
102, 103	
CTID-141	Tool Design
142, 143	
CTID-212	Engineering Graphics
213	
CBCE-101	Human Relations
102, 103	
CTEF-210	Elective (any one of the following):
	Industrial Plastics
CTIS-281	Numerical Control
282	

Tool Engineering (CTIT)

CTID-201	Engineering Drawing
202, 203	
CTIS-201	Machine Shop
202, 203	
(lec)	
CTIS-206	
207, 208	
(lab)	
CTAM-101	Mathematics
102, 103	
CTID-141	Tool Design
142	
CTEF-211	Metallurgy
212	
CTEF-210	Industrial Plastics
CBCE-101	Human Relations
102, 103	

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 and heat treating lab.

When registering for the following programs, a student must register in the proper sequence. For example, when Shop Mathematics (CTIS-151) has been completed, the next course to complete would be CTIS-152, 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 course. An admission card must be received before being admitted to the test. The test may be scheduled at City Center. For further information call Orville Adler, 262-2741 (or 475-5006 on/about October 17).

Course Requirements

Tool and Die Making (CTML)		Instrument Making and Exp. Work (CTMI)	
Phase 1	Mechanical Blue Print Reading CTID-101 Machine Shop Lecture CTIS-201,202,203 Machine Shop Lab CTIS-206,207,208 Shop Mathematics CTIS-151,152,153	Phase 1	Mechanical Blue Print Reading CTID-101 Machine Shop Lecture CTIS-201,202,203 Machine Shop Lab CTIS-206,207,208 Shop Mathematics CTIS-151,152,153
2	Advanced Machine Shop I CTIS-104,105,106 Shop Trigonometry CTIS-154,155,156	2	Instrument Making I CTIS-111,112,113 Shop Trigonometry CTIS-154,155,156
3	Tool & Die Making I CTIS-121,122,123 Heat Treatment CTIS-161,162	3	Instrument Making II CTIS-114,115,116 Heat Treatment 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
5	Tool & Die Making II CTIS-127,128,129 Electives (any 3 quarters)	5	Electives (any 3 quarters)
Machine Shop (CTMS)		Automatic Screwmach. Set-Up and Operate (CTMR)	
Phase 1	Mechanical Blue Print Reading CTID-101 Machine Shop Lecture CTIS-201,202,203 Machine Shop Lab CTIS-206,207,208 Shop Mathematics CTIS-151,152,153	Phase 1	Hand Screw Machine CTIS-131,132,133 Mechanical Blue Print Reading CTID-101 Shop Mathematics CTIS-151,152
2	Advanced Machine Shop I CTIS-104,105,106 Heat Treatment CTIS-161,162	2	Automatic Screw Machine I CTIS-134,135,136 Human Relations CBCE-101,102,103
3	Advanced Machine Shop II Human Relations CBCE-101,102,103	3	Automatic Screw Machine II CTIS-137,138,139 Electives (any 3 quarters)
Electives (any 3 quarters of the following):		Starting Classes for Mid Year	
Precision Measurement CTIS-101,102,103	Engineering Drawing CTID-201,202,203		
Industrial Plastics CTEF-210	Numerical Control CTIS-281-282		
Computer Programming for N/C CTIS-283	Computer Programming for N/C CTIS-283		
Mechanical Blueprint Reading II CTID-102	Mechanical Blueprint Reading II CTID-102		
Starting Classes for B Shift or Tricker			
		Winter	Spring
		Mach. Lec. CTIS-201	B/P CTID-101
		Mach. Lab CTIS-206	Mach. Lab. CTIS-204
		Math CTIS-157	Mach. Lab. CTIS-209
		B/P CTID-101	B/P CTID-101
Fall	Winter	Spring	
Mach. Lec. CTIS-201	Math CTIS-157	B/P CTID-101	
Mach. Lab CTIS-206			
(May come either AM or PM)			

School of Applied Industrial Studies

The School of Applied Industrial Studies (SAIS) was initiated in the late 1970s to help meet the need for skilled workers in Rochester industry. The School of Applied Industrial Studies is a reaffirmation of some of the original concepts of RIT.

RIT's roots go back to the Rochester Athenaeum, which was established in 1829 "for the purpose of cultivating and promoting literature, science, and the arts." In 1885, the growing industries of Rochester declared their future independence of European trained machine designers, toolmakers, and draftsmen by setting up a Mechanics Institute to provide technical training for men and women. In 1891 the Athenaeum and Mechanics Institute of Technology merged with the stated goal of preparing students for "the making of a living and the living of a life."

The school has been established at RIT's City Center Campus in newly renovated classroom, laboratory and office facilities. Extensive modern equipment and facilities are available to carry out this historic mission of RIT.

Admission requirements

The School of Applied Industrial Studies offers admission to high school graduates (or equivalent) who have successfully completed one year of algebra and an aptitude for the specific technical field. Applicants are accepted on a continuous basis through the year by admission to any one of the three entry dates: Fall (September), Winter (December), Spring (March).

Persons wishing to enroll in specific courses or who wish to pursue the program on a part-time basis must meet the general program requirements and (if appropriate) any course prerequisites.

Admission information and applications should be obtained directly from the

Admissions Office
College of Continuing Education
50 West Main Street
Rochester, N.Y. 14614
262-2614 (or 475-4944 on/about
October 17).

Transfer credit

SAIS accepts credits from any accredited college or university for those courses which the transfer credit directly applies. To obtain credit formal application should be made at time of admission. A grade of "C" or better is required in the original course to be considered for transfer.

Programs

The School of Applied Industrial Studies offers one-year (12-month) programs leading to a diploma of the Institute in the following fields:

1. Automated Equipment
2. Computer Service Technology
3. Drafting Technology
4. Machine Tool Technology
5. Packaging Machiner Mechanics

The SAIS programs are designed especially to prepare persons for entry level positions in a wide range of industrial organizations.

Financial aid

Students applying to the School of Applied Industrial Studies should contact the RIT Office of Financial Aid as well as the SAIS Admissions Office regarding assistance. Beyond the financial aids generally available to all college students, SAIS offers scholarships both at admission and during the program for qualifying applicants or students.

Graduation requirements

The minimum requirements for the diploma of the Institute from the School of Applied Industrial Studies are:

1. successful completion of the prescribed program including the mathematics and communications sequences required for the specific curriculum
2. the minimum credit hours specified for each curriculum
3. minimum cumulative quality point average of 2.0

SAIS holds three graduations each year: at the conclusion of the Fall (November), Winter (February), and Summer (August) quarters.

Job placement

The School of Applied Industrial Studies retains a full-time staff to assist with the total activity of job placement. The school has contacts with hundreds of industries who commonly hire the graduates and every effort is made to provide the graduating SAIS student with as many opportunities as may be available.

A continuous effort is made to develop new and wide ranging job opportunities for SAIS graduates in all of the program fields.

Automated Equipment Technology

Robert Klafehn, Program Chairman

This program is designed to prepare persons for a technician's position in the field of automated equipment maintenance. This field is one of the most rapidly expanding fields and anticipates a very large need for qualified personnel in the next few years.

Students enrolling in this program will study electricity, electronics, mechanisms, hydraulics and pneumatics. Foundational courses in physical principles will be provided and a good proficiency in math will be required.

SAIS facilities are provided with the extensive lab and hands-on equipment needed to provide our students with experience in handling automated industrial machines, robots, copying machines and a host of other automated and computerized devices.

Program graduation requirements

Beyond those listed as the general graduation requirements, the following also apply:

- a. A minimum mathematics sequence to include at least
 - CAIG 207 Algebra & Trigonometry I
 - CAIG 208 Algebra & Trigonometry III
- b. 11 quarter credits in a communication sequence through
 - CAIG 206 Technical Communications
- c. a minimum of 64 quarter credit hours earned

<u>Course Requirements</u>	<u>Qtr.</u>	<u>Cr.</u>
Unit I (1st quarter)		
MachineShop.....	CAIM123	2
Electricity/Electronics I.....	CAIE203	3
Hydraulic/Pneumatic Syst.....	CAIE 202	4
Communication Skills.....	CAIG 104	2
Algebra & Trigonometry I.....	CAIG 107	3
		14
Unit II (2nd quarter)		
Physical Principles I.....	CAIE 101	3
Machine Devices/Systems.....	CAIE 201	3
Electricity/Electronics II.....	CAIE 205	3
Communicating on the Job.....	CAIG 105	3
Algebra & Trigonometry II.....	CAIG 207	4
		16

Unit III (3rd quarter)		
Rotating Elect. Equipment.....	CAIE211	3
Electricity/Electronics III.....	CAIE 221	4
Physical Principles II.....	CAIE 102	3
Composition-Written and Oral.....	CAIG 204	4
Algebra & Trigonometry III.....	CAIG 208	4
		18
Unit IV (4th quarter)		
Transducers & Control Syst.....	CAIE 212	4
Auto. Equip. Troubleshooting.....	CAIE 231	3
Electrical Control Systems.....	CAIE 215	3
Technical Communications.....	CAIG 206	4
Special Studies.....	CAIE 298	1-4
		14-18

Computer Service Technology

Ronald Perry, Chairman

Computers play an increasingly important role in our everyday lives. The advent of the personal computer, the use of computer controlled machines in industry and the increased use of computers in large and small businesses, 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 repair of computers and computer controlled devices will expand as new uses for computers develop.

Students in the SAIS Computer Service Technology Program study electricity and electronics, computer-related courses dealing with hardware, microprocessors and CPU operation, as well as programming languages presently used on computers.

SAIS facilities 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.

Graduates will find employment opportunities in numerous areas in computer related fields. Opportunities for future education and growth are excellent for those who enter this challenging field.

Entering students should be high school graduates or equivalent, and have taken high school algebra.

Program Graduation Requirements:

Beyond those listed as general graduation requirements, the following also apply:

- a minimum mathematics sequence to include at least CAIG-207 Algebra & Trigonometry II
CAIG-208 Algebra & Trigonometry III
- 11 quarter credits in a communications sequence through CAIG-206 Technical Communications
- a minimum of 66 quarter credit hours earned.

Computer Service Technology

<u>Course Requirements</u>	<u>Qtr.</u>	<u>Cr.</u>
Unit I (first quarter)		
Electricity/Electronics I.....	CAIE 0272-203	3
Fundamentals of Computers.....	CAIC 0275-201	4
Introductory Programming I (BASIC) ..	CAIC 0275-205	2
Electricity/Electronic Schematic Interpretation.....	CAIG 0275-212	2
Algebra & Trigonometry I.....	CAIG 0274-107	3
Communication Skills I.....	CAIG 0274-104	2
		16
Unit 2 (second quarter)		
Electricity/Electronics II.....	CAIE 0272-205	3
Computers I.....	CAIC 0275-202	4
Introductory Programming II (PASCAL).....	CAIC 0275-207	2
Special Tool & Equipment Use.....	CAIC 0275-215	1
Algebra and Trigonometry II.....	CAIG 0274-207	4
Communicating on the Job.....	CAIG 0274-105	3
		17

<u>Course Requirements</u>	<u>Qtr.</u>	<u>Cr.</u>
Unit 3 (third quarter)		
Digital Circuits.....	CAIC 0275-216	4
Computers II.....	CAIC 0275-203	- 3
Introductory Programming III (FORTRAN).....	CAIC 0275-209	2
Algebra and Trigonometry III.....	CAIG 0274-208	4
Composition — Written & Oral.....	CAIG 0274-204	4
Interpersonal Communications.....	CAIG 0274-210	1
		18
Unit 4 (fourth quarter)		
Linear Circuits.....	CAIC 0275-218	2
Computers III.....	CAIC 0275-204	4
Introductory Programming IV (COBOL).....	CAID 0275-211	2
Computer Systems Troubleshooting ...	CAIC 0275-220	5
Technical Communications.....	CAIG 0274-206	4
		17

Drafting Technology

Elizabeth Paciorek,
Program Chairperson

The drafting field has undergone many significant changes in recent years. Today not only does the drafter require a sound knowledge of drafting fundamentals but also must be able to quickly specialize in a particular area of drafting. The advent of computer-assisted drafting has added another exciting dimension to this important technical field.

Students in the SAIS drafting program receive a strong foundation of basic drafting skills (pencil

and paper) plus exposure and experience on the latest drafting tools and techniques including computer-assisted drafting. Formal course work in computing and extensive activity utilizing the School's (CAD/CAM Computer Assisted Design/Computer Assisted Manufacturing) facilities is required of all students enrolled in either the mechanical or printed circuit board program options.

Graduates enter such positions as mechanical and electronic drafter and CAD operator, with a wide range of companies, both large and small. Opportunities are excellent for future education and growth for those who enter these job fields.

Program graduation requirements
Successful completion of:

- a. a minimum mathematics sequence of
 - CAIG 106 Industrial Math
 - CAIG 207 Algebra & Trigonometry II
 - CAIG 208 Algebra & Trigonometry III
- b. 11 quarter credits in a communications sequence through
 - CAIG 206 Technical Communications
- c. a minimum of 69 quarter credit hours earned
- d. other general requirements of School

Drafting Technology: Mechanical Option

Course Requirements	Qtr.	Cr.
Unit I (1st quarter)		
Basic Machine Shop.....	CAIM-121	2
Manufacturing Processes.....	CAID-210	5
Technical Drawing I.....	CAID-238	5
Communication Skills.....	CAIG-104	2
Industrial Mathematics.....	CAIG-106	3
		17
Unit II (2nd quarter)		
Basic Machine Shop II.....	CAIM-122	2
Drafting Mechanics I.....	CAID-215	4
Drafting Mechanical Lab.....	CAID-225	1
Technical Drawing II.....	CAID-239	5
Communicating on the Job.....	CAIG-105	3
Algebra & Trigonometry I.....	CAIG-107	3
		18

Drafting Technology: Printed Circuit Board Option

Course requirements similar to those listed under "Mechanical Option" but must receive departmental approval prior to registration.

Course Requirements	Qtr.	Cr.
Unit III (3rd quarter)		
Materials Selection.....	CAID-211	2
Drafting Mechanics II.....	CAID-217	3
Technical Drawing III.....	CAID-240	3
Introduction to Computer Aided Drafting.....	CAID-245	4
Composition — Written & Oral.....	CAIG-204	4
Algebra & Trigonometry II.....	CAIG-207	4
		18
Unit IV (4th quarter)		
Introduction to Computers.....	CAID-208	3
Drafting Mechanics III.....	CAID-219	2
•Technical Drawing IV.....	CAID-241	2
Computer Aided Drafting.....	CAID-247	3
Technical Communications.....	CAIG-206	4
Algebra & Trigonometry III.....	CAIG-208	4
		18

The following substitutions are recommended:

Course Requirements	Qtr.	Cr.
Unit I: Intro. to Computers.....	CAID-208	3
Unit II: Drafting Mechanics III.....	CAID-219	3
Unit III: Fundamentals of Designing		
PCB's.....	CAID-249	4
Unit IV: CAD/CAM PCB Layout.....	CAID-251	6
Technical Elective.....	CAIG-206	

Machine Tool Technology

Orville Adler,
Program Chairperson

Machine tool technology is the "flagship" program of the School of Applied Industrial Studies. Historic records indicate a perennial need for skilled personnel in the machine trades in both the Rochester area and across the nation. The need for persons with machining skills will no doubt remain paramount in the traditional industrial organizations. Beyond the need for the generalist who has the background and education to function in a variety of roles in this field, the need for persons with special attributes to enter apprenticeships in tool and die making, mold mak-

ing, and instrument making will continue unabated.

As the technology advances in the mass production field, graduates are called upon in areas requiring computer-assisted manufacturing and other state-of-the-art manufacturing techniques including electric discharge machining (EDM), numerical control (N/C) and laser machining. Students enrolled in the Machine Tool Technology Program will be exposed to all of these facets of modern manufacturing with opportunities for specialization in any one of the aforementioned techniques.

SAIS boasts one of the most modern and extensive facilities for preparation in the machine tool field. An intensive program of instruction provides graduates with a

variety of opportunities for employment growth in one of the most traditional and stable areas of employment in U.S. industry.

Graduation requirements

Beyond those listed as general graduation requirements, the following also apply:

- a. a minimum mathematics sequence to include at least
 - CAIG 106 Industrial Math
 - CAIG 207 Algebra & Trigonometry II
 - CAIG 208 Algebra & Trigonometry III
- b. 11 quarter credits in a communications sequence through Technical
 - CAIG 206 Communications
- c. a minimum of 65 quarter credits earned.

Course Requirements	Qtr.	Cr.
Unit I (1st quarter)		
Industrial Machine Shop I.	CAIM-120	4
Materials & Methods.	CAIM-210	3
Principles of Blueprint Reading.	CAID-110	3
Communication Skills.	CAIG 106	3
		15
Unit II (2nd quarter)		
Production Automated Machining.	CAIM-212	3
Industrial Machine Shop II.	CAIM-231	4
Engineering Drawing for Machinists.	CAID-216	3
Communicating on the Job.	CAIG-105	3
Algebra & Trigonometry I.	CAIG-107	3
		16

Course Requirements	Qtr.	Cr.
Unit III (3rd quarter)		
Numerical Control Programming & Machining	CAIM-214	3
Tool & Gage Making.	CAIM-218	3
Intermediate Machine Tool Technology.	CAIM-232	4
Composition — Written & Oral.	CAIG-204	4
Algebra & Trigonometry II.	CAIG-207	4
		18
Unit IV (4th quarter)		
Die Making.	CAIM-220	3
Metallurgy & Heat Treatment	CAIM-222	3
Advanced Machine Tool Technology.	CAIM-233	4
Technical Communications.	CAIG-206	4
Algebra & Trigonometry III.	CAIG-208	4
		18

Packaging Machinery Mechanics

Robert Klafehn, Chairman

The packaging industry involves a wide ranging field including foods, pharmaceuticals, general consumer goods, and a vast array of products which many people take for granted.

Packaging is not only important for the health and safety of consumers but also provides for maximum convenience and/or availability to the general public.

Modern packaging techniques and processes count heavily toward our standard of living and in the case of the manufacturer may mean the difference between success and failure.

The key individual in the packaging process has been shown, over and over again, to be the person or persons who maintain and insure the proper packaging of a manufacturer's product.

The high speeds, computerized packaging line found today in successful industries rely heavily upon specially trained and skilled personnel to maintain production schedules and insurance of product quality.

The SAIS program provides instruction in electrical and electronic circuitry, hydraulics, pneumatics, computers and specialized packaging machinery, equipment and techniques which are in high demand.

Graduates of this program will find job opportunities across the nation in a wide variety of indus-

tries. Positions in packaging machinery mechanics demand excellent salaries commensurate with the serious obligations and responsibilities of the job.

Program graduation requirements Beyond those listed as the general graduation requirements, the following also apply:

- a. a minimum mathematics sequence to include at least
 - CAIG 207 Algebra & Trigonometry II
 - CAIG 208 Algebra & Trigonometry III
- b. 11 quarter credits in a communications sequence through
 - CAIG 206 Technical Communications
- c. a minimum of 67 quarter credit hours earned

Packaging Machinery Mechanics

Course Requirements	Qtr.	Cr.
Unit I		
Machine Shop.	CAIM 123	2
Hyd/Pneumatic Systems.	CAIE 202	4
Elect/Electronics I.	CAIE203	3
Introduction to Pkg.	CAIP 104	3
Communication Skills.	CAIG 104	2
Algebra & Trig I.	CAIG 107	3
		17
Unit II		
Physical Principles I.	CAIE 101	3
Machine Devices & Syst	CAIE 201	3
Elect/Electronics II.	CAIE 205	3
Packaging Mach. Sys. I.	CAIP 206	2
Comm. on the Job.	CAIG 105	3
Algebra & Trig II.	CAIG 207	4
		18

Course Requirements	Qtr.	Cr.
Unit III		
Physical Principles II.	CAIE 102	3
Rotating Electrical Mach.	CAIE 211	3
Elect/Electronics III.	CAIE 221	4
Composition — Written & Oral.	CAIG 204	4
Algebra & Trig II.	CAIG 208	4
		18
Unit IV		
Practical Fabrication.	CAIM 235	2
Electrical Control Systems.	CAIE 215	3
Pkg. Machinery Systems II.	CAIP 207	4
Packaging Machinery Trouble- shooting and Repair.	CAIP 215	4
Technical Communications.	CAIG 206	4
		17

College of Engineering

Richard A. Kenyon, 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 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 Mechanical Engineering maintain extensive laboratory facilities in the Gleason engineering building to provide for both undergraduate instruction and research by faculty and graduate students. The Department of Computer Engineering and the new Microelectronic Engineering Program operate laboratories in the recently constructed 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 college's VAX 11/782 computer, 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 into the academic program. The College of

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	-

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.

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 their co-op coordinator in the Center for Cooperative Education and Career Services. 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 many 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. Two-year electrical technology graduates also may consider the educational opportunities available to them through RIT's upper-division bachelor of technology programs in the School of Engineering Technology.

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 or grade point average of at least 2.0.

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 electrical engineering, industrial engineering and mechanical 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. The programs in computer engineering and microelectronic engineering are registered as "licensure qualifying" professional purposes with the State Education Department of the State of New York as a preparatory step to seeking ABET accreditation. All graduating seniors are eligible 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 degrees are offered in both the 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 a post-baccalaureate professional program leading to the master of engineering degree. The degree is without discipline designation, and study may be pursued in such areas as electrical engineering, manufacturing engineering, industrial engineering, computer engineering, mechanical engineering, engineering management, 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 chairman of the Graduate Committee, College of Engineering.

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 Engineering Programs

General Information on RIT's admission requirements, procedures and service is included in detail on pages 153-154 of this Bulletin.

Five-year cooperative programs leading to the BS degree are offered including majors in electrical, computer, 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 mechanical, industrial, and electrical 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, and electronics. 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. Degree granted: BS-5 year.

Freshman Admission 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 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 Group I and II categories, a student can concentrate in the applied mechanics area or in the thermal fluid sciences area. Degree granted: BS-5 year.

Microelectronic Engineering—Offered in conjunction with the College of Graphic Arts and Photography, the new five-year program will emphasize all aspects of microelectronic processing. It will provide the broad interdisciplinary background in optics, chemistry, device physics, computers, electrical engineering, and statistics necessary for entry into the microelectronic industry. 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 is designed to prepare the graduate to design and implement various engineering products with embedded computers and also to undertake significant graduate study where highly 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 inter-process 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	0		
	ICSP-241 Programming I Algorithmic Structures	4		
	ICSP-242 Programming II Data Structures		4	
	ICSP-243 Programming III Design & Implementation			4
	SCHG-208 College Chemistry I	4		
	SCHG-210 Chemical Topics for Computer Engineering		1	
	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		
‡ Physical Education	0	0	0	
2	EECC-341 Intro to Digital Systems for Computer Engineers		4	
	EEEE-351 Circuit Analysis I			4
	EMEM-335 Elements of Statics		2	
	EMEM-349 Elements of Dynamics			3
	ICSP-305 Assembly Language Programming	4		
	ICSP-325 Data Organization & Management		4	
	ICSP-319 Scientific Applications Programming			4
	SMAM-265 Foundations of Discrete Math		4	
	SMAM-306 Differential Equations	4		
	SMAM-351 Probability			4
SPSP-313 University Physics III	4			
SPSP-377 University Physics Lab III	1			
SPSP-314 Modern Physics		4		
** Liberal Arts	4			
‡ Physical Education	0	0	0	
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		
	ICSS-515 Analysis of Algorithms			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 System Design for Computer Engineers			4
	EECC-630 Intro to VLSI Design			4
ICSS-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.

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

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

S. Madhu, Head
R. Unnikrishnan, Associate 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 as up to date as possible.

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. In addition, each student entering the program in May 1986 or later is required to complete a design elective course (to be chosen as one of the professional electives in the fifth year).

Yr. BS degree in Electrical Engineering—Class of 1991

Qtr. Credit Hours

		FALL	WTR.	SPG.
1	EEEE-200 Elec. Eng. Graphics	1		3
	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	
	‡Physical Education Elective	0	0	0
	2	EEEE-351 Circuit Analysis I		
EMEM-331 Mechanics I		4		3
EMEM-349 Elements of Dynamics			4	
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 Phys. Lab. III		1		
SPSP-314 Modern Physics I			4	
SPSP-315 Intro to Semiconductor Physics			4	
EEEE-310 Numerical Methods			2	
**Liberal Arts (Core)	4	4		
‡Physical Education Elective	0	0	0	
3		FALL		SPG.
		WTR.		SMR.
	EEEE-352 Circuit Analysis II	4		4
	EEEE-453 Signals & Systems			4
	EEEE-441, 442 Electronics I, II	4		4
	EEEE-471 Electric and Magnetic Fields I			4
	SMAM-351 Probability and Statistics			4
SMAM-420 Complex Variables	4			
**Liberal Arts (Core)	4			
4	EEEE-554 Digital Signal Processing	4		
	EEEE-544 Physics of Electronic Devices	4		
	EEEE-531 Electromechanical Energy Conversion	4		
	EEEE-472 Electric and Magnetic 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
	Free Elective			4
	**Liberal Arts (Concentration)	4		4
	**Liberal Arts (Senior Seminar)			2

* One of the professional electives must be a design elective.

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

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 "real world" on the solution of engineering problems. The co-op experience also permits each student to decide 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.

In modern society, engineering decisions are rarely made without considering the ethical and socio-economic impact on society. The

ability to communicate clearly and effectively with others also is an indispensable tool for the engineer. A significant portion of 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 (3 credits); EEEE 310, Numerical Methods (2 credits); and EEEE 365, Introduction to Microcomputers (4 credits). A typical schedule of courses for transfer

SAMPLE SCHEDULE OF COURSES FOR A.A.S. TRANSFER STUDENTS Court**		Qtr. Credit Hours			
Yr.	(Actual schedule and course requirements will vary from the table shown below for individual students depending upon the transfer credits awarded at the time of entry into the program.) See page 177 ,or physical education requirements.	FALL	WTR.	SPQ.	SMR.
2	EEEE-351 Circuits I				4
	ICSA-220 FORTRAN				4
	SMAM-305 Calculus IV				4
	*LiberalArts (Core)				4
3	EEEE-310 Numerical Methods		2		
	EEEE-352 Circuits II		4		
	EEEE-441, 442 Electronics I, II		4	4	
	EEEE-471 E & M Fields I	C			4
	EEEE-453 Signals and Systems	O			4
	SMAM-306 Differential Equations		4		
	SMAM-420 Complex Variables	P		4	
	SMAM-328 Engineering Math			4	
	SMAM-351 Probability 4 Stat				4
	SPSP-314 Modern Physics 1		4		
4	SPSP-315 Intro, to Semiconductor Physics			4	4
	EMEM-331 Mechanics I				4
	EEEE-554 Digital Signal Processing		4		
	EEEE-472 E & M Fields II	C	4		
	EEEE-544 Device Physics		4	C	
	EEEE-513 Intro, to Automatic Control			O	4
	EEEE-534 Intro, to Communication			O	4
	EEEE-545 Digital Electronics	P		p	4
5	EMEM-349 Elements of Dynamics		3		4
	*LiberalArts (Core)				4
	EEEE-531 Energy Conversion	C	4		
	**Professional Elective		4	4	C
	**Professional Elective			4	
	EMEM-349 Elements of Dynamics		3		
*LiberalArts (Concentration)		4	4	P	
*LiberalArts (Concentration)			4		
*LiberalArts (Senior Seminar)			2		

**One of the professional electives must be a design elective.

BS degree in Electrical Engineering
Engineering Science Transfer Program—Typical Program Qtr. Credit Hour»

Yr.	Transfer students will generally follow the upper-division of the BSEE program (years III, IV, V). However, it may be necessary to take some additional courses or substitute a course for a free elective if there are deficiencies corresponding to courses in the lower-division portion of the BSEE program (years I and II).	FALL	WTR.	SPG.	SMR.
3	EEEE-352 Circuit Analysis II	4			
	EEEE-453 Signals and Systems			4	
	EEEE-441, 442 Electronics I, II	4	C	4	C
	EEEE-471 Electric and Magnetic Fields I		O	4	O
	SMAM-351 Probability and Statistics		O	4	O
	SMAM-420 Complex Variables	4	P		P
	EEEE-240 Intro. to Digital Systems	4			
4	EEEE-310 Numerical Methods			2	
	EEEE-554 Digital Signal Processing	4			
	EEEE-544 Physics of Electronic Devices	4	C		C
	EEEE-365 Intro. to Microcomputers	4	O		O
	EEEE-472 Electric and Magnetic Fields II	4	O		O
	EEEE-513 Intro. to Automatic Control		P	4	P
	EEEE-534 Intro. to Communication Systems			4	
5	EEEE-545 Digital Electronics			4	
	*Liberal Arts (Core)			4	
	EMEM-431 Thermodynamics	4			
	EEEE-531 Energy Conversion	4	O		
	**Professional Elective		O	4	
	**Professional Elective	4	O	4	
*Liberal Arts (Concentration)		P	4		
*Liberal Arts (Concentration)	4		4		
*Liberal Arts (Senior Seminar)			2		

*See page 122 for Liberal Arts requirement!

‡ See page 177 for policy on Physical Education.

**One of the professional electives must be a design elective.

Yr.	SAMPLE SCHEDULE FOR EXTENDED DAY STUDENTS Courses	Qtr. Credit Hours		
		FALL	WTR.	SPG.
3	(Actual schedule and course requirements will vary from the table shown below for individual students depending upon the transfer credits awarded at the time of entry into the program.) The following table shows only the engineering and science portions of the program. Students should fit in the liberal arts courses into appropriate slots. See page for physical education requirements.			
	EEEE-240 Intro, to Digital Systems	3	4	
	EEEE-365 Intro, to Microcomputers			2
	EEEE-310 Numerical Methods	4		
	SMAM-420 Complex Variables			
	EEEE-352 Circuits II	4		
	EEEE-441, 442 Electronics I, II		4	4
4	EEEE-453 Signals and Systems	4		
	EEEE-554 Digital Signal Processing		4	
	EEEE-471 E & M Fields I			4
	SMAM-351 Probability & Stat			4
	EEEE-472 E & M Fields II	4		
	EEEE-544 Device Physics		4	
	EEEE-545 Digital Electronics			4
5	EEEE-513 Intro, to Automatic Control	4		
	EEEE-534 Intro, to Communication		4	
	EEEE-531 Energy Conversion			4
	EMEM-349 Elements of Dynamics		3	
	*Professional Elective	4		
	*Professional Elective		4	
	*Professional Elective			4

*Extended Day Students are expected to complete their co-op requirements by assignments of an acceptable technical level at their places of regular employment. They must register for live co-op blocks.
One of the professional electives must be a design elective.

students with an AS degree is shown in the adjoining table. Slight variations from that schedule may be necessary in the case of individual students depending on the transfer credits awarded to them when they enter RIT.

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. A sample schedule of the program is shown in the adjoining table for purposes of illustration. Variations from the schedule will be necessary depending on the actual transfer credits awarded to the individual students.

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 Engineering and meet the same standards as those taught during the normal daytime hours. Students entering these programs must have an AS in engineering 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.

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 not 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 I.E. student, in consultation with his or her advisor, is able to build a minor concentration of study in mechanical engineering, electrical engineering, computer science and related fields.

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 recent 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 computerization of a forecasting model

Yr. BS DEGREE IN INDUSTRIAL ENGINEERING

Qtr. Credit Hours

Yr.	Course	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
	**LiberalArts (Core)	4	4	4
		0	0	4
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	
**LiberalArts (Core)	4	4	4	
‡Physical 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
**LiberalArts (Concentration)			4	
5	EIEI-560 Project Design			4
	*Professional Elective	8		8
	**LiberalArts (Concentration)	4		4
	Free Elective	3		
	**LiberalArts (Senior Seminar)			2

*At least one professional elective must be selected from the following courses: EMEM-431 Thermodynamics; EMEM-415 Fluid Mechanics I; EEEE-461, 462 Electrical Engineering I, II
 **See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.

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.

Mechanical Engineering

Bhalchandra V. Karlekar, 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 first two years of the undergraduate program are devoted to an intensive study of mathematics, physics, chemistry, mechanics, and the Fortran language—the basic tools of the engineer—and to a thorough grounding in the humanities. The final three years of the program integrate the cooperative work experience with the professional subject matter of the mechanical engineering discipline.

In the third year and the first half of the fourth year the mechanical engineering student continues to study the fundamentals of thermal-fluid sciences and solid-body mechanics. In the second half of the fourth year and the fifth year he or she obtains considerable background in design. This is accomplished with two sets of courses—Group I and Group II. Each student takes at least three courses from Group I and at least two from Group II. Two credit hours of each Group I course are devoted to design. Group II courses are entirely dedicated to design. In consultation with his or her academic advisor, each student also selects two elective courses. These may be other undergraduate or graduate courses in mechanical engineering or courses offered by other colleges within RIT. By appropriate selection of Group I, Group II, and elective courses, a student may tailor his or her program to a specific area of interest such as solid-body mechanics or thermal-fluid systems.

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-201 Mechanical Engineering Graphics I	4		
	SPSP-311,312 University Physics I, II		4	4
	SPSP-375,376 University Physics Lab I, II		1	1
	EMEM-340 Mechanical Engineering Graphics II		2	
	EMEM-341 Introduction to Fortran Programming		2	
	**LiberalArts(Core)	4	4	4
		0	0	0
2	EMEM-336 Statics	4		
	EMEM-337,338 Strength of Materials I, II		4	4
	SPSP-313 University Physics III	4		
	SPSP-377 University Physics Lab III	1		
	SMAM-305 Calculus IV	4		
	SMAM-306 Differential Equations		4	
	EMEM-343 Materials Processing		4	
	EMEM-344 Materials Science			4
	**Liberal Arts (Core)	4	4	
	EEEE-461 Electrical Engineering I			4
SMAM-318 Intro. to Partial Differential Equations	0	0	0	
3		FALL		SPG.
		WTR.		SMR.
	EMEM-413, 414 Thermodynamics I, II	4		4
	EEEE-462 Electrical Engineering II	4		
	EMEM-437 Introduction to Machine Design	4		
	**LiberalArts(Core)	4		
	EMEM-415 Fluid Mechanics			4
EMEM-439 Dynamics I			4	
EMEM-440 Numerical Methods			4	
4	EMEM-514 Heat Transfer	4		
	EMEM-543 Dynamics II	4		
	EMEM-516 Fluid Mechanics II	4		
	SPSP-314 Modern Physics	4		
	EMEM-544 Dynamics of Phys. Systems I			4
	Group I course			4
	Group I course			4
	**LiberalArts(Concentration)			4
5	Group I course	4		
	Group II courses	4		4
	EMEM-501 Mechanical Engineering Laboratory	4		
	Elective course			4
	Elective course			4
	**LiberalArts(Concentration)	4		4
	**LiberalArts(SeniorSeminar)			2

**See page 122 for Liberal Arts requirements.
 †See page 177 for policy on Physical Education.

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.

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 laboratories of the department are equipped to provide extensive experimentation in these areas, and students are encouraged to pursue independent research in addition to that required in their programs. The department has Tektronix and Hewlett-Packard computer graphics systems. Also, the students have access to modern computing facilities such as VAX 8600, VAX 11-785, VAX 11-782, and IBM 3083 computers, and an Intergraph CAD/CAM system.

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 program

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 program is also available for the mechanical engineering student. A student enrolled in this program is required to successfully complete a minimum of 230 quarter credit hours. After completing this requirement the student is awarded the BS and MS degrees simultaneously. Admission into the program is based on the student's cumulative grade point average, which must be at least 3.0, letters of recommendation from the faculty, and a personal interview by a departmental committee. All students in the program are required to maintain a cumulative grade point average of at least 3.0. Further information regarding this program can be obtained from Professor Charles Haines, (716) 475-2029, in the Department of Mechanical Engineering or from the department office, (716) 475-2163.

A transfer student who has completed one quarter at RIT and who has achieved a cumulative grade point average of at least 3.0 may apply for admission into the five-year combined BS/MS degree program.

Course descriptions

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

Group I Courses

EMEM-601 Alternative Energy Sources
 EMEM-605 Applications in Fluid Mechanics
 EMEM-615 Robotics
 EMEM-618 Computer-Aided Engineering
 EMEM-635 Heat Transfer II
 EMEM-652 Fluid Mechanics of Turbomachinery
 EMEM-658 Engineering Vibration
 EMEM-660 Refrigeration and Air Conditioning
 EMEM-672 Dynamics of Machinery
 EMEM-694 Stress Analysis

Group II Courses

EMEM-608 Thermo-Fluids Design and Management Principles
 EMEM-610 Thermo-Fluids Project Design and Analysis
 EMEM-620 Introduction to Optimal Design
 EMEM-625 Creative Design of Mechanical Devices and Assemblies
 EMEM-632 Advanced Mechanical Systems Design
 EMEM-665 Thermal Fluid Design

Elective Courses

EMEM-637 Laser Engineering
 EMEM-612 Gas Kinetics and Vacuum Engineering
 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
 EMEM-692 Analysis for Engineers

Graduate Courses

Courses from other colleges

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 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	SMAM-251,252, 253 Calc. I, II, III	4	4	4
	SCHG-211,212 Chemical Principles I, II	3	3	
	SCHG-213 Intro to Organic Chemistry			3
	SCHG-205,206 Chem. Principles I, II Lab	1	1	
	SCHG-207 Intro to Organic Chem. Lab			1
	EMCR-210 Intro. to Microelectronics	2		
	PIMG-205 Ph. Sci. for Eng. I	2		
	SPSP-311, 312 Univ. Phys. I, II		4	4
	SPSP-375, 376 Phy. Lab. I, II		1.	1
	*LiberalArts (Core)	4	4	4
	‡PhysicalEducation	0	0	0
2	SMAM-305 Calc. IV	4		
	SMAM-306 Differential Equations		4	
	SMAM-328 Engineering Mathematics			4
	SPSP-313 University Physics III	4		
	SPSP-314 Modern Physics		4	
	SPSP-315 Intro. Semi. Phys			4
	SPSP-377 Physics Lab. III	1		
	PIMG-433,434 Statistics I, II	4		
	ICSA-220 Fortran		4	
	EMCR-340 I.C. Technology			2
	PIMG-207 Ph. Sci. for Eng. II			2
	EEEE-351 Circuit Analysis I			4
	*LiberalArts (Core)	4		
	‡PhysicalEducation	0	0	0
3		FALL		SPG.
		WTR.		SMR.
	EEEE-352 Circuit Analysis II	4		
	EEEE-441, 442 Electronics I, II	4		4
	EMCR-440 Linear Systems			4
	PIMG-541 Fundamentals of Optics	4		
4	PIMG-543 Optical Engineering			4
	*LiberalArts (Core)	4		4
	EEEE-545 Digital Electronics			4
	EMCR-640 Microelectronic Engineering			4
	EMCR-530, 540 EM Fields I, II	4		4
	EMCR-560 Device Physics	4		
5	PIMG-561, 563 Elect. Chem. I, II	4		4
	*LiberalArts (Concentration)	4		
	EEEE-365 Intro to Microcomputers	4		
	PIMG-441 Adv. Lithography			4
	PIMG-565 Elect. Chemistry III	4		
	EMCR-650 I.C. Proc. Lab	4		
5	EMCR-630 Elect. Chemistry IV			4
	Sem /Res (EMCR-660 or PIMG-660)			4
	*LiberalArts (Concentration)	4		4
	*LiberalArts (Senior Seminar)			2

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

College of Fine and Applied Arts

Robert H. Johnston, 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 and 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.

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 pro-

grams 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 Center, available for student use, is equipped with Apple, IBM, Artronics, Mergenthaler, 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.

Accreditation

The programs of study offered in the College of Fine and Applied Arts are full 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 during orientation 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 and 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.

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 RIT. 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 of 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 the studios 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 understanding 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 and 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 electives required in the curriculum. Craft electives 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—35mm slides are required, displayed in an 8-1/2" 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 RTFs admission requirements, procedures and service is included in detail on pages 153-154 of this Bulletin.

This college is composed of the School of Art and Design and the School for American Craftsmen, with approximately 750 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 the work. Graphic designers work for advertising, corporate design offices, government offices, magazines, industrial firms, printers, offices, museums and other organizations.

Fine Arts—Students may concentrate in printmaking, painting, printmaking-illustration, painting-illustration or medical illustration. They prepare as professional artists, developing performance levels that enable graduate degree studies in studio concentrations and ca-

reers 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 and Interior Design—The program prepares students for careers in the expanding professions of industrial design and interior design. Artistic talent and analytical thought are applied to the design of products and interior spaces. Practical design projects develop aesthetic understanding, technical abilities, sensitivity to human needs and awareness of the social consequences of the designer's efforts. 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.

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 or 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 nature 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 and Interior Design	1 year any mathematics; 1 year any science	Art courses; 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; 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.
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.

¹About one-third of the courses in each program consist of electives in social science, literature and humanities.

*Four years of English are required in all programs (except where state requirements differ).

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.

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 wood as a material, techniques of wood fabrication, design layout, construction analysis, veneering, and finishing, estimating, and production. Degrees granted: AAS-2 year; BFA-4 year.

Double Crafts Major—The double crafts major enables the student to study for two years each in two different 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 design and execution of projects in graphic, industrial and 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 and 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 and 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 program in industrial and interior design prepares students for careers in the expanding professions of industrial design and interior design. Artistic talent and analytical thought are applied to the design of products and interior spaces. Practical design projects develop aesthetic understanding, technical

Yr.	Graphic Design, Painting, Printmaking, Industrial and 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
	*LiberalArts	4	4	4
	‡PhysicalEducation Elective	0	0	0
2†	FSCF-225, 226, 227 Art and Civilization	3	3	3
	*LiberalArts	4	4	4
	‡PhysicalEducation 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-301,302,303GraphicDesign	8	8	8
	***FADD-301, 302,303Industrial and Interior Design			
	***FADP-301,302,303Painting			
***FADR-301,302,303Printmaking				
See Note Below				
3	FSCF-380 Contemporary Art (One quarter required; offered every quarter)	3		
	#Art History Electives (select two)			
	*LiberalArts	4	4	4
	Major (one)			
	FADR-401, 402, 403 Printmaking			
	FADR-404, 405, 406 Printmaking-Illustration			
	FADC-401, 402, 403 Graphic Design			
	FADP-401, 402, 403 Painting	6	6	6
	FADP-404, 405, 406 Painting-Illustration			
	FADD-401, 402, 403 Industrial and Interior Design			
**Electives (one quarter)	3	3	3	
4	*LiberalArts	4	4	6
	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			
	FADD-501, 502, 503 Industrial and Interior Design			
**Electives (one per quarter)	3	3	3	

†Upon completion of the second year, the associate in applied science degree is awarded.
 **Additional intercollegiate studio courses are available by recommendation of the academic advisor and administrator. Electives are registered on a space available basis and subject to change without prior notice. Consult the advisor when planning programs.
 ***Core Electives—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 Industrial and Interior Design major; FADP-301, 302, 303, for Painting major and FADR-301, 302, 303 for Printmaking major. However, all three Core Electives are available as elective choices.
 #Total of 18 quarter credits of Art History: Art and Civilization and Contemporary Art required.
 ‡See page 177 for policy on Physical Education.
 *See page 122 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 1982 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 is two art core courses.

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.

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 1981 in Fine Arts—Painting, Printmaking; Painting-illustration, Printmaking-illustration; Graphic Design; and In-

dustrial and Interior Design programs are as follows:

	Qtr.
	Cr.
Required Major	84
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 and Interior Design
- 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
- F SCT-251, 252, 253 Textiles I
- F SCT-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. Packaging Design

Qtr. Credit Hour*

Yr.	Course	Qtr. Credit Hour*		
		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
	IPKG-201 Principles of Packaging	4		
	SMAM-204 College Algebra and Trigonometry		4	
	SBIG-289 Contemporary Science—Biology			4
	*Liberal Arts	4	4	4
	‡Physical Education Elective	0	0	0
2	FSCF-225, 226, 227 Art and Civilization	3	3	3
	FADK-301, 302, 303 Packaging Design I	3	3	3
	IPKG-311 Packaging Materials I	3		
	IPKG-312 Packaging Materials II		3	
	IPKG-321 Container Systems I			4
	IPKG-301 Engineering Design Graphics	3		
	SCHG-289 Contemporary Science—Chemistry		4	
	SPSP-289 Contemporary Science—Physics			4
*Liberal Arts	4	4	4	
‡Physical Education Elective	0	0	0	
3	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
	IPKG-310 Methods of Evaluation			2
	ICSA-200 Survey of Computer Science	4		
GLLC-520 Effective Speaking		4		
*Liberal Arts	4		4	
Elective		3		
4	FADK-501, 502, 503 Packaging Design III	4	4	4
	IPKG-420 Technical Communications		3	
	IPKG-401 Career Seminar			1
	Art History Elective	3		
	*Liberal Arts	4	4	6
Elective	3	3	3	

*See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.

Medical Illustration option

Yr.	Course	Qtr. Credit Hours			
		FALL	WTR.	SPG.	
(CFAA portfolio and additional six drawings of natural forms, to be presented as slides, are required for admission)					
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	
***FADP-311, 312, 313 Medical Illustration		4	4	4	
3	SBIG-205 General Biology	4			
	SBIG-231, 232 Human Biology		4	4	
	*Liberal Arts	4	4	4	
	FADP-421, 422, 423 Medical Illustration Applications	8	8	5	
4	Gross Anatomy (U of R)†			7	
	**Art Elective		3	3	
	*Liberal Arts	4	4	6	
	FADP-531, 532, 533 Advanced Medical Illustration	6	6	6	
Select One; courses may be mixed:					
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.
 †A tuition surcharge will be applied in this quarter.
 Upon successful completion of the second year, the associate in applied science (fine arts—painting) degree is awarded.

* See page 177 for policy on Physical Education.

* See page 122 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 line arts.

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 program strives to inspire the student to seek continual improvement through analysis and self-evaluation, and to 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.

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 successful 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 study.

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 (Sp. Qtr.)
 FADD-320 Graphic Visualization
 FADD-311, 312, 313 Industrial and Interior Design
 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

Yr. Craft Majors, *Oublc Crafts M(or)

Qtr. Cr<dl Hour*

	FALL	WTR.	SPG.	
1	FADF-231, 232, 233 Design 2-D	3	3	3
	FADF-205, 206, 207 Creative Sources	2	2	2
	FADF-261, 262, 263 Drawing Crafts	3	3	3
	*Liberal Arts	4	4	4
	<i>Materials and Processes (one)</i>			
	FSCC-200 Ceramics			
	FSCG-200 Glass			
	FSCM-200 Metalcrafts	5	5	5
	FSCT-200 Textiles			
	FSCW-200 Woodworking			
‡ Physical Education Elective	0	0	0	
2†	FSCF-225, 226, 227 Art and Civilization	3	3	3
	FADF-241, 242, 243 Design 3-D	3	3	3
	*Liberal Arts	4	4	4
	<i>Materials and Processes (one)</i>			
	FSCC-300 Ceramics			
	FSCG-300 Glass			
	FSCM-300 Metalcrafts	5	5	5
	FSCT-300 Textiles			
	FSCW-300 Woodworking			
	‡ Physical Education Elective	0	0	0
3	FSCF-380 Contemporary Art (one quarter required; offered every quarter)	3		
	##Art History Electives (select two)		3	3
	*Liberal Arts	4	4	4
	<i>Materials and Processes (one)</i>			
	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	*Liberal Arts	4	4	6
	<i>Techniques and Thesis (one)</i>			
	FSCC-500 Ceramics			
	FSCG-500 Glass			
	FSCM-500 Metalcrafts	8	8	8
	FSCW-500 Woodworking			
**Electives (one per quarter)	3	3	3	

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

HD Double Crafts Major: The first two years are the same as a crafts major; third year FSC 300 (5 cr.), FSC 300 (5 cr.), FSC 400 (5 cr.); fourth year FSC 400 (5 cr.), FSC 500 (8 cr.), FSC 500 (8 cr.). BFA degree totals 185 quarter credits.

†Upon 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 concentration.

Total of 18 quarter credits of Art History: Art and Civilization and Contemporary Art required.

†See page 177 for policy on Physical Education

**See page 122 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 line arts.

College of Graphic Arts and Photography

Dr. Robert M. Desmond, Dean

The College of Graphic Arts and Photography encompasses the School of Photographic Arts and Sciences, the School of Printing Management and Sciences, the Center for Imaging Science (CIS) and the Technical and Education Center of the Graphic Arts.

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 a BS 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 contemporary/illustrative/commercial photography, narrative/documentary/editorial photography, or photography as a fine art. A program jointly offered with the School of Business leads to a BS degree in photographic marketing management. Graduate programs lead to an MFA degree in photography. More than 900 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 the bachelor of science degree in printing with many options for specialization. The BS program in newspaper production 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 and engineering systems combines printing and industrial engineering, and prepares graduates for opti-

mizing 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 programs leading to an MS degree in printing technology. Over 600 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. But programs in imaging science are not new to RIT. The center is an outgrowth of the highly successful program in imaging and photographic science, a program that proved RIT's ability to provide quality education in this field.

RIT offers the only undergraduate program in the country in imaging science. If you choose this program, you'll study the application of physics, computer science, chemistry and mathematics to the formation, recording and perception of images. You'll learn about the 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.

You can concentrate in digital image processing, remote sensing, photographic chemistry, optics, image evaluation or color appearance and technology. Whichever area you select, you'll learn both theory and practical applications so that you can apply them in your career after graduation.

The Technical and Education Center, with its own full-time staff, renders service to various segments of the graphic arts. It also conducts short, highly specialized courses for men and women engaged professionally in the graphic arts and photography.

Resources

The college is housed in a building that has been specifically designed for instruction in photography and printing. Its many specialized laboratories and wide range of equipment make it the most complete of any degree-granting institution in these fields.

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 and photographic industries.

The establishment of four distinguished professorships highlights this qualification of the college's teaching staff. The Paul and Louise Miller Distinguished Professorship in Newspaper Production Management in the School of Printing 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, which will complement the professorship, will clearly support efforts to further define color measurement in all areas of academic and industry endeavor. Together they have established Rochester Institute of Technology as a unique center for color science, technology and appearance in the United States. The James E. McGhee Professorship highlights photographic processing and finishing, as well as in the photographic marketing and management areas.

Rochester is the world center of research and development in photography, a center of research in the graphic arts, and a city well-known for quality printing. It is an ideal environment for students in either photography or the graphic arts 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.

The RIT 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 makes available one of the largest collections of reference materials for these fields to be found anywhere.

Two special libraries are housed in the college, the Technical and Education Center Library and the Cary Library. The latter contains the Melbert B. Cary, Jr., Graphic Arts Collection, with 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. 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 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 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.

The School of Printing Management and Sciences offers a Senior Seminar which brings to campus each year some 15-20 industry people who discuss new developments and technologies in the graphic arts and how students can prepare to meet new challenges evolving from them.

Academic advising

The academic advising system in the College of Graphic Arts and Photography is designed to provide students with close faculty contact for guidance concerning academic or career problems.

Transfers

With the growth of community, junior and two-year technical colleges throughout the country, many men and women have a better chance to identify their occupational and professional goals. The college recognizes the value of these programs and, for students who perceive such goals within the scope of the college's programs, every effort is made to accept the maximum amount of transfer credit from the two-year college curriculum. Some scholarships are available.

Degrees and requirements

Candidates for the BS and BFA degrees must complete the requirements of a major program.

Requirements for the MS degree in imaging science (CIS), printing technology, and the MFA degree in photography can be found in the *Graduate Bulletin*.

Except for the newspaper production management, printing systems and engineering, and printing and applied computer science programs, the associate in applied science degree is awarded all students who successfully complete the requirements of the first two years of the BS or BFA programs.

Summer session and special programs

During the Summer Session the School of Printing Management and Sciences offers a wide range of technical and management courses which may be taken for credit.

Special, intensive summer courses are also available in graphic arts orientation, flexography, gravure and screen printing.

Additional specialized short-term summer programs can be designed by the School of Printing Management and Sciences to meet the particular needs of paper, ink and equipment manufacturers and related segments of the graphic arts industry.

The School of Photographic Arts and Sciences offers several special courses each summer to meet professional or avocational needs not met by four-year programs. It also offers special transfer programs enabling qualified students to enter at the second- or third-year level.

Information on summer programs in either school can be obtained from the director of the Summer Session.

Technical and Education Center

The Technical and Education Center of the Graphic Arts serves the printing and graphic communications industry through product testing, continuing education, and the dissemination of information. It enjoys an international reputation as a source of the most current information and techniques in the graphic arts. The center acts as an interface between RIT's academic programs and industry.

The Technical and Education Center staff has been recruited from industry and research organizations. Staff members work to serve industry needs through four main departments: physical testing, information services, the seminar center, and publications.

The Physical Testing Laboratory conducts industry-supported programs for testing paper, plates, blankets, and inks. It has the only full-size, four unit perfecting web offset press for testing in the world. The staff works with paper and ink companies, press manufacturers and printers as consultants and testing coordinators.

The Information Services Library houses an extensive international collection of graphic arts periodicals, technical reports and conference proceedings. These are used

to compile a monthly publication, *Graphic Arts Literature Abstracts*, which offers subject-categorized, fully indexed informative abstracts of the literature. GALA represents an expanded effort into current awareness and retrospective retrieval capability. The library is open to the public and to RIT graduate printing students.

The Technical and Education Center seminar programs cover all aspects of printing, especially color reproduction. Eighteen continuing titles reappear through the calendar year, and special tailor-made seminars are held for companies on request. Seminars on the RIT campus offer printers around the world a chance to encounter new ideas, work with quality control tools, and try procedures firsthand, including time to work on the web press. Traveling seminars bring current technical information to other cities across the country.

The Technical and Education Center Order Department fills domestic and international orders for such items as books, quality control tools, research reports, bibliographies, and periodicals like the *Graphic Arts Literature Abstracts*, the quarterly *Photographic Conservation*, and the *Technical and Education Center Newsletter*. Quality control tools available at the order department include color printing aids, tone reproduction aids, resolution test targets, graph papers, and calculator programs. Photocopies of articles abstracted in GALA are available.

The Technical and Education Center has been able to respond to industry needs over the years with a flexibility that few other resource centers have. The center is expanding—offering more seminars, publishing more bibliographies and books, and filling more orders. Industry support is growing, enabling the center to prosper.

Admission at a Glance: College of Graphic Arts and Photography

General Information on RIT*! admission requirements, procedures and service is included in detail on pages 153-154 of this Bulletin.

The School of Photographic Arts and Sciences, the School of Printing Management and Sciences, the Center for Imaging Science and the Technical and Education Center of the Graphic Arts 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 career in media production working with allied health teams in hospitals, medical and dental research centers, and other health institutions. Students can qualify for employment at the end of the second year and will have received the educational background necessary to apply for registration as a biological photographer. Degrees granted: AAS-2 year; BS-4 year.

Film/Video—The degree program 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 summers following the second and third years) are included in the BS degree program. Degrees granted: AAS-2 year; 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 Production Management—Prepares students for careers in technical management for the 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 photographic processing, production techniques and procedures, and business, including aspects of promotion and selling in a competitive market. Degrees granted: AAS-2 year; BS-4 year.

Freshman Admission Requirements

Transfer Admission with junior standing

Program	Required High School Subjects*	Desirable Elective Subjects	Two-Year College Programs
Biomedical Photographic Communications	Elem Algebra Plane Geom or Inter. Algebra; Trigonometry; Biology"	Chemistry; Physics	Associate's 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 RIT's 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 †
Imaging and Photographic Technology	Elem. Algebra; Plane Geom. or Inter. Algebra; 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	Chemistry Physics; Additional mathematics	Total of 80 quarter credits, including 20 quarter credits in calculus or higher mathematics, one year of college chemistry, one year of college physics, and 24 quarter credit hours in liberal arts. "C" grade in RIT Summer PING-200 and PING-210 or equivalent course, or experience; students in engineering science or liberal arts with math/science option usually meet these requirements
Newspaper Production Management	Elem. Algebra; Trigonometry, or Inter. Algebra; Physics or Chemistry	Additional mathematics, physics or chemistry	Associate's degree in graphic arts including a wide range of courses in liberal arts, a year of college mathematics, a year of college chemistry or physics, and courses in business, management, computers and others. Considered on an individual basis; student should contact the department.
Photographic Processing and Finishing Management	Elem. Algebra; Plane Geom. or Inter. Algebra; Chemistry or Physics	Additional mathematics and science	Because of a liberal selection of professional electives transferring at the end of two years is readily accomplished for business majors. Others should contact program faculty for evaluation of credit.
Printing	Elem. Algebra and Inter Algebra; 1 year science	Printing courses or experience with school publication; chemistry; physics; Interest in printing; additional mathematics	Associate's degree in graphic arts including wide range of courses in liberal arts, a year of college mathematics, a year of college chemistry or physics, and courses in business, management, computers and others. 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	Considered on an individual basis
Printing Systems & Engineering	Elem. Algebra; Plane Geometry; Inter Algebra; Trigonometry; Physics and Chemistry	Additional mathematics	Considered on an individual basis.
Professional Photographic Illustration and Fine Art Photography	2 years any mathematics 1 year any science	Art courses	Applicant must have completed an associate's degree program, or the equivalent 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.

*Four years of English are required in all programs, except where state requirements differ.

*A report is required from the applicant covering visits to photographic departments of at least two hospitals.

† Portfolio must consist of a series of 8x10 black-and-white photographs, an 8 or 16 mm film, a video tape, or a written work that demonstrates creativity in the English language.

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 liaison, customer 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 and Engineering—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. Degree granted: BS-4 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: contemporary/illustrative/commercial photography; narrative/documentary/editorial photography; or photography as a fine art. 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.

School of Photographic Arts and Sciences

Thomas P. Iten, 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.

Faculty

The School of Photographic Arts and Sciences faculty represent a rich cross-section of various photographic fields: science, technical, professional-illustrative and art.

Faculty members are highly active in professional societies, publications and exhibitions. Each one considers teaching to be his or her first and most important function. Several have received outstanding teaching awards and other professional recognition.

Degrees offered

Department of Applied Photography: BFA degree in professional photographic illustration—Kathleen Collins, chair

Department of Biomedical Photographic Communications: BS degree in biomedical photographic communications—William W. DuBois, chair

Department of Film/Video: BS degree in film/video—Malcolm Spaul, chair

Department of Fine Art Photography: BFA degree in professional photographic illustration, photography as a fine art option; MFA degree in photography—Dr. Richard D. Zakia, chair

Department of Imaging and Photographic Technology: BS degree in imaging and photographic technology—Dr. Leslie Stroebel, 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 photography; MS in Color Science, Appearance and Technology. These degrees are 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 director of Summer Sessions for a bulletin.

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, National Microfilm Association, 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.

It has been our experience that desirable applicants should rank within the top 25 percent of their

high school class, score above a combined 1050 SAT score, or achieve an ACT composite of 23. 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. All applicants, except those transferring from other colleges and universities, must take entrance examinations.

Biomedical Photographic Communications

Applicants for this undergraduate program must have had elementary algebra, plane geometry or intermediate algebra, trigonometry and biology. Chemistry and/or physics is recommended. A report is required from the applicant covering visits to photographic departments of at least two hospitals. A personal interview may be required.

Film/Video

Applicants must have had two years of any mathematics, and one year of science. A personal interview may be required. Art courses are recommended.

Imaging and Photographic Technology

Applicants for admission to the imaging and photographic technology program must have had two years of high school mathematics and one year of science.

Photographic Processing and Finishing Management

Applicants for admission in this program must have had two years of high school mathematics, elementary algebra and either plane geometry or intermediate algebra, and chemistry. Additional science is recommended.

Professional Photographic Illustration

Applicants for photographic illustration must have had two years of mathematics and one year of science. Art courses are recommended.

Course descriptions

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

Transfer admission

A transfer student is a student with acceptable transfer credits who has been accepted into a degree program. He or she may be classified as a first, second, third or fourth year student. Transfer students should be aware that because of the credits carried with them to RIT, they may have a lighter than normal academic load. Normally a student may not carry more than two photographic lab courses.

An articulation agreement has been reached with approximately 20 colleges and universities. For further information contact the RIT Admissions office at 475-6631.

Transfer credit and transfer programs

Transfer credit will be given for applicable courses completed at accredited institutions with a *grade* of "C" (average) or better. It is not possible for photography students to transfer into the first year in professional photographic illustration, imaging and photographic technology, or film and television from imaging science (CIS) or photographic processing finishing management or other programs at RIT, without incurring loss in time or added expense. Regular transfer procedures apply.

Credit for photography courses will not be accepted without a substantiating portfolio. This work will be reviewed by the appropriate faculty. (Requirements for portfolio submission may be obtained by writing to the Office of Admissions.)

Transfer students should expect to have light schedules during part of their residence at RIT because of prerequisite and scheduling problems.

Summer transfer

The transfer credits necessary for entry into any photographic program must have been completed prior to submitting the application for admission to the June transfer program.

A summer transfer student is one who meets the qualifications of the transfer conditions as outlined above.

There are transfer programs into the second or third year of most of the majors offered by the school. These are for students who have transfer credits in science, art, business, and/or photography. Students in the transfer stream may

find it necessary to attend classes during one or more summers.

The School of Photographic Arts and Sciences has several transfer programs for students who have completed background work in an accredited college or university. The preparatory work varies according to photography program.

Second-year entry (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 (2 credits)

The remaining required courses in the first year:

Film History, PPHG-204, 205, 206 (9 credits)

Acting and Stagecraft 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 or the mathematics of business and finance; 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 Process 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.

Professional Photographic Illustration

Normally, a minimum of 30 quarter credits of which there are 6 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, PPHL-207 Intro to Color Photography with a "C" grade or better.

Third-year entry (Transfer credit requirements):

Fine Art Photography

After successfully completing two years in RIT's BFA foundation program, or two years 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 third and fourth years.

Professional Photographic Illustration

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 Professional Photographic Illustration 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 RIT Admissions Office, RIT, One Lomb Memorial Drive, Box 9887, Rochester, New York 14623.

Biomedical Photographic Communications

William W. DuBois, Chair

The biomedical photographic communications program is designed to prepare the student for a career in media production within the scientific community. The biomedical photographer can be part of the allied health team in hospitals, medical and dental research centers or in other health institutions.

The first-year courses introduce basic theories and principles as well as practical experience with photographic equipment and photographic processing. The courses are integrated to prepare the student for a summer internship in a medical or scientific facility. The completion of the summer internship is required for the associate degree in biomedical photography.

The second-year rounds out the prerequisites for a beginning career in biomedical photography. Courses include photomacrography, photomicrography and other specific studies required for this career. The junior and senior years' curricula include electives in filmmaking, television and advanced color printing, or others which can be selected in consultation with the advisor. A personal interview may be required of the candidate for this program. The student may be required to attend summer courses to satisfy prerequisite courses.

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 which will form the basis for qualifying to become a Registered Biological Photographer (RBP) after the student enters into his or her profession full-time.

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 of Photography	3	3	3
	PPHB-211 Survey of Biomedical Photography			
	SBIG-201, 202, 203 General Biology	3	3	3
	SBIG-205, 206, 207 General Biology Lab	1	1	1
	*Liberal Arts (Core)	4	4	4
	‡ Physical Education Elective	0	0	0
	Summer (4th Quarter) Internship for 10 weeks in a medical setting			
2†	PPHB-301, 302, 303 Biomedical Photography II	5	5	5
	PPHT-311 Color Photography/Design	4		
	PPHT-312 Color Photography/Printing Theory		4	
	PPHB-331, 332, 333 Preparation of Biomedical Visuals	3	3	3
	*Liberal Arts (Core)	4	4	4
	‡ Physical Education Elective	0	0	0
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 Senior Thesis Project	4	4	4
	*Liberal Arts (Elective Courses)	4	4	4
	*Liberal Arts (Senior Seminar)		2	
	Business Electives	4	4	4
	*Professional Electives	3-4	3-4	3-4

¹ Associate's degree awarded upon successful completion of second year

*Possible recommended professional electives:

PPHF-201 Structuring the Moving Image

PPHG-202 Narrative Film Production

PPRT-591, 592, 593 Reproduction Photography. Offset Plate Making, Offset Presswork

Electives will be made with the coordinator's permission

Other electives with advisor's consultation

**Options include:

Electron Microscopy

Medical Terminology

Computer courses

Advanced courses in the Biological Sciences

[†]Selected professional courses may be substitute for 4, 8, or 12 credits with written permission of advisor.

[‡]See page 122 for Liberal Arts requirements.

^tSee page 177 for policy on Physical Education.

Film/Video

Malcolm Spaul, Chair

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 program features an introduction to film, video and animation with advanced work in either film or video. 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 photography. 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 the individual student. Thus a wide variety of styles and intentions are expressed in the work of the department.

Yr.	Film/Video	Otr. Credit Hours		
		FALL	WTR.	SPG.
1	*Liberal Arts (Core)	4	4	4
	*Liberal Arts (Core – English Composition)	4		
	Acting and Stagecraft I		4	
	Acting and Stagecraft II			4
	PPHF-201 Structuring the Moving Image			
	PPHF-202 Narrative Film Production			
	PPHF-203 Fiction and Dramatic Short Film Prod			5
	PPHF-204 Fiction Film and Aesthetics	3		
	PPHF-205 Documentary Film History and Aesthetics		3	
2	PPHF-206 Experimental/Animated Film History & Aesthetics			3
	PPHF-210 Materials & Processes of the Moving Image I	2		
	*Liberal Arts (Core)	4	4	4
	**Science Elective	4	4	4
	PPHF-310 Materials & Processes of the Moving Image II	2		
	PPHF-311 Portable Video Production	4		
	PPHF-312 Studio & Documentary Video		4	
	PPHF-313 Electronic Field Production			4
	PPHF-324 Introduction to Animation	4		
	Elective Sequence (choose one)			
PPHF-325 Introduction to Animation II		4		
PPHF-326 Animated Production			4	
or				
PPHF-327 Microcomputer Animation I		4		
PPHF-328 Microcomputer Animation II			4	
or				
PPHF-321 Writing for Film and Video		3		
PPHF-322 Writing for Film and Video			3	
3	*Liberal Arts (Concentration)	4	4	4
	Non-Photo Elective		4	4
	PPHF-411 Visualization & Commercial Film Production	5		
	PPHF-412 Film Planning & Studio Operation		5	
	PPHF-413 Film Project with Sound			5
	PPHF-410 Materials & Processes of the Moving Image III	2		
	PPHF-405 Senior Project Seminar			1
	Electives (choose one per quarter)			
	PPHF-420 Sound Recording	3		
	PPHT-505 High Speed/Time Lapse Cinematography	3		
	PPHF-321 Writing for Film and Video		3	
	PPHF-325 Introduction to Animation II		4	
	PPHF-434 Advanced Video		3	
PPHF-322 Writing for Film and Video			3	
PPHF-326 Animated Production			4	
PPHF-432 Directing			3	
PPHF-442 Film Video Internship	1-6			
**Non-Film/Video Photo School course	3	3-4	3-4	
4	*Liberal Arts (Electives)	4	4	4
	Non-Photo Elective			
	*Liberal Arts Senior Seminar			2
	PPHF-541 Senior Production I	6		
	PPHF-542 Senior Production II		6	
PPHF-543 Senior Post-Production			4	
**Students may elect any still photography course for which they have the required prerequisites and/or the permission of the instructor. Such courses might include: PPHP-395 Photo Electronic Workshop; PPHP-562, 565 Perceptual Principles for Photographers; PPHP-437, 438 Visual Communication Workshop; PPHL-440 News Writing & News Reporting; PPHL-301, 302, 303 History & Aesthetics of Photography; BBUA-301 Financial Accounting and BBUB-430 Organizational Behavior.				

****Recommended Science Electives**

- ICSS-200 Survey of Computer Science 4 cr.
- ICSP-208 Introduction to Programming 4 cr.
- ICSP-210 Program Design and Validation 4 cr.
- SBIG-289 Contemporary Science Biology 4 cr. (FWS)
- SBIG-201, 202, 203 General Biology 4 cr.
- SCHG-289 Contemporary Science-Chemistry 4 cr. (FWS)
- SPSP-289 Contemporary Science-Physics 4 cr. (FWS)

*See page 122 for Liberal Arts requirements.

#See page 177 for policy on Physical Education.

Imaging and Photographic Technology

Dr. Leslie Stroebel, Chair

The imaging and photographic technology curriculum has been designed to prepare students for entry into any of a variety of picture-making and non-picture-making positions in the broad field of scientific/technical photography, as distinct from providing highly specialized training for a specific position. At the same time, however, students develop expertise in a professional field of their choice by taking a sequence of six courses in one of eight areas of concentration.

Picture-making courses are included in all four years of the program, with a transition from a comprehensive foundation course in black-and-white photography through color photography and color printing, motion-picture and television production, to more specialized courses in high-magnification photography, high-speed photography, and non-conventional imaging systems. These picture-making courses are balanced with courses in photographic technology, computers, mathematics, science, business and liberal arts. Two paid co-op work experiences and a senior project also are included.

Employment and co-op work experience statistics maintained by RIT's Office of Cooperative Education and Placement, as well as results of an industry survey done by the School of Photographic Arts and Sciences, indicate that there is a need for graduates with picture-making and photographic technology backgrounds for positions such as technical and sales representatives, photographic instrumentation, technical illustration, technical writing, scientific photography, audiovisual production, product development and testing, applied research, quality control and photographic lab supervision and management.

IMAGING & PHOTOGRAPHIC TECHNOLOGY

Qtr. Credit Hours

	FALL	WTR.	SPG.
FIRST YEAR			
PPHT-201, 202, 203 Photography I	7	7	7
PPHT-211, 212, 213 Materials & Processes of Photography	3	3	3
Mathematics			
SMAM-204 College Algebra	4		
(SMAM-214, 215 Introductory Calculus) OR (SMAM-216, 217 Mathematics of Business & Finance)		3	3
* Liberal Arts	4	4	4
‡ Physical Education	0	0	0
Total:	18	17	17
SECOND YEAR			
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			5
PPRM-201 Introduction to Technical Writing	3		
PPHT-321 Applied Computing for Photography		2	
PPHT-511 Co-op Seminar		1	
SPSP-211, 212, 213 College Physics	3	3	3
SPSP-271, 272, 273 College Physics Lab	1	1	1
* Liberal Arts	4	4	4
‡ Physical Education	0	0	0
Total:	18	18	16
Summer: Co-op (No. 1)			
THIRD YEAR			
Concentration Electives			
PPHT-411 Preparation of Visuals	3		
ICIC-421 Producing Audiovisual Presentations		4	
PPHT-412 Photomacrography/Photomicrography			3
PPHF-201 Structuring the Moving Image	5		
ICSP-205 Computer Techniques		3	
* Liberal Arts	4	4	8
Total:	16	15	15
Summer: Co-op (No. 2)			
FOURTH YEAR			
Concentration Electives			
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
PPHF-207 Intro. to Portable Video I	4	—	—
BBUB-430 Organizational Behavior	4		
Business Elective			4
* Liberal Arts	—	8	4
* Senior Seminar (Liberal Arts)			2
Total:	16	15	17

1-Waiver (with credit) by examination.

1-Exemption 1 without credit) on recommendation of instructor.

2-Concentration course credits may vary from 3 to 5, but should total approximately 24. A minimum of 198 QCH required for the BS degree.

3-One-third of PPHT class each quarter. Adjust Liberal Arts schedule.

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

CONCENTRATION ELECTIVES+
(Third and Fourth Years, Imaging
and Photographic Technology)

**Photographic Instrumentation
Concentration**

ITEE-411 Electrical Principles for
Design I
ITEE-412 Electrical Principles for
Design II
PPHT-395 Photo Electronics
Workshop
PPHT-401, 402, 403 Photoinstru-
mentation Applications
Seminar
+PPHT-412 Photomacrography/
Photomicrography
+PPHT-501 High-Speed/Time-
Lapse Photography
+PPHT-504 Survey of Nonconven-
tional Imaging
PPHT-421 Holography I
PPHT-551 Holography II
PPHT-551 Special Topics,
Applications of Holography
PPRT-402 Applications of
Electronics to the Graphic
Arts
+PPHT-502 Introduction to
Research
+PPHT-503 Senior Project
PPHB-421 Scanning Photomacro-
graphy (With permission of
instructor)

Film/Video

+PPHF-201 Structuring the Moving
Image
PPHF-202 Narrative Film Produc-
tion
PPHF-203 Fiction & Dramatic
Short Film Production
PPHF-311 Portable Video Produc-
tion
PPHF-312 Studio and Documentary
Video
PPHF-313 Electronic Field
Production
PPHF-310 Materials & Proc. of the
Moving Image II
PPHF-204, 205 Film History &
Aesthetics
+PPHF-207 Introduction to
Portable Video I
PPHF-208 Introduction to Portable
Video II

PPHF-324 Introduction to Anima-
tion
+PPHT-502 Introduction to
Research
+PPHT-503 Senior Project

Business

+BBUB-430 Organizational
Behavior
BBUA-301 Financial Accounting
BBUA-302 Managerial Accounting
BBUB-315 Legal Environment of
Business
BBUQ-334 Management Science
BBUB-455 Personnel & Human
Resources Management
BBUM-463 Principles/Marketing
PPHM-410, 411, 412 Training and
Supervision
PPRM-506 Business Law
PPRM-510 Personnel Relation II
PPRM-511 Labor Relations in
Graphic Arts
PPRM-512 Collective Bargaining in
Graphic Arts
PPRM-515 Legal Problems of
Publishing
+PPHT-502 Introduction to
Research
+PPHT-503 Senior Project

Graphic Arts

PPRT-591 Reproduction Photo-
graphy
PPRT-593 Printing Presses -
Lithographic
PPRT-594 Printing Presses - Screen
PPRT-311 Planning and Finishing
PPRT-313 Principles of Copy
Preparation
PPRT-506 Electronic Color
Imaging & Color Control
PPRM-320 Intro to Magazine
Publishing Management
PPRT-204 Flexography
PPRT-205 Gravure Printing
PPRT-315 Ink and Color
PPRT-406 Color Separation
Systems
PPRM-301 Application of
Computers to the
Graphic Arts
PPRT-701 Research Methods in
Graphic Arts
PPHT-502 Intro to Research
+PPHT-503 Senior Project
PPRT-402 Applications of
Electronics to the Graphic
Arts
(See Course Description Catalog
for additional courses.)

**Photographic Processing and
Finishing Management**
PPHM-301 Production Processing
& Finishing (Film Processing)
PPHM-302 Production Processing
& Finishing (Custom Printing)

PPHM-303 Production Processing
& Finishing (Automatic Printing)
PPHM-402 Photographic Process
Control (Color Sensitometry)
PPHM-420 Applied Statistical
Quality Control
PPHM-506 Theory of Corrective
Color Printing
PPHM-599 Independent Study
+PPHT-502 Introduction to
Research
+PPHT-503 Senior Project

Audiovisual Communications

ICIC-585 Producing Special Effects
Slides
+ICIC-421 Producing Audiovisual
Presentations I
ICIC-422 Producing Audiovisual
Presentations II
ICIC-489 Audio for Audiovisual
Presentations
ICIC-423 Producing Audiovisual
Presentations III
ICIC-580 Producing Multi-Image
Presentations I
PPRT-200 Introduction to Printing
(for Packaging Sci.)
PPRT-201 Typography I
+PPHT-502 Intro to Research
+PPHT-503 Senior Project

**Still Photography and Color
Printing**

PPHT-410 Architectural Photo-
graphy
PPHL-451, 452, 453 Portraiture
PPHT-341 Introduction to
Corporate & Special
Interest Publications
PPHT-404, 405, 406 Corporate &
Special Interest Publications
PPHT-401, 402, 403 Photoinstru-
mentation Applications
Seminar
PPHT-421 Holography
PPHT-425, 426, 427 Nature
Photography
PPHT-444 Reversal Color Printing
PPHT-441 Introduction to Dye
Transfer
PPHT-442 Advanced Dye
Transfer I
PPHT-443 Advanced Dye
Transfer II
PPHT-446 Advanced Color
Printing I
PPHT-447 Advanced Color
Printing II
+PPHT-502 Introduction to
Research
+PPHT-503 Senior Project
PPHT-305 Portrait Retouching
PPHT-306 Commercial Retouching
PPHT-307 Basic Airbrushing

+ Six courses are to be selected as concentration electives from any one of the eight subject areas. Substitutions may be made, with the approval of the chairman, for any concentration courses that are not available, or to satisfy valid occupational goals. A substitution must be made where a concentration course or an equivalent course is included in the curriculum as a required course. Such courses are identified with a plus sign. In this situation, a concentration course from any subject area should be substituted for the redundant course. Certain courses not listed may be taken with permission of the instructor and the chairman of the Department of Imaging and Photographic Technology.

Science and Engineering
(Any combination of appropriate
courses in the following areas)

Mathematics

SMAM-309 Elementary Statistics
SMAM-251, 252, 253 Calculus I,
II, III

Physics

SPSP-311, 312, 313 University
Physics I, II, III

Computers

+ICSA-205 Computer Techniques
PPRM-301 Application of
Computers to the Graphic
Arts

ICSA-208 Introduction to
Programming

ICSA-210 Program Design &
Validation (Prerequisite:
ICSP-208)

ICSA-410 Computer Concepts &
Software Systems (Prerequisite:
ICSP-210)

ICSA-411 Data Communications &
Computer Networks

Electricity & Electronics

ITEE-411 Electrical Princ./Design I
or

ITEE-310 Electricity

ITEE-412 Electrical Princ./Design
II
or

ITEE-311 Electronics I

or

ITEE-312 Electronics II

Chemistry

SCHG-211, 212 Chemical
Principles I, II

PPHS-409 Color Appearance and
Technology (Prerequisite:
PPHT-313)

PPHS-541 Fundamentals of Optics
(Prerequisite: Calculus)

PPHS-543 Optical Engineering
(Prerequisite: PPHS-541)

PPHS-313 Introduction to
Colorimetry

CTGT-217, 218, 219 Photographic
Chemistry

+PPHT-502 Introduction to
Research

+PPHT-503 Senior Project

Photographic Marketing Management

Offered jointly through the
McGhee Chair by the College of
Business and the College of Graph-
ic Arts and Photography, RIT's
program in photographic market-
ing is the only one of its type in
the country.

This rigorous program is de-
signed to provide students with a
thorough knowledge of the photo-

graphic process and a solid back-
ground in business administration
with courses in economics, finance
and marketing principles. The
combination of work in these two
disciplines prepares the student 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 manu-
facturers and photographic retail-
ers. For further information, in-
cluding transfer requirements, con-
tact the College of Business.

Yr.	Photographic Marketing Management—Typical Schedule	Qtr. Credit Hours		
		FALL	WTR.	SPQ.
1	0106-225 Algebra for Management Science	4		
	0511-301 Principles of Economics I	4		
	0109-201 Introduction to the Retail Industry		4	
	1016-226 Calculus for Management Science		4	
	0511-302 Principles of Economics II		4	
	0603-200 Survey of Computer Science			4
	0101-301 Financial Accounting			4
	*LiberalArts (Core)	8	4	8
	‡PhysicalEducation	0	0	0
2"	0905-201, 202, 203 Principles of Photography 1, II, III	4	4	4
	0109-301 Retail Accounting and Merchandising Control	4		
	0106-330 Data Analysis	4		
	0101-302 Managerial Accounting	4		
	0106-334 Management Science		4	4
	0102-310 Career Seminar II			1
	*LiberalArts (Core)		8	
	* Liberal Arts (Concentration)			8
3	0903-211, 212, 213 Materials & Processes of Photography	3	3	3
	0104-441 Corporate Finance		4	
	0105-463 Principles of Marketing	4	4	
	0109-401 Retail Store Operations and Management			4
	0106-460 Operations Management			4
	0102-430 Organizational Behavior			4
	Liberal Arts (Concentration & Elective)	4	4	
	‡PhysicalEducation	0	0	0
4	Electives	4		
	0106-505 Information Systems		4	
	0102-507 Business Environment	4		
	0920-311 Color Photography: Design	4		
	0109-501 Senior Seminar in Retail Management			4
	0920-312 Color Printing: Theory		4	
	0905-320 Mechanics of Photographic Hardware I	4		
	0102-551 Integrated Business Analysis			4
	0905-321 Mechanics of Photographic Hardware II		4	
	0905-310 Survey of Production Processing & Finishing		2	
	Electives *	4		4
	*LiberalArts (Electives)	4		4
	*LiberalArts (Senior Seminar)			2

Students are granted junior status upon completion of live academic quarters.

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Photographic Processing and Finishing Management

James Rice, Chair

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. Students who elect to exit the program at the end of the second year, however, are awarded the AAS degree and should qualify for area supervisory positions in photofinishing plants.

Yr.	Photographic Processing and Finishing Management	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPHM-211, 212, 213 Introduction to Photofinishing Technology ...	4		4
	SMAM-204 College Algebra and Trigonometry	4		
	ICSS-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		
	*LiberalArts (Core)	4	4	8
‡ Physical Education Electives	0	0	0	
2	***PPHM-301 Film Processing	4		
	***PPHM-302 Automated Printing		4	
	***PPHM-303 Custom and Professional Finishing			4
	ITEE-310, 311, 312 Electricity and Electronics	4	4	4
	GSSE-301, 302 Economics I and II	4	4	
	#Professional Elective			4
	*LiberalArts (Core)	4	4	4
	‡ Physical Education Electives	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 Quality Control			3
	PPHM-313 Intro. to Color Science & Appearance			3
	SMAM-319 Data Analysis		4	
	BBUB-430 Organizational Behavior	4		
	*LiberalArts (Concentration)	4	4	4
	PPHM-506 Theory of Corrective Color Printing			2
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
	*LiberalArts Elective	4	4	4
*LiberalArts (Senior Seminar & Project)			2	

*See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.
 ***One-third of the second year PPHM class will take each course each quarter.
 #Approval of chairman required.

Professional electives

- BBUA-302 Managerial Accounting
- BBUA-431 Cost Accounting
- BBUB-301 Business Law
- BBUB-315 Legal Environment of Business
- BBUB-455 Personnel and Human Resources Management
- BBUQ-334 Management Science
- BBUM-463 Principles/Marketing
- BBUF-441 Corporate Finance
- GLLC-402 Conference Techniques
- GLLC-501 Effective Speaking
- PPHM-511, 512, 513 Advanced Machine Processing
- PPHM-599 Independent Study

- PPHT-441, 442, 443 Advanced Color Printing
- SCHG-205, 206, 207 Chemical Principles Labs
- SCHG-211, 212, 213 Chemistry

Others to be selected in consultation with advisors.

Professional Photographic Illustration

Kathleen Collins, Chair
Department of Applied Photography

Dr. Richard D. Zakia, Chair
Department of Fine Art Photography

Contemporary/Illustrative/Commercial Photography Option

or

Narrative/Documentary/Editorial Photography Option

The curriculum leading to a bachelor of fine arts degree in professional photographic illustration is planned to prepare the student for those areas of photography which require the solving of visual communication problems with a sound technical base. Students are encouraged to develop innovative and individualized responses to visual problems; they are expected to become sensitive to contemporary graphic design and to visual aspects of their society; they are asked to be perceptive and responsible citizens of an evolving society.

Career opportunities: The photo students who elect the BFA program may produce advertising photography for magazines, direct mail pieces, posters, billboard, and packages. They may produce editorial photography magazine illustrations. They may illustrate brochures, annual reports, and other visual materials for business, government, and educational institutions. They are qualified to function as artists using photography as a principal means of expression. They may become scholars, photohistorians, or photojournalists.

Areas of concentration: The bachelor of fine arts program in professional photographic illustration is subdivided into three areas of concentration, each of which is varied enough to provide the student with a broad-based photographic education. Each is also flexible enough in approach to provide the student

Yr.	Professional Photographic Illustration Foundation Years	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			4
	*LiberalArts (Core)	4	4	4
2†	PPHL-311, 312, 313 Applied Photo II	5	5	5
	PPHL-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
	*LiberalArts (Core)	4	4	4
	PPHL-315 Colloquia		1	

Yr.	BFA in Professional Photographic Illustration with a Major in Photographic Fine Art	Qtr. Credit Hours		
		FALL	WTR.	SPG.
3	PPHA-401, 402, 403 Photography as a Fine Art I	4	4	4
	FSCF-225, 226, 227 Art and Civilization	3	3	3
	ICSS—200 Survey of Computer Science	4		
	Visual Imaging Electives	3	3	3
	*LiberalArts (Concentration)	4	4	4
4	PPHA-501, 502, 503 Photography as a Fine Art II	4	4	4
	FSCF-380 Contemporary Art			3
	Visual Imaging Electives**	7	7	4
	*LiberalArts Electives		4	4
	*LiberalArts (Senior Seminar)			2

Yr.	BFA in Professional Photographic Illustration with a Major in Contemporary/Illustrative/Commercial Photography	Qtr. Credit Hours		
		FALL	WTR.	SPG.
3	PPHL-441, 442, 443 Contem/Illus/Commer I	5	5	5
	Photo Electives	4	4	4
	FSCF-225, 226, 227 Art & Civilization	3	3	3
	*LiberalArts (Concentration)	4	4	4
4	PPHL-541, 542, 543 Contem/Illus/Commer II	5	5	5
	Photo Electives	3-4	3-4	3-4
	PPHL-505 History of Applied Photography	3		
	*LiberalArts Electives	4	4	
	*LiberalArts (Senior Seminar)			4
	CBGE-223 Small Business Marketing & Planning			4

Yr.	BFA in Professional Photographic Illustration with a Major in Narrative/Documentary/Editorial Photography	Qtr. Credit Hours		
		FALL	WTR.	SPG.
3	PPHL-416, 417, 418 Narr. Docum. Edit. 1	5	5	5
	Photo Electives	4	4	4
	FSCF-225, 226, 227 Art & Civilization	3	3	3
	*LiberalArts (Concentration)	4	4	4
4	PPHL-516, 517, 518 Narr. Docum. Edit. II	5	5	5
	Photo Electives	3-4	3-4	3-4
	PPHL-505 History of Applied Photography	3		
	*LiberalArts Electives	4	4	4
	*LiberalArts (Senior Seminar)			2
	CBGE-223 Small Business Marketing & Planning		4	

**A list of electives is on file in chairman's office.
*See page 122 for Liberal Arts requirements.
†See page 177 for policy on Physical Education.

who so desires to select those courses that provide for and best suit his or her particular needs. The first two years are common to fine art photography, contemporary/illustrative/commercial photography, and narrative/documentary/editorial photogra-

phy. After the second year the student plans a program that will fulfill his or her objectives. With an advisor, a tentative two-year program is planned for available courses that will meet the BFA degree requirements.

Electives

- PPHF-207, 208 Intro, to Portable Video
- PPHF-204, 205, 206 Film History and Aesthetics
- PPHF-201, 202, 203 Conceptual Moving Image Production
- PPHF-324, 325 Introduction to Animation I, II
- PPHF-411, 412, 413 Visual & Commercial Film Production
- PPHF-551, 552, 553 Special Topics (when offered)
- PPHF-599 Independent Study
- PPHL-437, 438, 439 Visual Communication Workshops
- PPHL-551, 552, 553 Special Topics (when offered)
- PPHL-599 Independent Study
- PPHM-301, 302, 303 Production Process & Finishing
- PPHM-401, 402, 403 Photo Process Control
- PPHM-510 Finishing & Lab Operating Management
- PPHM-511, 512, 513 Advanced Production Processing & Finishing
- PPHM-599 Independent Study
- PPHT-340 Introduction to Scientific and Technical Applications of Photography
- PPHT-341 Corporate & Special Interest Publications
- PPHT-541, 542, 543 Basic Portrait Photography
- PIMG-201, 202, 203 Photography for Scientists/Engineers
- PPHT-301 Photographic Sensitometry
- PPHT-302 Photographic Chemistry
- PPHT-303 Photographic Optics
- PPHT-305 Portrait Retouching
- PPHT-306 Commercial Retouching
- PPHT-425, 426, 427 Nature Photography
- PPHT-307 Basic Airbrushing
- PPHT-311 Color Photography Design
- PPHT-312 Color Printing/Theory
- PPHT-313 Color Measurement
- PPHT-412 Photomicrography/Photomacrography
- PPHT-421 Basic Holography
- PPHT-431 Architectural Photography
- PPHT-441 Intro to Dye Transfer
- PPHT-442 Advanced Dye Transfer I
- PPHT-443 Advanced Dye Transfer II
- PPHT-444 Reversal Color Printing
- PPHT-551 Special Topics (when offered)

- PPHT-599 Independent Study
 - PPHA-401, 402, 403 Photo as a Fine Art I
 - PPHA-501, 502, 503 Photo as a Fine Art II
 - PPHA-506, 507, 508 Photo Media Workshop
 - PPHA-521, 522, 523 Color Photo Workshop
 - PPHA-531 Picture Researching
 - PPHA-535 Gallery Management
 - PPHA-538 Photo Careers Seminar
 - PPHA-551 Special Topics
 - PPHA-560 Semiotics & Photography
 - PPRT-591 Reproduction Photography
 - PPRT-592 Offset Platemaking
 - PPRT-593 Offset Presswork
 - ICIC-401 Message Design
 - ICIC-430 Audiovisual Presentation Design
 - ICIC-489 Audio for A-V Presentations
 - ICIC-440 Audiovisual Program Design
 - ICIC-424 Visual Production Technique
 - ICIC-450 Audiovisual Design II
 - ICIC-580 Producing Multi-image Presentations I
 - ICIC-581 Producing Multi-image Presentations II
 - ICIC-583 Advanced Multi-image Project
 - ICIC-585 Producing Special Effect Slides
 - ICIC-205 Computer Techniques
 - ICIC-200 Survey of Computer Science
- * Need department or faculty approval to enroll

Other courses may be used as professional electives with written permission from the applied department chairman.

Fine Art Photography Option

Through the gradual development of each individual's sensitivity and imaging skills, the student is prepared for a broad range of career options that require a solid background in aesthetics, technical skills, craftsmanship, and the ability and confidence to solve visual problems with imagination and originality.

The program is designed to encourage each student's artistic development, individuality of style and uniqueness as a photographer. The program does not train photographic technicians or photographers for specific jobs. Rather, fine art photography is designed to enhance students prospects for a

lifetime of work that is interesting, challenging, and that offers the potential for growth and change.

Electives**Photography as a Fine Art**

- PPHA-506, 507, 508 Photo Media Workshop
- PPHA-521, 522, 523 Color Photography Workshop
- PPHA-531 Picture Researching
- PPHA-535 Gallery Management
- PPHA-538 Careers in Photography
- PPHA-551, 552, 553 Special Topics
- PPHA-560 Semiotics and Advertising Photography
- PPHA-599 Independent Study
- PPHG-720 Photographic Workshop
- PPHG-756 Zone System
- PPHG-760 Perception and Photography
- PPHG-767, 768, 769 Contemporary Issues

Other visual imaging electives are available in Photojournalism, Illustration Photography, Nature Photography, Portrait Photography, Film and Video Production, Film History and Aesthetics, Animation, Reproduction Photography, Printing, Screen Printing, Computer Graphics, Painting, Drawing, Printmaking, Sculpture, Ceramics, Metalcrafts, Textiles, Woodworking, and Audio-Visual Production.

Center for Imaging Science

Dr. Rodney Shaw, Director

Imaging science is concerned with the materials and processes of photography and imaging science; photographic instrumentation with the application of photographic processes to science and technology. A primary objective of the imaging scientist is the improvement of existing materials and processes of photography and the development of new methods and materials. The instrumentation engineer is concerned with the planning of new applications of photography or the adaptation of existing methods to new or special requirements. Whereas chemists, physicists, and engineers of disciplines other than photography are employed in both of these activities, there is a need, on an increasing scale, for the specialist in imaging and science.

Graduates of the imaging science program find employment in many different industries including: aerospace, business machines, information handling, microelectronics, scientific instruments, graphic arts, industrial chemicals, and photographic materials and equipment. In addition, many graduates are employed by governmental agencies and laboratories. Graduates with an interest in marketing often move into positions as sales and technical representatives.

The Center for Imaging Science offers three programs leading to both undergraduate and graduate degrees, a four-year program resulting in a bachelor of science degree, a five-year program resulting in simultaneous awarding of the bachelor of science and master of science degrees, and an MS degree program for students holding a bachelor of science degree in science or engineering.

Applicants for admission to the undergraduate program must have had three years of high school mathematics through trigonometry and either physics or chemistry. Their high school record should indicate a capacity to undertake a science program with a reasonable chance of success.

In addition, it is possible for students with satisfactory credits in mathematics, chemistry, and physics to transfer into either the four-year or five-year program at the beginning of the second or third year by taking a transfer program during the summer quarter.

Second-year entry
(Transfer credit requirements): Normally, a minimum of 39 quarter credits of which there are 8 credits in a general chemistry course (including lab); 4 credits in an introductory organic chemistry course; 12 credits in differential and integral calculus; 12 credits in liberal arts; and 3 credits in additional math or science courses. The students also must complete the summer course, PIMG-200, Introduction to Imaging Science I, with a "C" grade or better.

Third-year entry
(Transfer credit requirements): A minimum of 80 quarter credits of which 8 are credits in a general chemistry course (including lab); 4 credits in an introductory organic chemistry course; 12 credits in differential and integral calculus; 8 credits in advanced mathematics including differential equations; 24 credits in liberal arts; 15 credits in university physics (including lab); 3 credits in a computer course; plus 6 additional credits in math or science. The students also must complete the 10-week intensive summer course, PIMG-200 and 210, Introduction to Imaging Science I and II, with a "C" grade or better.

In recognition of the department's belief that much degree-relevant learning in imaging science can take place outside the Institute's classrooms, all undergraduates are encouraged to acquire summer imaging science industrial experience during their program at RIT.

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 the study of photographic materials and instrumentation. The imaging science core program then continues with courses in radiometry, the

structure of images, color and vision, and methods of photoengineering systems. Third- and fourth-year students select elective courses in imaging and photoengineering, science, mathematics, and an undergraduate thesis is required.

Opportunities also exist to perform thesis work under the direction of selected scientists and engineers in other RIT colleges as well as from local industry as adjunct faculty.

Five-year program:
Bachelor of Science and Master of Science in Imaging Science
Course content during the first three years is similar to the bachelor of science program and provides the student with a background in mathematics, chemistry, physics, and basic imaging and photographic science and instrumentation. The fourth year is spent taking advanced elective courses in chemistry, physics, engineering and/or imaging science. The fifth year is devoted to graduate courses and a graduate thesis.

Admission into the five-year program is normally made at the end of the third year. Completed applications should be sent to the Admissions Office.

Certain graduate courses are offered during the evening on a rotating basis for those desiring to obtain the master of science degree on a part-time basis. Information regarding which courses are offered in which years during the evening may be obtained from the department.

The graduate program is administered by the Council on Graduate Studies and is under the direction of the graduate coordinator (see Graduate Bulletin for information).

Graduate program:
Master of Science in Imaging Science

The graduate program is designed to prepare persons holding a bachelor of science degree in physics, chemistry, or engineering for positions in the field of imaging science. Applicants without acceptable understanding of imaging materials and processes are required to take a summer course before final admission to the graduate program. This full-time summer course, PIMG-600 (Principles of Imaging Science) begins in June and runs for 10 weeks.

Yr.	Imaging Science	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PIMG-201, 202, 203 Photography for Scientists and Engineers	5	5	5
	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
	SMAM-251, 252, 253 Calculus	4	4	4
	*Liberal Arts (Core)	4	4	4
	‡Physical Education Elective		0	0
2†	PIMG-303 Photographic Instrumentation		4	
	PIMG—312 Applied Processing			4
	PIMG 313 Introduction to Colorimetry	4		
	SMAM-305 Calculus	4		
	SMAM-306 Differential Equations 1		4	
	Computer Science Elective			4
	SPSP-311, 312, 313 University Physics	4	4	4
	SPSP-371, 372, 373 University Physics Lab		1	1
	*Liberal Arts (Core)	4	4	4
	‡Physical Education Elective		0	0
3	PIMG-401 Radiometry	4		
	PIMG-402 Image Microstructure		5	
	PIMG-404 Introduction to Scientific Research			2
	PIMG-411 Statistical Inference	3		
	PIMG—412 Statistical Design of Experiments		3	
	PIMG-413 Statistics of Quality Control			3
	Professional Electives (selected from undergraduate elective list)		Var.	
	*Liberal Arts (Concentration)	4	4	4
*Liberal Arts (Core)			4	
4	PIMG-501, 502, 503 Research	2	4	4
	PIMG-521, 522, 523 Imaging Systems and Evaluation	4	2	2
	*Liberal Arts (Electives)	4	4	4
	*Liberal Arts (Senior Seminar)		2	
	Professional Electives (selected from undergraduate elective list)			
		To bring undergraduate total to 194		
Yr.	Five Year BS/MS Option			
4	PIMG-890 Research	2		
	*Liberal Arts (Electives)	4	4	4
	*Liberal Arts (Senior Seminar)		2	
	Professional Electives (selected from undergraduate elective list)			
		To bring undergraduate total to 194		
5	PIMG-890 Research	9 minimum		
	Masters Core Curriculum: Theory of the Photographic Process Mathematics Optics Image Evaluation Professional Electives (selected from graduate elective list)			
(Contact the CIS Director for details about the five-year BS/MS program)		To bring graduate total to 51		

Four Year BS program

Fourth Year BS/MS program

Fifth Year BS/MS program

+Upon successful completion of the second year, the associate in applied science degree is awarded.

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

School of Printing Management and Sciences

Miles F. Southworth, Director

The School of Printing Management and Sciences at Rochester Institute of Technology is the world's largest school specifically dedicated to developing managers, system engineers, newspaper production managers and computer scientists for the newspaper, magazine and printing 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. More than 500 students are enrolled in its bachelor's and master's programs.

The school's 25 laboratories represent the latest in technological advances in all areas of the printing industry. They occupy approximately 125,000 square feet, and the value of the printing equipment installed in these laboratories is over \$30 million. An installation of this magnitude can be 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, from which the students take one-half of their course work. Courses in engineering, computer science, business, mathematics, science and liberal arts are taken in close cooperation with the other colleges at RIT.

The primary objective of the School of Printing Management and Sciences is to prepare students—both men and women—for successful careers in printing, publishing, manufacturing and allied industries. Even though students get considerable experience operating the latest equipment, the emphasis is on learning "why" rather than "how to." Printing school graduates have successful careers in such areas as selling, manufacturing, production, quality control, estimating, research and design.

Programs in the school require study in a broad range of courses and at the same time allow the student to study special areas of interest in depth. All programs require students to take courses which help develop understanding and appreciation of the following areas— aesthetics, work flow, processes, paper flow, managerial principles, scientific principles, engineering applications, electronic principles/applications, materials, communications and human interaction. Liberal arts course work makes up the remaining part of the curriculum. It is intended to develop well-rounded and responsible citizens. Curriculum development is facilitated through the division of the School of Printing Management and Sciences into four administrative sections: aesthetics, imaging, press and management.

The School of Printing Management and Sciences offers four bachelor of science degree programs and a master of science degree program. The master's program was developed for students who have a bachelor's (not necessarily in printing). For more detailed information see the Graduate Bulletin. Some college graduates may wish to pursue a second BS in printing instead of an MS in printing technology because of the greater concentration of technical course work required by the BS degree. Such students must take about two years of course work in the technical areas.

Scholarship and financial aid
Competitive scholarships are offered through the National Scholarship Trust Fund of the Education Council of the Graphic Arts Industry. Anyone interested in applying for one of these scholarships should do so early in the senior year in high school, since the application must be filed in advance of the date set for 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

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 students' scholastic records. See the section on financial aid located near the front of this catalog.

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.

Cooperative program

The cooperative program is available to all printing students and is required for students in the Printing and Applied Computer Science Program, as well as the Printing Systems and Engineering Program. The intent of the cooperative program is to afford students the opportunity of enlarging and improving their college education by combining formal, classroom learning with practical work experiences. Printing students have a wide variety of graphic arts work experiences available to them.

Internships

A number of firms offer summer employment in selected areas to third-year students who are chosen competitively. These positions provide significant educational experience.

Course descriptions

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

Transfer credits

Students who have attended an accredited two- or four-year college will be granted the maximum possible amount of transfer credit.

Arrangements for possible transfer credit evaluation can be made by calling (716) 475-2443.

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 electives 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 Degree Program.

Even though each student is expected to use initiative in selecting elective courses, the four faculty sections administer optional program sequences to guide students toward specific career objectives.

Yr.	Printing Degree Program	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPRT-201 Typography I	3		
	PPRT-202 Composition Systems I		3	
	PPRT-203 Layout & Print Design I			3
	PPRT-206 Reproduction Photography			3
	PPRT-208 Lithographic Press			3
	Mathematics Sequence	4	3	3
	SCHG-281,282,283 Chemical Foundations I, II, III	3	3	3
	SCHG-281,282,283 Chemical Foundations I, II, III Lab	1	1	1
	*LiberalArts (English Composition)	4		
	*LiberalArts (Core)		4	4
	‡PhysicalEducation Electives.	0	0	0
2	PPRM-201 Intro. to Technical Writing	3		
	PPRM-210 Financial Controls I	3		
	PPRM-301 Applications of Computers in Graphic Arts			3
	PPRT-204 Flexography		3	
	PPRT-205 Gravure		3	
	PPRT-209 Screen Printing I		3	
	PPRT 312 Image Assembly			3
	Physics Sequence	4	4	4
	*LiberalArts (Core)	4	4	8
	‡PhysicalEducation Electives	0	0	0
3	PPRM-302 Personnel Relations I	3		
	PPRM-401 Estimating I	3		
	PPRM-403 Printing Production Management I	3		
	PPRM-509 Economics of Prod. Management			3
	PPRT-311 Planning & Finishing		3	
	PPRT-315 Ink & Color		4	
	PPRT-406 Color Separation Systems		3	
	PPRT-410 Properties of Paper			3
	Professional Electives		3	4
	SMAM-319 Data Analysis	4		
*LiberalArts (Concentration)	4	4	4	
4	PP Electronic Communication Systems	3		
	PPRT-500 Quality Control in Graphic Arts	3		
	Professional Electives	6	10	10
	*LiberalArts Electives (Senior Electives)	4	4	4
	*LiberalArts Electives Senior Seminar			2

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Aesthetic Section

James V. Mannino, Staff Chairman

An understanding and appreciation of design and typography is essential to critical analysis of a printed product. Printing management must have specific knowledge of these areas when dealing with advertising/sales promotion, publishing and commercial printing.

The Aesthetic Section provides courses germane to the interests of this part of the printing industry. Laboratories are equipped with state-of-the-art technology. Equipment ranges from computer-aided design, microcomputers to front-end systems with digital typesetters. The program incorporates traditional and historical concepts, providing the student with a firm background for application of current technology.

Introductory creative and composition courses are available for students pursuing diversified areas of concentration. Advanced courses

within the section are offered for those students specializing in the pre-camera area.

The faculty of the section places special emphasis on maintaining up-to-date curricula so that graduates meet the current as well as future needs of the industry.

The section provides for concentration in areas such as: book design and production, design and typography, and composition systems.

Courses within the design and typography area are structured for students interested in the aesthetics of printing. These courses include a broad range of subjects that are vital in the design of printed material; from calligraphy and typography to printing design and copy preparation.

Courses in the book design and production area are structured to give students background necessary to fill a variety of positions in the book publishing and manufacturing industries.

Imaging Section

Robert S. Tompkins, Staff
Chairman

Manipulation of images with sophisticated electronic systems, transmittal of type and pictorial material are some of the techniques applied to an emerging technology and which are taught by faculty members of the Imaging Section. State-of-the-art systems are used by students in five unique laboratories that provide an unparalleled educational experience.

Composition systems is structured for students interested in the technology of copy generation. From electronics to computer-generated typesetting, course work involves the study of technology and management of a systems approach.

Image assembly covers the technology previously referred to as "stripping". The former term is more descriptive of modern methods, since in some procedures stripping is eliminated. Because we are in a transition period, manual stripping as well as automated imposition systems and some electronic formatting are covered in this area.

Reproduction photography. This concentration of course work provides an opportunity for the student to specialize in the prepress functions related to line and half-tone photography, tone reproduction, electronic color scanning, and color reproduction. By combining required and elective course work in this area, the student will be prepared for sales, customer service, technical service representative, prepress manager, quality control, color reproduction specialist, scanner supervisor and other related management positions.

Electronic color imaging. A series of courses dealing in prepress technology for color reproduction make it possible for the student to become a color reproduction specialist, trained on the newest, state-of-the-art color control equipment located in the school's new Electronic Color Imaging Laboratory. Color theory and control are emphasized. The use of color scan-

ners, color proofing, and electronic color systems is included as preparation for, and leads to, exercises in color communication and color control.

Press Section

Walter G. Home, Staff Chairman

The production segment of the industry is the core area of most printing facilities. All managers in the industry, from design through delivery and in nonproduction areas, need a firm grasp of this core area if their decisions are to be valuable. This is the home area for the production manager in plants producing books, newspapers, forms or commercial printing. For these reasons, the Press Section offers courses in all the major printing processes, encompassing camera work, electronic imaging, image assembly, platemaking and gravure cylinder imaging, presswork, inks, substrates, binding, and finishing.

This section makes it possible for students to specialize in such areas as:

Lithographic technology. Students are given in-depth knowledge of concepts plus the ability to problem solve, thus enabling them to become effective managers in the lithographic process. The student is prepared for positions such as technical service representatives, production scheduling, quality control analysis, and technical sales.

Flexographic technology. Courses make it possible for students to become flexographic specialists. This specific technical knowledge, plus the foundation management courses, prepare students for a variety of positions in management in the flexographic industry.

Gravure technology. Students who wish to specialize in the area of gravure printing may combine required and elective courses which provide a strong foundation in all of the technical aspects of this printing process. This, coupled with appropriate management courses, prepares the students for positions in management in the gravure industry.

Screen printing technology. This printing process receives good exposure as a result of specific technical courses, both required and elective. The student can become a technical specialist in all phases of the screen printing process and is thus prepared to accept challenging positions in management in this special part of the printing industry.

Planning and finishing systems. Knowledge of good printing production planning, from design to finish, is essential for all those who must deal with graphic arts products. Students are exposed to the importance of preparing production specifications for image assembly, printing and finishing. Economic and quality considerations as well as mechanical limitations are carefully analyzed as they can mean the difference between success or failure.

Finishing and distribution are the most labor-intensive tasks in any printing environment. Knowledge of how to manage these tasks with modern tools and electronics will give a graduate special advantages in successful printing management.

Management Section

W. Frederick Craig, Staff
Chairman

To facilitate a high-level decision-making process, management personnel in the graphic arts need to have a clear understanding of the interrelationships that exist among the marketing, financial, personnel, and production segments of the industry. To this end, the Management Section offers course work in these areas. In collaboration with other sections, the Management Section provides the means for shaping future managers in the graphic arts. The section offers these concentrations.

Estimating. Estimating is at the heart of the successful economic well-being of the printing industry. Accurate job costing and analysis can mean the difference between success and failure for any printing

concern. This sequence prepares students for positions found in every segment of the industry from commercial printing through packaging and specialized forms manufacturing.

Computer applications. Computers are of increasing importance to the printer as they can perform the usual business data-processing tasks as well as more specialized applications ranging from typesetting to process control. This sequence is designed to provide students with a basic understanding of computers and their potential in production management.

Financial management. This sequence utilizes courses in both the School of Printing and the College of Business. Students prepare themselves for the financial aspects of managing a graphic arts business.

Personnel management. Drawing heavily on courses in the College of Liberal Arts, the sequence prepares students for positions in personnel management, labor relations, and other positions where the ability to work closely with individuals is of prime importance.

Production management. Students in this sequence are prepared to enter all phases of printing dealing with production problems in the commercial printing industry as well as in the newspaper, book, and magazine publishing industries. Management positions evolving from this sequence are that of scheduler, assistant production manager, and production manager.

Sales-marketing. This sequence prepares students for positions in printing sales and marketing and printing equipment or supply sales as well as positions as technical representatives for graphic arts supply firms and as printing buyers and brokers.

Career opportunities

The graduate with a BS degree in printing has available a wide variety of technical and management positions in printing and related industries. Among these are positions in administration and general management, production and quality control, sales, estimating, cost and

financial control, process and plant development, graphic design, newspaper production management, and graphic arts research. A variety of positions in commercial printing, packaging, and service industries and in the book, newspaper, and magazine publishing industries are available to graduates.

The two-year portion of the program is for those who wish to enter employment after two years of college study. Graduates of this program obtain employment as assistants in such classifications as estimating, production control, specification writing, purchasing, copy preparation, typography and layout, and sales.

Special requirements for admission

Overall requirements for admission are given in the general information section of this bulletin. In addition, it is important that an applicant have an interest in printing courses, which may be shown by success in high school printing courses, by extra-curricular activities in connection with a school newspaper or yearbook, by employment in a printing establishment, or by gaining an idea of the activities and opportunities of the field through investigation of personal associations. While high school graduation is stated as a basic requirement for admission, with intermediate algebra and one year of science as specific prerequisites, it is highly recommended that students take as much mathematics and science as possible in high school.

Math/science sequences

Each student must take 13 or 14 credits of college mathematics as required by the School of Printing Management and Sciences. Nine or 10 of these mathematics credits are earned in the freshman year, and placement will be determined through testing and a review of the student's academic background.

With departmental approval a student may substitute a higher level math sequence. Preparatory math courses will be available if the need for them exists.

The first-year science sequence must be Chemical Foundations I, II, III (SCHG-281, 282, 283) and the accompanying lab (SCHG-285, 286, 287). The second-year science sequence must be College Physics

(SPSP-211, 212, 213). However, with departmental approval students can substitute a higher level chemistry or physics sequence.

Liberal arts electives

In general, the program requires that the student take at least one course per quarter from this area, which includes such subjects as economics, psychology, logic, ethics, language, communications, literature, and fine art appreciation.

Professional electives

These are usually selected from the printing management and technology electives listed below, but many also include courses from the College of Business or Engineering or other colleges in the Institute if the subject matter is approved as relevant to the student's needs.

The following electives supplement required courses. Students elect courses to suit their individual interests and objectives and to meet the credit requirements of the printing program. Selection is subject to prerequisite requirements and availability of courses.

Printing electives

Printing Management

- PPRM-320 Intro to Magazine Publishing **8c** Management (Cr-3)
- PPRM-402 Estimating II (Cr-4)
- PPRM-404 Printing Production Management II (Cr-4)
- PPRM-502 Financial Controls II (Cr-4)
- PPRM-506 Business Law (Cr-3)
- PPRM-507 Computer Estimating Workshop (Cr-4)
- PPRM-509 Economics of Production Management (Cr-4)
- PPRM-510 Personnel Relations II (Cr-4)
- PPRM-511 Labor Relations in Graphic Arts (Cr-4)
- PPRM-512 Collective Bargaining in the Graphic Arts (Cr-3)
- PPRM-513 Sales in the Graphic Arts (Cr-4)
- PPRM-514 Newspaper Management (Cr-4)
- PPRM-515 Legal Problems of Publishing (Cr-4)
- PPRM-516 Marketing in Graphic Arts (Cr-4)
- PPRM-518 Purchasing in the Graphic Arts (Cr-4)
- PPRM-599 Independent Study (Cr-arranged)

Printing Technology

- PPRT-210 Newspaper Presses
 - PPRT-213 Principles of Copy Preparation (Cr-3)
 - PPRT-301 Typography II (Cr-4)
 - PPRT-303 Layout and Printing Design (Cr-4)
 - PPRT-306 Tone Reproduction and Halftone Analysis (Cr-3)
 - PPRT-308 Litho Press Problems (Cr-4)
 - PPRT-309 Screen Printing II (Cr-3)
 - PPRT-313 Copy Preparation (Cr-4)
 - PPRT-314 Advanced Flexography (Cr-3)
 - PPRT-315 Ink and Color (Cr-4)
 - PPRT-317 Calligraphic Forms (Cr-3)
 - PPRT-319 Newspaper Design (Cr-3)
 - PPRT-320 Newspaper Production I (Cr-3)
 - PPRT-321 Web Offset (Cr-3)
 - PPRT-322 Circulation and Mailrooms (Cr-3)
 - PPRT-329 Introduction to Book Design (Cr-3)
 - PPRT-330 Newspaper Production II (Cr-3)
 - PPRT-333 Introduction to Book Production (Cr-3)
 - PPRT-335 The Printed Book in America (Cr-3)
 - PPRT-401 Typographic Workshop (Cr-4)
 - PPRT-403 Layout and Printing Design (Cr-4)
 - PPRT-406 Color Separation Systems (Cr-3)
 - PPRT-500 Quality Control in the Graphic Arts (Cr-3)
 - PPRT-501 Development of Printing Types (Cr-3)
 - PPRT-506 Electronic Imaging and Color Control (Cr-3)
- Other electives to be selected in consultation with advisors.

Printing Systems and Engineering

Walter A. Campbell, Coordinator

A program combining course work in industrial engineering and printing

Few industries use the variety of processes that graphic communications reproduction does. Almost every stage in the reproduction of graphics in tangible form can be done by hand-craft methods, machine assistance, or full automation. Eight to 10 basically different methods, not counting crayons or lasers, are commonly used to put ink on paper and each of these methods has numerous variations and combinations. Further, recent developments in electronics facilitate interconnections between

printing and electronic media. Some printing firms are going into other media while some other media firms are acquiring printing plants. The firms that thrive will be those who make good choices from alternative technologies and organize them effectively and efficiently.

The Printing Systems and Engineering program educates young men and women to meet those challenges and become the movers and shapers of the graphic reproduction industries in the coming decades. These industries exemplify Naisbitt's description in *Megatrends* of people's need for high-touch along with the use of high-tech devices. Although printers use equipment adapted from high-tech military weaponry, they are in a service business in which customers and craftsmen both need proper stroking.

Yr.	Printing Systems and Engineering Program	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	A program combining course work in Industrial Engineering and Printing			
	PPRM-403 Printing Production Management	3		
	PPRT-213 Principles of Copy Preparation	3		
	Professional Electives		6	6
	SCHG-208, 209 College Chemistry	4		4
	SMAM-251, 252, 253 Calculus	4	4	4
	*LiberalArts (English Composition)	4		
	*LiberalArts (Core)		8	4
	‡PhysicalEducation Electives	0	0	0
2	EIEI-202 Computing for Industrial Engineers		4	
	PPRM-502 Financial Controls II			4
	PPRM-511 Labor Relations in the Graphic Arts	4		
	SMAM-305 Calculus IV	4		
	SMAM-351, 352 Probability, Applied Statistics I		4	4
	SPSP-311, 312 University Physics	4	4	4
	SPSP-375, 376, 377 University Physics Lab	1	1	1
	*LiberalArts (Core)	4	4	4
	‡PhysicalEducation Electives	0	0	0
3	EIEI-401 Introduction to Operations Research I	4		
	EIEI-420 Work Measurement & Analysis I	4		
	PPRM-201 Introduction to Technical Writing	3		
	*LiberalArts (Concentration)	4		
	EIEI-415 Human Factors I			4
	EIEI-422 Systems & Facilities Planning			4
	Professional Elective			3
	*LiberalArts (Concentration)			4
4	PPRM-401 Estimating 1	3		
	PPRT-315 Ink and Color	4		
	Professional Elective	3		
	*LiberalArts (Concentration)	4		
	EIEI-503 Simulation			4
	EIEI-511 Applied Statistics II			4
	EIEI-550 Safety Engineering			4
*LiberalArts (Elective)			4	
5	PPRM-000 Printing Theory	4		
	Professional Electives	6		
	*LiberalArts (Elective)	4		
	Liberal Arts (Senior Seminar)	2		
	EIEI-482 Production Control			4
	PPRM-415 Advanced Ink and Color			4
	Professional Elective			3
	*LiberalArts (Elective)			4

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

The curriculum in printing systems and engineering features strong courses in both printing and industrial engineering. Printing courses provide depth and breadth in technology as well as important studies in managing and working with people. Industrial engineering courses deal with design and installation of integrated systems of people, materials and equipment. RIT's industrial engineering courses heavily involve computer applications for such things as plant layout, process development and control of manufacturing systems with robots and conveyors. Elective courses meet students' individual interests. Importantly, half of the credits required for this degree are in liberal arts, mathematics and science.

Students attracted to this program enjoy college preparatory mathematics and science in high school. 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 mathematics.

Transfers into the program from junior college engineering science programs or comparable majors are encouraged. 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.

Cooperative employment is required in this program for at least four quarters. Students may make employment arrangements through their co-op coordinator in RIT's Office of Cooperative Education and Placement.

Job prospects after graduation include not only positions in the printing industrial engineering specialty area but also all positions open to any other School of Printing Management and Sciences graduate, except for those specializing in art and design, and many in the general field of industrial engineering. More than 10,000 printing companies in America need the services of printing systems and engineering specialists. Graduates of the program have started their careers in printing with above-average salaries.

Newspaper Production Management

Dr. Robert G. Hacker,
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 shall 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 steer this changing industry. Graduates of the newspaper production 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 Production Management Program	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	PPRM-302 Personnel Relations I			3
	PPRM-310 Industrial Organization & Mgmt		3	
	PPRT-202 Composition Systems I	3		
	PPRT-204 or 205 Flexography or Gravure		3	
	PPRT-206 Reproduction Photography	3		
	PPRT-208 Lithographic Press	3		
	PPRT-302 Composition Systems II		3	
	PPRT-319 Newspaper Design			3
	PPRT-320 Newspaper Production I			3
	Mathematics Sequence	3 or 4	3	3
	*LiberalArts (English Composition)	4		
*LiberalArts (Core)		4	4	
	0	0	0	
2	PPRM-201 Intro to Technical Writing			3
	PPRM-210 Financial Controls		3	
	PPRM-301 Appl. Computers in Graphic Arts	3		
	PPRM-420 Electronic Communication in Prt./Publ. I		4	
	PPRT-306 Tone Reproduction & Halftone Analysis	3		
	PPRT-322 Circulation & Mailroom		3	
	PPRT 330 Newspaper Production II			3
	SCHG-281, 282, 283 Chemical Foundations I, II, III	3	3	3
	SCHG-285, 286, 287 Chemical Foundations I, II, III Lab	1	1	1
	Professional Elective			3
	*LiberalArts (Core)---	8	4	4
‡PhysicalEducation Electives	0	0	0	
3	PPRM-509 Economics of Production Management	4		
	PPRM-514 Newspaper Management		4	
	PPRT-210 Newspaper Presses		3	
	PPRT-323 Newspaper Color		3	
	SMAM-319 Data Analysis	4		
	Professional Elective			3
	Science Option	4	4	4
*LiberalArts (Concentration)	4	4	4	
4	PPRM-511 Labor Relations in Graphic Arts	4		
	PPRM-515 Legal Problems in Publishing		4	
	PPRM-520 Systems Planning		4	
	PPRT-500 Quality Control in Graphic Arts			3
	Professional Electives	8	4	8
	*LiberalArts (Electives)	4	4	4
*LiberalArts (Senior Seminar)			2	

*See page 122 for Liberal Arts requirements.
‡See page 177 for policy on Physical Education.

They must be prepared in both the new technology and in the ability to steer 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 developing 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 production management.

Career opportunities

The graduate with a BS degree in newspaper production management has numerous career choices within the newspaper industry. Many young people find entry positions as production assistants, assistant production managers, 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 publisher. 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 on a school newspaper, 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.

Program of study

The School of Printing Management and Sciences offers a four-year course of study leading to a bachelor of science degree in newspaper production management. The newspaper industry is large; 383,000 people in 8,200 establishments producing more than 1,700 dailies and 7,400 weeklies. *The U.S. Industrial Outlook* says of the newspaper industry, "The continuing development and the implementation of new technologies, successful research efforts and educational programs will support a growth rate ranging between seven and eight percent per year to the mid-80s."

The program stresses management, engineering, sciences, computer printing technology, along with liberal studies.

Math/science sequences

Each student must take 13 or 14 credits of college mathematics as required by the School of Printing Management and Sciences. Nine or 10 of these mathematics credits are earned in the freshman year, and 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.

The second-year science sequence, must be Chemical Foundations I, II, III (SCHG-281, 282, 283) and the accompanying lab (SCHG-285, 286, 287). However, with departmental approval students can substitute certain other college chemistry sequences. The third-year recommended science sequence—to be chosen after consulting with the coordinator of the program—is a series of computer courses.

Liberal arts electives

In general, the program requires that the student take at least one course per quarter from this area, which includes subjects such as economics, psychology, logic, ethics, language communications, literature, and fine arts appreciation.

Professional electives

These are usually selected from the electives listed below, but may also include any other School of Printing Management and Sciences course. 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.

Recommended professional electives:

PPRM-516 Marketing in the Graphic Arts
PPRT-506 Electronic Imaging and Color Control
PPRM-540 Electronic Communications in Printing and Publishing III
PPRM-702 Computers in Management

Printing and Applied Computer Science

William H. Birkett, 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, RIT's School of Printing Management and Sciences, in cooperation with the School of Computer Science and Technology, established the printing and applied computer science program for students who want to combine both fields.

Career opportunities

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. These latter jobs are all stepping stones to top management opportunities.

Requirements for admission
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.

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.

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.

The cooperative plan of study is required in the School of Printing Management and Sciences for students choosing this program. Graduates of two-year colleges are encouraged to transfer into the four-year program. Transfer students find that many of their two-year college credits are applicable toward the four-year degree. The

Yr.	Printing and Applied Computer Science	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	A program combining course work in Computer Science and Printing.			
	PPRM-210 Financial Controls I	3		3
	PPRM-301 Appl. Computers in Graphic Arts			
	PPRT-201 Typography I	3		
	PPRT-202 Compositions Systems 1	3		
	PPRT-204 or -205 or -209 Flexography or Gravure or Screen Printing I		3	
	PPRT-206 Reproduction Photography		3	
	PPRT-208 Lithographic Press		3	
	PPRT-213 Principles of Copy Preparation			3
	PPRT-312 Image Assembly			3
	SMAM-251, 252, 253 Calculus	4	4	4
	*LiberalArts (English Composition)	4		
*LiberalArts (Core)		4	4	
	0	0	0	
2	ICSP-241 Programming I—Algorithmic Structures	4		
	ICSP-242 Programming II Data Structures		4	
	ICSP-243 Programming III Design and Implementation			4
	PPRT-311 Planning & Finishing	3		
	SMAM-305 Calculus IV	4		
	SMAM-351, 352 Probability & Applied Statistics I		4	4
	SPSP-311, 312 University Physics		4	4
	SPSP-375, 376 University Physics Lab (Optional)i		1	1
	*LiberalArts (Core)	8	4	4
	0	0	0	
3		FALL		SPG.
		WTR.		SMR.
	ICSP-305 Assembly Language & Programming	4		
	ICSS-315 Digital Computer Organization	4		
	PPRM-201 Intro. to Technical Writing	3		
	*LiberalArts (Concentration)	4		
	ICSS-325 Data Organization & Management			4
	ICSS-420 Data Communications Systems			4
PPRM-403 Printing Production Management 1			3	
*LiberalArts (Concentration)			4	
4	†ICSS-521 Microprocessors and Microcomputers	4		
	PPRM-302 Personnel Relations I	3		
	PPRT-500 Quality Control in Graphic Arts	3		
	Professional Elective	3		
	*LiberalArts (Concentration)	4		
	†ICSS-565 Computer Systems Selection			4
	PPRT-315 Ink & Color			4
	†PPRT-406 Color Separation Systems			3
*LiberalArts (Elective)			4	
5	†ICSS-570 Intro. to Computer Graphics	4		
	PPRM-401 Estimating I	3		
	Professional Elective	3		
	*LiberalArts (Elective)	4		
	*LiberalArts (Senior Seminar)	2		
				3
	Professional Electives			8
*LiberalArts (Elective)			4	

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

†Other approved upper level courses may be substituted giving depth rather than breadth, to most individual needs, with approval of the program curriculum management team.

first-year curriculum of this program and that of the printing systems and engineering 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.

Liberal arts electives

In general, the program requires that the student take at least one course each quarter from this area, which includes such subjects as economics, psychology, logic, ethics, language, communications, literature, and fine arts appreciation.

College of Liberal Arts

Liberal Education in The Humanities and Social Sciences

Dr. Mary C. Sullivan, R.S.M., Dean

The College of Liberal Arts provides each student with a program of liberal education which develops his or her potential as an intellectually aware and responsible human being. It is, therefore, the foundation for the student's entire educational experience. As part of that broader experience which may be called the student's general education, this program of liberal education is distinguishable from the student's professional education in that its purpose is to nurture not specifically professional knowledge or skill, but each student's capabilities as a thinking, creating, and responsible person. Thereby enriched, RIT students will be all the better prepared for their professions and their lives, for they will be able to understand and interpret the problems, as well as the personal and social illuminations, found in the study of the many varied fields of human endeavor.

The program of the College of Liberal Arts, in which all RIT students participate, aims to accomplish the following goals with and on behalf of each RIT student:

- 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 understanding 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 understanding 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 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 with the humanistic studies of the other Liberal Arts divisions is an example of what the college is endeavoring to do throughout its curriculum, that is, to demonstrate the interrelation of all fields of learning.

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 the student and continuing growth in their scholarly fields.

The New Liberal Arts Curriculum

The new curriculum of study in the humanities and social sciences which all RIT students will 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 will complete this entire Liberal Arts curriculum or a modification of it, as applicable to their particular degree programs. Faculty academic advisors in the College of Liberal Arts and in other colleges of the Institute will assist students in interpreting the Liberal Arts curriculum as it applies to their particular degree program. The new Liberal Arts curriculum as outlined here was approved in March 1981 and was implemented for all RIT students beginning in September 1982. Liberal Arts policy requires that a student who is re-applying to an RIT degree program following inactive student status must complete the current Liberal Arts requirements regardless of the initial entry term.

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 electives (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
 General 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:**
 - a. three interdisciplinary courses on a single broad theme or topic;
 - b. three related courses from different disciplines each one of which speaks to some aspect of a common area, subject, or topic;
 - c. a mixture of a. and b.

A concentration is composed of three courses chosen from the four to eight courses that make up the concentration. 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: Human Growth and Development
 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 believed to represent an

important realm of interdisciplinary learning for educated persons. Each of these interdisciplinary concentrations will consist of four to eight 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

In the future additional Interdisciplinary Concentrations will be available.

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:

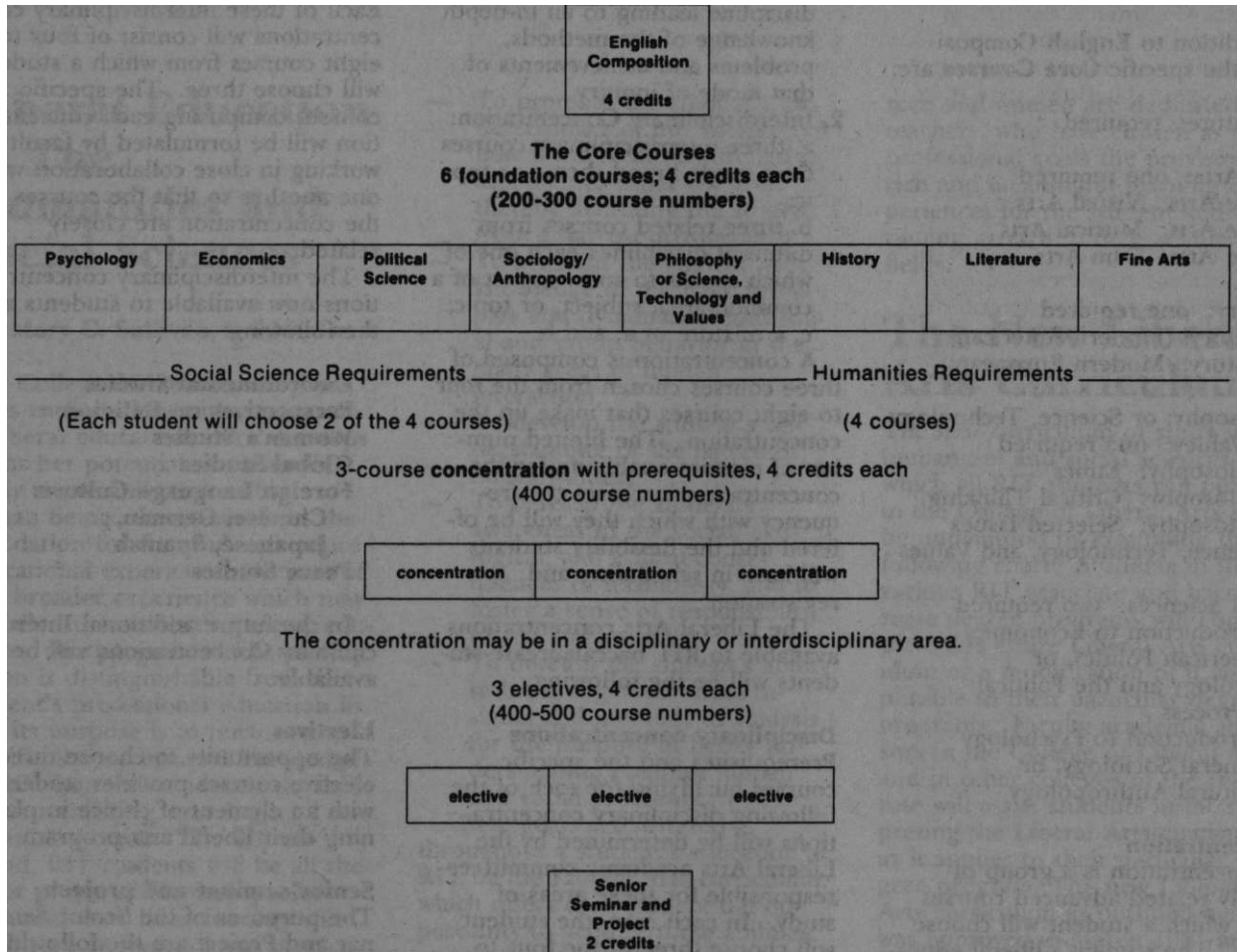
- to give senior students the opportunity to prepare theses or projects that call for analysis and synthesis and for the application of their Liberal Arts experience, to major issues that may affect their professional careers;
- to provide seminars for all senior students on a general theme related to their required thesis or project;
- 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 what activities are open to students, see page 176.

The Liberal Arts Curriculum



Implementation of the New Liberal Arts Curriculum

Academic advising

Liberal arts requirements will 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 Office of Academic Advising, which is located on the second floor of the liberal arts building, offers assistance in the planning and selection of appropriate liberal arts courses. Faculty advisors and 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 Office of Academic Advising.

Additionally, those students who are enrolled in liberal arts degree programs will be assigned faculty advisors through their specific departments. These advisors will 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 ar-

range appointments with their faculty advisors during regularly scheduled office hours.

Part-time students and evening programs and courses

The College of Liberal Arts offers evenings and Saturdays a full range of 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 Office of Academic Advising (475-6987) or the college scheduling officer (475-2448) for assistance in selecting and registering for courses. Both offices are located on the second floor of the College of Liberal Arts and are open 9 a.m. to 8:30 p.m., Monday through Thursday, and 9 a.m. to 3:30 p.m. on 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. 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 of credit*. Further, all courses meet at least three scheduled class hours each week. The discrepancy 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 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. 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, or by requesting the Summer Bulletin from the College of Continuing Education or RIT Office of Admissions
One Lomb Memorial Drive
P.O. Box 9887
Rochester, New York 14623

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 Mathematics 1 year Any Science 1 year	Social Sciences Humanities, e.g. History Government Economics	Junior standing is offered for an associate's degree in human services or in another appropriate major. Holders of Liberal Arts or other two-year degrees are also 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 coursework elsewhere.
Economics	English 4 years Elem. Algebra Plane Geometry Inter. Algebra	Additional Mathematics Science courses Social Science and History Courses	Holders of Liberal Arts degrees with appropriate coursework in economics, mathematics, and computer science are admitted to the program, and transfer credit is given to the fullest extent possible.
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 full 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 A 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.

* Pending state approval

College of Liberal Arts: Degree Programs

General Information on RIT's admission requirements, procedures and service is included in detail on page* 153-154 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

Dr. Patricia Carter, 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 delve into studies 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 Field Research 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 up to 50 percent of their professional electives from other designated colleges in the Institute and are thus able to develop an additional concentration in a related professional area applicable to their career goal.

'BACHELOR OF SCIENCE IN CRIMINAL JUSTICE	
Required 1st & 2nd year Courses GCJC-201 The Criminal Justice System GCJC-203 Criminology GCJC-207 Corrections GCJC-303 Law Enforcement in Society GCJC-204 Public Administration GCJC-301 Concepts of Criminal Law GCJC-304 Judicial Process GCJC-309 Juvenile Justice English Composition Literature Fine Arts History 1 of the following Science & Humanities: — Science, Technology and Values — Philosophy 2 of the following Social Sciences: — Economics — Psychology — Sociology/Anthropology — Political Science 2 Science 2 Mathematics 1 Computer Science 6 Physical Education Courses	Required 3rd & 4th year Courses GCJC-401 Scientific Methodology GCJC-411 Seminar in Corrections GCJC-526 Seminar in Law Enforcement GCJC-528 Etiology of Crime GCJC-403 Field Experience GCJC-404 Field Experience Seminar GCJC-541 Field Research GCJC-514 Planning & Change 3 Liberal Arts Electives 3 Liberal Arts Concentration Courses 1 Liberal Arts Senior Seminar
Required Electives taken throughout 4 years	
8 Professional Electives 3 Non-designated Electives 2 Open Electives	

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.

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
- Advanced Criminal Law
- Legal Aspects of Security

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
- Institutional Security
- Physical Security and Safety
- Retail Security
- Computer Crime
- Security Management
- Legal Aspects of Security
- 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.

The BS Degree Program In Social Work

Dr. Marshall L. Smith, Program Chairperson

Established in 1971 and fully accredited by the Council on Social Work Education, RIT's baccalaureate social work program provides an innovative humanistic program and a strong socially conscious faculty set against the background of one of the most technologically modern educational institutions in the country, with a state-of-the-art computer network available to all students.

RIT's program in social work is known for an unusually wide selection of professional courses, the opportunity to select specific practice areas as electives and a full-time intensive field instruction internship. Each social work student is assigned a faculty advisor to assist her or him with academic planning and career guidance throughout the course of study.

We believe that the social worker has a crucial role in the process of social change. Fifty percent of all social welfare jobs in this country are filled by trained social workers. The other 50 percent are filled by people without professional training in social work. The public is aware of the publicity given to untrained workers, but does not distinguish between them and professional social workers. We prepare students to practice in this challenging environment and to represent themselves and their profession clearly. We believe that social work education should prepare the student to confront social issues in a professional manner.

Social workers have a dual role in society: to directly serve the needs of individuals, families, groups, organizations and communities; and to work on behalf of such clients by intervening in the larger society to effect change in policies, legislation and broad social issues.

Focus on careers

We primarily prepare students to enter immediately into meaningful and rewarding roles in governmental and voluntary social agencies. RIT's achievement in career placement of our graduates is outstanding.

We also prepare students to enter graduate education with a decided advantage. RIT social work graduates receive advanced standing at over half of the accredited graduate schools of social work in the country. This means they can complete a two-year master's degree program in only one year of study. Many of our graduates go on to graduate school, most in social work, but others in law, counseling, education, and management.

Field instruction

During the senior year, students complete an internship in a social agency, supervised by a professional social worker and integrated with supporting academic courses. Students learn to apply all the knowledge, skills and values acquired in their education toward the resolution of difficult social problems.

The program works with more than 100 agencies to ensure that students can select settings most in keeping with their career goals.

The social work curriculum includes systematic involvement with RIT's Center for Cooperative Education and Placement at appropriate times to assist students in developing professional skills in resume preparation, career planning strategies and placement interviewing.

During two academic quarters, students spend 30 hours per week in an agency setting. Supporting course work will focus on sharpening students' practice and intervention methods, use of the supervisory process, management of social services, the application of information technology and the integration of action research, program evaluation and community needs assessment strategies with practice.

Students may choose to continue their placement beyond this already extensive period to as long as one year with appropriate academic credit and the potential for being paid during this experience.

RIT social work students have an opportunity to provide direct services to clients during their field instruction. Some have become involved in family support counseling, advising pregnant adolescents, helping children with emotional problems, intervening on behalf of clients in Family Court, working with alcohol and substance abusing people, or in ombudsperson roles in the Attorney General's Office.

While in field instruction each student is taught by a social worker within the agency. The student is also supervised by a faculty member, and each week students in field instruction meet for seminars on campus to evaluate experiences and to assess their developing professional skills.

The social work core curriculum The social work curriculum develops an understanding of the human condition, especially of the people in our society who are poor, disabled, emotionally disturbed, victims of discrimination, chronically ill, aged or in other conditions of human or social distress.

Social work students progress through a sequence of methods courses that introduce them to the concepts of generalist practice and teach the fundamental skills needed to work successfully with individuals, groups and the community in the solution of problems and the resolution of conflict. Methods courses instruct in the various techniques of attending and observing, interviewing, relationship building, assessing problems, developing alternative solutions, selecting appropriate goals and plans of action, motivating client systems toward goals, and the evaluation of progress.

The RIT Social Work Program 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, or political or sexual orientation.

Professional electives

Social work students at RIT have the opportunity to sample from a broad array of professional electives or to select several related courses in a specific area of social work practice. This allows those who have identified an interest in one of these areas to prepare for future employment in a specific field of practice.

Students may choose professional electives in that area and may select a field placement in an agency offering services in that special field. Further, students are given the opportunity to do their final professional integration paper in

the area of interest.

The primary professional electives available to social work students are as follows.

• Deafness and disabilities

Several courses designed to develop a student's ability to work with disabled people, especially hearing-impaired persons, by drawing upon a fundamental understanding of disabilities, knowledge and skills in communication, knowledge of functional and psychosocial aspects of deafness and knowledge of and skill in utilizing resources.

The RIT Social Work Program is the only permanently integrated social work education program for hearing and deaf students in the world. The opportunities to apply generalist social work practice principles to this population are extensive and varied in our mainstreamed environment. The National Technical Institute for the Deaf at RIT also offers an associate degree in interpreting for the deaf. In addition, we have a cooperative relationship with the State University of New York at Buffalo School of Social Work, which offers the MSW degree with a concentration in deafness.

• Services to families and children

Courses designed to give the student a familiarity with the total range of services to families and children, such as preventive services, child protective services, adoption, foster care and mental health services.

• Alcoholism and employee assistance

A series of courses addressing the problems of alcoholism in the societal context, and especially in relation to troubled employees in the work place. Emphasis is on methods of intervention with clients, modalities of treatment, and other issues related to the dependent user, the family, the work place and the community.

• Aging

Courses which address issues of understanding and working with the elderly, the fastest growing population in the years ahead. The courses cover psychological and physiological aspects of aging, special problems of the elderly.

Yr.	BS IN SOCIAL WORK: FOUR-YEAR CURRICULUM	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	0516-210 The Professional Social Work Role	4		
	0516-212 Self-Awareness in the Helping Role		4	
	0516-216 Community Services I			
	0516-217 Community Services II			4
	0514-440 Human Growth and Development		4	
	0515-210 Foundations of Sociology			
	0507-547 History of Social Discrimination			4
	Five Liberal Arts Core Courses ‡Physical Education		4	4
2	0516-302 History of Social Welfare	4		
	0516-211 Structure & Function of Social Welfare		4	
	Two Professional Electives			8
	0515-526 Hispanic American Culture	4		
	0515-527 Black Culture		4	
	1004-211 Human Biology I		4	
	1004-212 Human Biology II			
	1016-204 College Math: Algebra/Trigonometry Two Liberal Arts Core Courses One Liberal Arts Elective ‡Physical Education		4	4
3	0516-215 The Family from a Social Work Perspective	4		
	0516-356 Group Theory in Social Work		4	
	0516-534 Computer Applications to SW Research			
	0516-315 Assessing Community Needs			4
	0516-411 Interviewing & the Helping Relationship			4
	Two Professional Electives	4	4	
	1016-319 Data Analysis			4
	Two Liberal Arts Electives Two Liberal Arts Concentration Courses	4	4	4
4	#0516-421 Field Instruction I	4		
	0516-412 Assessment and Problem-Solving	4		
	0516-433 The Supervisory Process	4		
	0516-535 Advanced Social Work Research	4		
	#0516-422 Field Instruction II		4	
	0516-413 Social Intervention		4	
	0516-434 Managing Community Services		4	
	0516-533 Policy and Planning Processes			4
	0516-532 Professional Seminar			4
	One Liberal Arts Concentration Course 0520-501 Liberal Arts Senior Seminar			2

Full-time placement in a social work agency
‡ See page 177 for policy on Physical Education.

Yr.	BS DEGREE IN SOCIAL WORK: TRANSFER CURRICULUM	Otr. Credit Hours			
		SMR.	FALL	WTR.	SPG.
3	0516-210 The Professional Social Work Role		4		
	0516-302 History of Social Welfare		4		
	0516-215 The Family from a Social Work Perspective —		4		
	0516-356 Group Theory in Social Work			4	
	0516-534 Computer Applications to SW Research			4	
	0516-315 Assessing Community Needs				4
	0516-411 Interviewing & the Helping Relationship				4
	1004-212 Human Biology II				4
	1016-319 Data Analysis				4
	One Professional Elective One Liberal Arts Elective One Liberal Arts Concentration Course	4		4	
4	#0516-421 Field Instruction I		4		
	0516-412 Assessment and Problem Solving		4		
	0516-433 The Supervisory Process		4		
	0516-535 Advanced Social Work Research		4		
	#0516-422 Field Instruction II			4	
	0516-413 Social Intervention			4	
	0516-434 Managing Community Services			4	
	0516-533 Policy and Planning Processes				4
	0516-532 Professional Seminar				4
	Two Professional Electives Two Liberal Arts Electives Two Liberal Arts Concentration Courses 0520-501 Liberal Arts Senior Seminar	4 8 4			4 4 2

Full-time placement in a social work agency
‡ See page 177 for policy on Physical Education.

erly and services specifically designed for them. Included are discussions of mental health, disability, nutrition, loneliness, finances, drug usage and other relevant topics.

- **Legal social work**
Provides the student with an introduction to basic concepts of law. This knowledge is explored in relation to generalist social work practice.
- **Information technology**
A series of courses involving the emerging field of information technology and the application of computers to the practice of social work. Includes exposure to computer languages, development of skills in one such language, use of software packages relevant to social work, exploration of the ethics of computer use and other topics of special professional interest to the social work student.
- **Management and supervision**
Designed to provide the basic skills, knowledge and attitudes relating to the management process in social work. The courses enable the student to understand the management role of the social worker and to gain practice in supervision and directing the professional work of others.

BS in Economics Program

Dr. Donald Eilenstine, Program Chairperson

The BS in economics degree program addresses the need for graduates who are well versed in economic analysis and at the same time have several identifiable skills. A graduate possessing these skills and abilities will be exceptionally well suited for employment positions involving quantitative economic analysis.

Curriculum

Students will take courses in economics which are specifically designed to develop the ability to apply economic analysis to real world problems. In addition, the economics program requires the student to take courses that develop specific skills, including oral and written communication skills, computer literacy, application of quantitative methods, multi-disciplinary reasoning, and knowledge of the business

environment. A graduate of the program will possess the ability to integrate these skills and engage in all aspects of problem solving from initial conceptualization of an analytical framework to communicating the quantitative results of the investigation.

The program involves students in hands-on, experiential learning. In the advanced economics courses, students must draw upon training from previous courses and apply this knowledge to case studies taken from real-life situations involving economic analysis. The BS in economics program also allows for a cooperative education option, which permits students to work in positions requiring their applied economic expertise.

Requirements for the BS in economics degree
Students earning a BS in economics will be required to complete 190 quarter credit hours of course work. The 190 credit hours include 44 credit hours of required economics courses in the College of Liberal Arts. The required eco-

Vr.	BS DEGREE IN ECONOMICS	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	GSSE-301, 302, 303 Principles of Economics I, II, III	4	4	4
	SMAM-225, 226 Algebra and Calculus for Management Science OR SMAM-204, 214 College Algebra & Trigonometry and Introduction to Calculus I	4	4	
	BBUA-301, 302 Financial and Managerial Accounting		4	4
	Science Requirement		4	4
		8		4*
	0		‡	
2	GSSE-523 Monetary Analysis and Policy		4	
	BBUQ-334 Management Science			4
	ICSS-200 Survey of Computer Science	4	4	
	ICSA-208 Introduction to Programming			4
	ICSA-210 Program Design and Validation			
	BBUQ-330 Data Analysis	4	4	
	GSSE-528 Applied Econometrics		4	4
GLLC-440 Human Communication			4	
	8	4	4*	
	0			
3	GSSE-520 Intermediate Price Theory	4		
	GSSE-521 Intermediate Macroeconomic Theory		4	
	GSSE-526 Research Methods for Economics			4
	GSSP-501 Industrial Psychology			4
	GSSS-443 Work and Society		4	
	BBUF-441 Corporate Finance	4		
	Electives	4	4	4
* Liberal Arts (Concentration)	4	4	4	
4	GLLC-558 Technical Writing	4		
	GSSE-524 Industrial Organization		4	
	GSHN-444 Social Consequences of Technology OR GSHH-440 United States: Its People & Its Institutions			4
	GSSE-522 International Trade and Finance	4		
	GSSE-527 Seminar in Applied Economics			4
	Electives		8	4
	* Liberal Arts (Electives & Senior Seminar)	6	4	4

*See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

nomics 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.

Career opportunities

Graduates of the program are expected to find employment in entry level positions requiring quantitative economics analysis in business, finance, and government. The program also prepares students for graduate work in economics, business administration, and law.

Principal field of study

For students matriculated in the economics program, the principal field of study is defined to be 11 economics courses.

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.

Professional and Technical Communication

Dr. Bruce Austin, 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 will 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 will be qualified to serve a number of different functions as communication specialists within a specific technical area. Their vocational opportunities are expected to be numerous and varied. The degree would also prepare 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 72 quarter credits (48 required credits and 24 elective credits), students will 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, and science.

Their course work in the professional core will give 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 will give 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. Graduates of the program will not therefore be narrowly trained for a discipline or occupation, but 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 (48 total credit hours)
 Mass Communications
 Human Communication
 Effective Speaking
 Group Communication and Problem Solving
 Writing and Thinking
 Persuasion
 Theories of Communication
 Organizational Communication
 Technical Writing
 Professional Writing
 Research Methods I and II
 Senior Thesis in Communication

Other Required Courses (56 total credit hours)

	Credit hours
Professional Core	28
Science	8
Math	8
Computer Science	4
Visual Communication	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 several communication electives, which may include the following:

Intercultural Communication, GLLC-521
 Uses and Effects of the Mass Media, GLLC-515
 Rhetoric of Social Change, GLLC-522
 Newswriting, GLLC-517
 Creative Writing, GLLC-518
 Small Group Communication, GLLC-441
 Advanced Public Speaking
 Film and Society, GLLC-512
 Newswriting: In-House Journals

Nonverbal Communication**Public Relations****Rhetorical Theory and Criticism****History of Communication:**

Changing Topics (e.g., History of Public Address, History of Communication)

Technologies, History of Broadcasting)

Special Topics in Communication:

(e.g., Communication Technologies, Listening, Semiotics, Interviewing, Legal Communication, Censorship and Propaganda)

Professional core

In each of these areas students take 28 credit hours or seven courses.

College of Business**Marketing Option core courses:**

0101-301 - Financial Accounting

0101-302 - Managerial

Accounting

0102-430 - Organizational Behavior

0104-441 - Corporate Finance

0105-463 - Principles of

Marketing

Electives:

0105-505 - Consumer Behavior

0105-560 - Marketing

Communications

0106-460 - Operational

Management

0102-455 - Personnel and

Human Resource Management

Computer Science core courses:

603-200 - Survey of Computer Science

603-208 - Introduction to Programming

603-210 - Program Design and Validation

Electives:

601-300 - Business Applications Using COBOL

601-310 - Advanced Business Applications

603-410 - Computer Concepts and Software Systems

603-411 - Data Communications and Computer Networks

603-483 - Applied Database Management

603-525 - Assemblers, Interpreters, and Compilers

School of Photographic Arts and Sciences**Option 1 - Photographic Technology core courses:**

920-211, 212, 213 - Material and Processes of Photography

905-210, 202, 203 - Basic Principles of Photography

Yr.	BS IN PROFESSIONAL AND TECHNICAL COMMUNICATION	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	0502-440 Human Communication	4		
	0502-220 English Composition	4		
	0502-501 Effective Speaking		4	
	Computer Science	4		
	Math Requirement	4	4	
	Liberal Arts: Humanities		4	4
	Liberal Arts: Social Science			4
	Professional Core		4	4
	Liberal Arts: Literature			4
2	0502-502 Group Communication and Problem Solving	4		
	0502-443 Writing and Thinking	4		
	Science Requirement (sequence in one science)	4	4	
	Visual Communication			4
	Professional Core	4	4	
	Liberal Arts: Humanities		4	
	Liberal Arts: Social Science		4	
	0502-442 Persuasion			4
	0502-514 Mass Communication			4
Math or Science			3-4	
3	0502-504 Theories of Communication	4		
	0502-505, 506 Research Methods I and II	2	2	
	0502-444 Technical Writing		4	
	Liberal Arts Concentration	4	4	
	Professional Core	4	4	
	Communication Elective	4	4	
4	0502-508 Organizational Communication			4
	0502-509 Senior Thesis in Communication			4
	0520-501 Senior Seminar		2	
	Liberal Arts Elective	4	4	4
	Communication Elective	4	8	
	Liberal Arts Concentration	4		
	Professional Core	4		
	Writing Elective			4
	0502-507 Professional Writing		4	

Electives (providing prerequisites are met):

920-311 - Color Photography/Design

920-312 - Color Printing/Theory

920-411 - Preparation of Visuals

920-421 - Basic Holography

920-444 - Reversal Color Printing

Option 2 - Applied Photography

904-205, 206 - Creative Problems

904-437, 438, 439 - Visual

Communications Workshop

904-207 - Introduction to Color

No number assigned - History of

Applied Photography

No number assigned - Studio

Practices

Option 3 - Film and Television

902-207, 208 - Introduction to Portable Video

902-201 - Introduction to Moving Image Structure

902-204, 205, 206 - History and Aesthetics of the Moving Image

902-311, 312, 313 - Portable Video Production

Option 4 - Fine Arts

921-207, 208, 209 - Still Photography

921-313 - Introduction to Fine Arts

921-531 - Picture Researching

921-561 - Semiotics and Photography

Option 5 - Imaging and Photographic Science - special arrangements may be made with the department chair

Science

Note: These specific courses are tentative.

The mathematics foundation and basic science sequence depend on what option students pursue, but students need to take three mathematics courses (allowed for in the curriculum) and three basic science courses (the curriculum requires two). Students also take an additional basic science sequence from the following list of basic science sequences:

1. Biology
 - 1001-201, 202, 203 - General Biology
 - 1001-205, 206, 207 - General Biology Laboratory
2. Chemistry
 - 1011-215, 216, 217 - General and Analytical Chemistry
 - 1011-225, 226, 227 - General and Analytical Chemistry Laboratory
 - or
 - 1011-211, 212 - Chemical Principles I, II
 - 1011-213 - Introduction to Organic Chemistry

- 1011-205, 206 - Chemical Principles Laboratory
 1011-207 - Introduction to Organic Chemistry Lab
3. Physics
 1017-311, 312, 313 - University Physics
 1017-375, 376, 377 - University Physics Laboratory
 In addition students take a sequence in one of these sciences:
1. Biology
 1001-304 - Botany
 or
 1001-340 Ecology
 plus
 1001-305, 306 - Physiology and Anatomy
 2. Chemistry
 1013-231, 232, 233 - Organic Chemistry
 1013-235, 236, 237 - Organic Chemistry Laboratory
 3. Physics
 1016-305 - Calculus
 1017-314 - Introduction to Modern Physics
 1017-341 - Foundations of Scientific Thinking

Graduation requirements

Students earning a BS in professional and technical communication will be required to complete 181-182 quarter credit hours. These hours include 54 hours of liberal education courses in the College of Liberal Arts, 48 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, as well as 4 hours in computer science, and 4 hours in visual communication. In addition, students must meet Institute requirements in physical education.

The student's principal field of study is defined as the 12 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. David Murdoch, Program Chairperson and Assistant Dean for Special Programs

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 an engineer, 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 engineering 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 and by an assistant dean of the College of Liberal Arts. The dean of the college also will work directly with each 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 that 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

The undergraduate in the College of Science at RIT gets a different kind of education than at any other school in New York State.

Our emphasis is on the practice of science in the working world, not just in the classroom. We're career-oriented and prepare students for entrance into a lifelong career.

Our faculty recognizes its responsibility to maintain up-to-date curricula so that our graduates will fit into the current needs of industry, business, and health professions as well as meet the requirements of graduate schools. This challenge includes not only modern trends in science and mathematics but also such things as the use of computers and sophisticated, modern laboratory equipment.

Faculty and research

The College of Science has an ideal size to provide quality undergraduate education. We have 90 faculty members in the sciences and mathematics, most of whom hold the Ph.D. degree. This size provides a variety of faculty expertise, so a student can find a faculty member with whom to interact regarding a particular interest.

We seek faculty members with a proper blend of interests in both teaching and research. Research activities allow faculty members to stay up to date in practicing a profession and provide projects for our students.

Our trend in undergraduate education is to expose the student to the methods of undertaking a research project. This is as important as many of the theories and facts students are required to learn as part of their major programs. The science and mathematics student at RIT is exposed to research through special course assignments and by having the opportunity to work with a faculty member on a research project. A number of these projects have resulted in publication in scientific literature.

Facilities and resources

The Chester F. Carlson Memorial Building, built in 1968, houses the College of Science. 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 under-graduate students.

The Science Library, located on the third floor of the Carlson Building, 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 high school 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 stu-

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
	*SPSP-311, 312 University Physics I, II		4	4
	SPSP-375, 376 University Physics I, II Lab			
	**Liberal Arts (Core)	4	4	4
	‡Physical Education Electives			

*Any two of these three in a given quarter.

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

dents in our undeclared science option find the decision is easily made after only a quarter or two of course work.

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, more than 90% expressed satisfaction with their work, and none said they were unemployed and looking for a job.

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. For example, some pass their Ph.D. qualifying examinations early in their program. 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

Cooperative schedule for five-year program in biology, biotechnology, mathematics, physics** and biomedical computing

Year		Fall	Winter	Spring	Summer
1 and 2	RIT	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 program

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

**Physics majors ordinarily are all on A-block.

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 co-op plan follow the same kind of schedule, except that their co-op experience starts at the beginning of the second year.

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 below). 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 test 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, chemistry (biochemistry option), and medical technology program requirements already include the premedical core courses. Our biotechnology, chemistry, biomedical computing, nuclear medicine technology, and ultrasound technology 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 through-

out 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, all 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.

Teacher certification option
Students majoring in biology, chemistry, mathematics, and physics can participate in a secondary teacher preparation program offered jointly by RIT's College of Science and the University of Rochester's Graduate School of Education and Human Development.

There is a national shortage of secondary school teachers of science and mathematics, so the job opportunities are very good. The RIT/UR combination of a sound mathematics or science background, cooperative education experience and teacher education training produces an unusually qualified teacher.

The teacher preparation program includes courses in educational foundations and techniques, student teaching experience and the degree requirements for a BS in an RIT science or mathematics program.

Students who complete the program receive a BS degree from RIT and are eligible for provisional New York State teaching certification for grades 7-12 through the University of Rochester.

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
Mathematics	2 quarters	Calculus-level
English	1 year	

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 (Biochem. Opt)	None
Computational Mathematics	
Medical Technology	None
Nuclear Medicine Technology	Elect one year of organic chemistry
Physics	
Diagnostic Medical Sonography	Elect one year of general chemistry and one year of organic chemistry

*Some rearrangement of the typical pattern of coursework 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 service is included in detail on pages 153-154 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.

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 year, 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 year, depending on co-op.*

Biomedical Computing—Graduates are prepared to assume positions on the staffs of medical and/or industrial laboratories or hospital computer departments, or to work with physicians and other health professionals in a clinical environment and on medical research projects. Degree granted: BS-4 or 5 year, depending on co-op.*

Chemistry—Graduates qualify for higher level positions in several fields of chemistry including professional industrial work in processing and laboratory operational research and experimental work, supervision of technical projects, managerial positions and graduate study. Degree granted: AS-2 or 3 year; BS-4 or 5 year, depending on co-op.

Applied Mathematics, Computational Mathematics, Applied Statistics—Graduates qualify for positions in high-tech industry, governmental agencies and business, as well as graduate study. A combination of mathematics and statistics courses as well as electives in math-related areas and/or computer science greatly enhances employment opportunities. Degree granted: AS-2 year, BS-4 or 5 year, depending on co-op.

Medical Technology—Prepares students for employment in hospital, industrial-medical, or research laboratories. Students spend three years at RIT and one year in an approved hospital internship. Degree granted: BS-4 year.*

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 1/2 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 agencies, or pursue graduate study in physics or in such areas as biophysics, atmospheric science, applied science or industrial business administration. Degree granted: AS-2 year, BS-4 or 5 year, 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 or 3 year; BS-4 or 5 year, depending on co-op.

*Students in these programs receive an AS in General Science.

Freshman Admission Requirements

Transfer Admission

Program	Required High School Subjects*	Desirable Elective Subjects	Some Recommended Coursework
Applied Mathematics Computational Mathematics Applied Statistics	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry Chemistry or Physics	Physics or Chemistry; additional mathematics	Differential, integral, and multivariate calculus; differential equations; matrix and linear algebra; discrete mathematics; laboratory science courses; FORTRAN, PASCAL, and other computer science courses
Biology	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Biology	Physics; Chemistry; additional mathematics	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; Physics	Additional mathematics; Computer Science	General biology, microbiology, genetics, general chemistry, organic chemistry, calculus
Chemistry	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Chemistry	Physics, additional mathematics	General chemistry, organic chemistry, quantitative analysis, calculus, physics (calculus-based)
Medical Technology	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Biology	Physics or Chemistry	General chemistry, general biology, general physics, mathematics, organic chemistry, human anatomy and physiology
Nuclear Medicine Technology	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Biology; Chemistry	Calculus, Physics	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 i
Physics	Elem. Algebra; Plane Geometry; Inter. Algebra; Trigonometry; Physics or Chemistry	Chemistry or Physics; additional mathematics	Physics (calculus-based); modern 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 Science 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

Dr. G. Thomas Frederick, 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 AS degree in biology

The student must meet the minimum graduation requirements of the Institute as described on page 164 and in addition must complete the requirements contained in the particular program listed below or its equivalent

The program must include a minimum of six quarter courses in biology, six quarter courses in nonbiological sciences and six quarter courses in liberal arts.

Requirements for the BS degree in biology

The student must meet the minimum graduation requirements of the Institute as described on page 164 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 46 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 14 hours are selected from biology electives.

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.

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	3	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 Electives	0	0	0
2	SBIB-340 General Ecology	4		
	SBIB-304 Botany	4		
	SCHO-231, 232, 233 Organic Chemistry Lecture	3	3	3
	SCHO-225, 226, 227 Organic Chemistry Laboratory	1	1	1
	SBIB-230 Introduction to Co-op Seminar		1	
	SMAM-309 Statistics			4
	Biology Electives		4	4
	**Liberal Arts (Core)	4	8	4
‡Physical Education Electives	0	0	0	
3* 4 5		VARIABLE QUARTERS		
	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		7	
	**Liberal Arts (Concentration)		12	
	**Liberal Arts (Electives)		12	
	Institute-wide Electives		2*	Liberal Arts
			15	

*Course scheduling varies

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

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 alternate career goals, should the situation arise. The following specialization areas are available at RIT:

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. Electives 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

Dr. G. Thomas Frederick, 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.

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	3	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
	‡Physical 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
	SBIB-230 Introduction to Co-op Seminar		1	
	**Liberal Arts (Core)	4	6	4
‡ Physical Education Electives	0	0	0	
3* 4 5		VARIABLE QUARTERS		
	SBIB-310 Plant Physiology			4
	SBIB-370 Biological Writing			2
	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			4
	SBIB-561 Biotechnology Senior Project			2
	SBIB-579 Topics 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			6	

*Course scheduling varies

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Requirements for the BS degree in biotechnology

The student must meet the minimum graduation requirements of the Institute as described on page 164 of this bulletin. In addition, the program requires the successful completion of 71 quarter credit hours in biology (General Biology, Introduction to Biotechnology, Introduction to Co-op, 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 Engineering, Topics in Biotechnology, Biological Writing and the Biotechnology Senior Project.

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.

Chemistry

Dr. Gerald A. Takacs, 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 higher level 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 program 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.

Biochemistry option

The biochemistry option of the chemistry program provides students with the opportunity to integrate substantial biology and biochemistry experience into the BS chemistry program. Graduates of this option will qualify for professional study in medicine and dentistry as well as graduate work in Ph.D. programs in biochemistry and molecular biology, and rewarding careers in the pharmaceutical and biochemistry industries.

Yr. CHEMISTRY* (TYPICAL COURSE SCHEDULE)

Qtr. Credit Hours

	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
	‡Physical Education Electives.....	0	0	0
2		FALL		SPG.
		WTR.		SMR.
	SCHA-311 Instrumental 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 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	
‡Physical Education Electives.....	0		0	
3	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, 437 Organic Chemistry II, III Lab.....	2		2
	SCHP-441 Physical Chemistry I.....			3
	SCHP-445 Physical Chemistry I Lab.....			1
	GLLC-530 German I.....			4
	**Liberal Arts (Core).....	4		
‡Physical Education Elective.....	0			
4	SCHP-442, 443 Physical Chemistry II, III.....	3		3
	SCHP-446, 447 Physical Chemistry II, III Lab.....	1		1
	SCHC-401 Chemical Literature.....	2		
	SMAM-431 Matrix Algebra.....	4		
	SCHI-762 Inorganic Chemistry I.....			3
	GLLC-531 German II.....	4		
	**Liberal Arts (Concentration).....	4		4
	**Liberal Arts (Elective).....			4
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	

*American Chemical Society Certified

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Polymer chemistry

Polymer science is one of the increasingly important areas of modern science. The polymer chemistry program 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. 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 pursue further education in chemistry, polymer chemistry, or materials science and engineering.

Requirements for the AS and BS degrees in chemistry

The student must meet the minimum graduation requirements of the Institute as described on page 164 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.

Mathematics

Dr. George T. Georgantas, Head

Over the past several 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, or engineering, to name a few.

The Department of Mathematics has established three 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. Care is taken to discuss industry needs and trends with potential employers before a program is established or modified, and graduates frequently find that their RIT background seems tailor-made, for the job market.

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
	ISCA-205 Computer Techniques			3
	**Liberal Arts (Core)	4	4	8
	‡Physical Education Electives	0	0	0
2		FALL		SPG.
		WTR.		SMR.
	SCHA-311 Instrumental 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 Organic Chemistry 1 Lab			2
	SPSP-311, 312 University Physics	4		4
	SPSP-375, 376 University Physics Lab	1		1
**Liberal Arts (Core)	4		4	
‡Physical Education Electives	0		0	
3	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, 437 Organic Chemistry II, III Lab	2		2
	SCHP-441 Physical Chemistry I			3
	SCHP-445 Physical Chemistry I Lab			1
	**Liberal Arts (Core)	4		
	**Liberal Arts (Concentration)			4
‡Physical Education Elective	0			
4	SCHP-442, 443 Physical Chemistry II, III	3		3
	SCHP-446, 447 Physical Chemistry II, III Lab	1		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 Struc./Prop. Relationships - Polymers	4		
	SCHP-604 Characterization of High Polymers Lab	2		
	Chemistry Electives	3		3
	**Liberal Arts (Electives)	4		8
	**Liberal Arts (Senior Seminar)	2		
	Institute-wide Electives	3		3

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

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 1 - Algorithmic Structures	4		
	ICSP-242 Programming II - Data Structures		4	
	ICSA-220 FORTRAN			4
	Science Electives	4	4	4
	**Liberal Arts (Core)	4	4	
	‡Physical Education Electives	0	0	0
2	SMAM-306 Differential Equations 1	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-307 Differential Equations II, or SMAM-318 Solutions to Bdry. Val. Probs., or *SMAM-353 Applied Statistics II			4
	SMAM-431 Matrix Algebra			4
	**Liberal Arts (Core)	8	4	4
	Institute-wide Electives		4	4
‡Physical Education Electives	0	0	0	
3		FALL		SPG.
		WTR.		SMR.
	SMAM-437 Computer Methods in Applied Math	4		
	SMAM-432 Linear Algebra	4		
	SMAM-361 Mathematical Modeling			4
	Mathematics Electives	4		8
**Liberal Arts (Core/Concentration)	4		4	
4	SMAM-411, 412 Real Variables I, II	4		4
	Mathematics Electives	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 (Electives)	4		4
	**Liberal Arts (Senior Seminar)			2

*Only if a statistics minor is elected.
 **See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.

Programs

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 scien-

tists, engineers, computer specialists or other analysts. Some application minors are: applied statistics; biology; business; economics; chemistry; computer science; 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.

Yr.	COMPUTATIONAL MATHEMATICS (TYPICAL COURSE SCHEDULE)	Qtr. Credit Hour*		
		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-243 Programming III - Design & Implementation			4
	Science Electives	4	4	4
	**Liberal Arts (Core)	4	4	
†Physical 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-431 Matrix Algebra			4
	ICSP-305 Assembly Language Programming	4		
	ICSS-325 Data Organization and Management		4	
	ICSP-319 Scientific Applications Programming			4
	Institute-wide Elective			4
	**Liberal Arts (Core)	4	4	4
†Physical Education Electives	0	0	0	
3		FALL		SPG.
		WTR.		SMR.
	SMAM-432 Linear Algebra	4		
	SMAM-467 Theory of Graphs and Networks	4		
	SMAM-361 Mathematical Modeling			4
	ICSP-315 Digital Computer Organization	4		
	Mathematics Elective			4
Computer Science Elective			4	
**Liberal Arts (Core/Concentration)	4		4	
4	SMAM-411 Real Variables I	4		
	SMAM-511, 512 Numerical Analysis I, II	4		4
	Mathematics Elective			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 122 for Liberal Arts requirements.
†See page 177 for policy on Physical Education.

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 modelled. Graduates of the program often choose positions as mathematical analysts, scientific programmers, software engineers or systems analysts. Job opportunities in private industry and government abound in this field.

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 AS and BS degree

The student must meet the minimum requirements of the Institute as described on page 164. 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. Additional information is available from the Department of Mathematics.

Yr.	APPLIED STATISTICS (TYPICAL COURSE SCHEDULE)	Qtr. Credit Hour*		
		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 Electives	4	4	4
	**Liberal Arts (Core).....	4	4	
‡Physical Education Electives	0	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 Applied Statistics I.....		4	
	SMAM-353 Applied Statistics II.....			4
	SMAM-431 Matrix Algebra.....			4
	Institute-wide Elective	4		
**Liberal Arts (Core).....	4	8	8	
‡Physical Education Electives	0	0	0	
3		FALL		SPG.
		WTR.		SMR.
	SMAM-432 Linear Algebra.....	4		
	SMAM-354 Regression Analysis	4		
	SMAM-355 Design of Experiments.....			4
	Statistics Elective	4		
	Mathematics Elective.....			4
	Institute-wide Elective			4
**Liberal Arts (Concentration).....	4		4	
4	SMAM-411 Real Variables I	4		
	SMAM-457 Research Sampling Techniques.....	4		
	SMAM-454 Non-parametric Statistics.....			4
	SMAM-412 Real Variables II			4
	Technical Electives	4		4
	**Liberal Arts (Concentration/Elective)	4		4
5	SMAM-451, 452 Mathematical Statistics I, II	4		4
	SMAM-555, 556 Statistics Seminar I, II	4		2
	**Liberal Arts (Electives).....	4		4
	**Liberal Arts (Senior Seminar)			2

**See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.

Physics Program

Dr. Arthur Z. Kovacs, 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, atmospheric science, or industrial business administration.

Requirements for the AS and BS degree in physics

The student must meet the minimum graduation requirements of the Institute as described on page 164 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 photo science is possible.

Biomedical Computing Program

J. Richard Garnham, Program Director

RIT's biomedical computing bachelor of science 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 and Technology 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 spans five years to allow 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.	PHYSICS (TYPICAL COURSE SCHEDULE)	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SPSP-200 Physics Orientation	2		4
	SPSP-311, 312 University Physics I, II		1	
	SPSP-371, 372 University Physics Lab I, II		4	4
	SMAM-251, 252, 253 Calculus I, II, III	4		
	SCHG-211, 212 Chemical Principles I, II	3	3	
	SCHG-205, 206 Chemical Principles I, II Lab	1		
	ICSA-205 Computer Techniques	3		
	**Liberal Arts (Core)	4	4	8
	‡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 Modern 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		
3	SPSP-401, 402 Intermediate Mechanics	4		4
	SPSP-421 Experimental Physics I	3		
	SPSP-431 Electronic Measurements I			4
	SPSP-455 Optical Physics	4		
	SPSP-480 Theoretical Physics I			4
	Liberal Arts (Concentration)	4		4
4	SPSP-411, 412 Electricity and Magnetism	4		4
	SPSP-415 Thermal Physics	4		
	SPSP-522 Introduction to Quantum Mechanics			4
	Institute-wide Elective	4		
	**Liberal Arts (Concentration/Elective)	4		4
**Liberal Arts (Senior Seminar)			2	
5	SPSP-501 Theoretical Physics II, or SPSP-432 Electronic Measurements II	4		
	SPSP-531 Solid State Physics	4		
	SPSP-550 Physics Seminar	1		
	Physics Elective (400-500 level)			4
	Institute-wide Electives	4		4
	**Liberal Arts (Electives)	4		4

**See page 122 for Liberal Arts requirements.
‡See page 177 for policy on Physical Education.

Yr.	BIOMEDICAL COMPUTING (TYPICAL COURSE SCHEDULE)	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	ICSS-202 Intro, to Computer Science			
	ICSP-241 Programming I — Algorithmic Structures		4	
	ICSP-242 Programming II — Data Structures			4
	SCLB-204 Intro, to Biomedical Computing		1	
	SBIB-201, 202, 203 General Biology Lec	3	3	3
	SBIB-205, 206, 207 General Biology Lec	1	1	1
	SCHG-215, 216, 217 General & Analytical Chemistry Lec	3	3	3
	SCHG-225, 226, 227 General & Analytical Chemistry Lab	1	1	2
	**Liberal Arts (Core)	4	4	4
	‡Physical 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		4	4
	SMAM-251, 252 Calculus I, II	4	4	
	**Liberal Arts (Core)	4	4	8
	‡Physical Education Electives	0	0	0
3		FALL		SPG.
		WTR.		SMR.
	ICSS-315 Digital Computer Organization	4		4
	ICSS-325 Data Organization & Management			4
	SMAM-309 Elementary Statistics			
	SCLM-432 Biology Laboratory Techniques	4		
	SPSP-311, 312 University Physics	4		4
	SPSP-375, 376 University Physics Laboratory	1		1
**Liberal Arts (Concentration)	4		4	
4	SPSP-331 Electricity 4 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

**See page 122 for Liberal Arts requirements.
‡See page 177 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 164 and in addition must complete the requirements contained in this

program or its equivalent as determined and approved by the Department of Clinical Sciences. Transfer students may be required to take additional course work, depending on the program they completed at their previous school. Specific requirements will be determined for each transfer student by the department.

Medical Technology Program

James C. Aumer, Program Director

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 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 and with Millard Fillmore Hospital in Buffalo. Students may, however, seek admission to any approved hospital for their clinical experience.

Upon successful completion of the hospital experience, a bachelor of science 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
	SCHG-215, 216, 217 General and Analytical Chemistry	3	3	3
	SCHG-225, 226, 227 General and Analytical Chemistry Lab	1	1	2
	SCLM-210 Medical Technology Seminar	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 Electives	0	0	0
2	SBIB-305, 306 Physiology and Anatomy		4	4
	SCHO-231, 232, 233 Organic Chemistry Lec	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)		4	4
	‡Physical Education Electives	0	0	
3	SCLM-350 Spec. Topics in Medical Tech	1	1	
	SCLM-401 Hematology/Immunohematology			4
	SBIB-404 Microbiology	5		
	SCHB-334 Biochemistry	4		
	SCLM-432, 433 Biology Laboratory Techniques		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 122 for Liberal Arts requirements.

‡ See page 177 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 164 and in addition must complete the requirements contained in this

program or its equivalent as determined and approved by the Department of Clinical 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.

Medical Imaging Technologies

Nuclear Medicine Technology Program

Judith Newell, Program Director
Gretchen Rehberg, 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

The NMT clinical training begins in early June and ends in May of the following year. The first four 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 four 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 four-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.

Yr.	NUCLEAR MEDICINE TECHNOLOGY (TYPICAL COURSE SCHEDULE)	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	SCLN-201 Careers in Nuclear Medicine		.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	3	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	SPSP-211, 212, 213 College Physics Lec	3	3	3
	SPSP-271, 272, 273 College Physics Lab	1	1	1
	SCHO-231, 232 Organic Chemistry Lec	3	3	
	SCHO-235, 236 Organic Chemistry Lab	1	1	
	SBIB-305, 306 Physiology & Anatomy		4	4
	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	4	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-513 N.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

†Clinical Internships—Affiliated Hospitals

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

The training also includes a substantial component of training in radioassay theory and practice. One week of classroom and laboratory work at RIT during the winter of the training year is followed by four weeks of radioassay clinical training at one of the affiliated hospitals.

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, Highland Hos-

pital, Rochester General Hospital, Park-Ridge Hospital; Binghamton area—Our Lady of Lourdes Hospital, Wilson Memorial Hospital; Buffalo area—Sisters of Charity Hospital.

The RIT program is also affiliated with Veterans Administration Hospital, St. Louis, Missouri. Students who wish to intern at this hospital make application in the month of December preceding the start of the clinical year. Students selected for training there spend the entire year in St. Louis.

Requirements for the BS degree in nuclear medicine technology
The student must meet the minimum graduation requirements of the Institute as described on page 164 and in addition must complete the requirements contained in this program or its equivalent as determined and approved by the Department of Clinical 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 photo science is possible.

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.

Medical Imaging Technologies Diagnostic

Medical Sonography (Ultrasound)

Kathleen J. Ritch, Program Director
Patricia Robidoux-Brost, 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 ultrasound technologists with specialty training in abdominal, obstetrical and gynecological ultrasonic techniques and 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 164 and in addition must complete the requirements contained in the curriculum listed here or its equivalent as determined and approved by the Department of Clinical 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.

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 technology

The clinical internship for both the BS degree and certificate 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 be assigned to rotate through 2 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.

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		4	4
	SMAM-309 Elementary Statistics		4	4
	"Liberal Arts (Core)	4	8	4
	*Physical Education Electives	0	0	0
3	SCLS-411 Intro, to Diagnostic Ultrasound	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	Clinical Internships—Affiliated Hospitals			
	SCLS-551 Intro, to Clinical Ultrasound	5		
	SCLS-552 Intro, to Obstetrical Ultrasound	5		
	SCLS-553 Intro, to Gynecologic Ultrasound	5		
	SCLS-554 Advanced Obstetrical Ultrasound		5	
	SCLS-555 Advanced Gynecological Ultrasound		5	
	SCLS-556 Intro, to Abdominal Ultrasound I		6	
	SCLS-557 Intro, to Abdominal Ultrasound II			7
	SCLS-558 Advanced Abdominal Ultrasound			7
SCLS-560, 561 Seminar in Ultrasound		1	2	

Yr.	DIAGNOSTIC MEDICAL SONOGRAPHY, CERTIFICATE (TYPICAL COURSE SCHEDULE)	Qtr. Credit Hours		
		FALL	WTR.	SPG.
+	SCLS-411 Intro, to Diagnostic Ultrasound	2		
	SCLS-412 Ultrasonic Cross-Sectional Anatomy		4	
	SCLS-413 Ultrasound Instrumentation			4
	SCLG-415 Pathophysiology			4
4	Clinical Internships—Affiliated Hospitals			
	SCLS-551 Intro, to Clinical Ultrasound	5		
	SCLS-552 Intro, to Obstetrical Ultrasound	5		
	SCLS-553 Intro, to Gynecological Ultrasound.	5		
	SCLS-554 Advanced Obstetrical Ultrasound		5	
	SCLS-555 Advanced Gynecological Ultrasound		5	
	SCLS-556 Intro, to Abdominal Ultrasound I		6	
	SCLS-557 Intro, to Abdominal Ultrasound II.....*			7
	SCLS-558 Advanced Abdominal Ultrasound			7
SCLS-560, 561 Seminar in Ultrasound		1	2	

*Anytwo of these three in a given quarter.
 **See page 122 for Liberal Arts requirements.
 ‡See page 177 for policy on Physical Education.

Accreditation

The diagnostic medical sonography program is accredited by the Joint Review Committee on Education in Diagnostic Medical Sonography of the American Medical Association.

National Technical Institute for the Deaf

William E. Castle, Director
James J. DeCaro, Dean

The National Technical Institute for the Deaf (NTID) was created to provide deaf students with the technological training that will lead to meaningful employment in business, industry, government, and education.

Public Law 89-36 authorized the establishment of NTID, and Rochester Institute of Technology was chosen as the sponsoring institution in late 1966 by the Department of Health, Education and Welfare. In the fall of 1968, a pilot group of 71 deaf students began their studies at-NTID. For the 1986-87 academic year, enrollment will be approximately 1,300.

The partnership: NTID at RIT
As one college in nine at RIT, NTID is governed by the RIT Board of Trustees.

The fact that NTID is located on a college campus designed primarily for hearing students is important to the students' academic, personal, social, and communication development. The NTID academic programs, designed for deaf students, lead to certificates, diplomas, and associate degrees from RIT. Most NTID students take some courses along with hearing students in the other colleges of RIT. Some NTID-sponsored students are full-time or part-time students in the associate, bachelor's, and master's degree programs of the other colleges of RIT. Special educational support departments made up of NTID staff members help them in their studies in those other colleges.

Facilities

A modern complex of buildings on RIT's Rochester campus was designed specifically to serve deaf students.

The Lyndon Baines Johnson Building is the main academic building. It has a theatre, laboratories, offices, speech and hearing areas, and classrooms.

Classrooms are designed to cut down on distractions. There are no windows, colors are soft, and seats are placed in a semicircle to allow the best possible vision from all parts of the room.

The theatre seats approximately 500 people and has closed circuit television. A number of productions are offered each year using both voice and sign language. There are also two well-equipped television studios, which are used to produce class and self-instruction videotapes and all captioning done at RIT.

The Hugh L. Carey Building, dedicated in 1983, contains classrooms and offices.

The residence halls in the complex contain dormitory rooms, recreation areas, student lounges, and study and conference areas. The residence halls that are shared by deaf and hearing students are Mark Ellingson Hall, Peter N. Peterson Hall, and Alexander Graham Bell Hall.

The Hettie L. Shumway Dining Commons consists of a large dining room and complete food service facilities.

Other special features for deaf students include a visual emergency system in the academic and residence halls and a sophisticated tele-communication system that links all parts of the RIT campus.

Educational philosophy

The educational goal of NTID at RIT is to provide opportunities for qualified deaf students to prepare for successful careers in business, computer science, engineering, applied science, allied health, photography, printing, art, media, or social services. Students may pursue training for semi-professional careers through the programs managed by NTID. NTID provides special support services that enable deaf students to pursue professional careers in any one of the other colleges of RIT. In addition to preparation in technological areas, NTID offers experiences that assist deaf students in developing needed

personal, social, and communication competencies.

NTID also serves deaf persons throughout the world through educational outreach, publications, internships, and related services. NTID helps deaf adults add to their vocational and technical skills through continuing education.

NTID at RIT conducts research to better understand the role of deafness in education and employment, and to develop creative teaching techniques. There are training activities for its faculty and staff and for other professionals working with deaf persons across the country.

Cross registration

Qualified deaf students may enroll in associate, bachelor's, or master's degree programs offered by other RIT colleges or take selected courses in those colleges. These students are called cross registered.

NTID students who are cross registered in courses in any RIT college have support services such as interpreters, tutors, notetakers, speech and hearing specialists, and counselors available to them.

To become a cross-registered student:

1. Deaf students may take selected courses in another RIT college.
2. Deaf students who have completed a program of study offered by NTID may continue their education in another RIT college.
3. Deaf students may enroll directly from high school or transfer directly from another college into an RIT program.

To enroll in another college at RIT, NTID students discuss the possibility with their counselor, academic advisor, and a member of the educational support department assigned to the college of their choice. The final decision as to whether the student is admitted is left to the college in which the student seeks enrollment.

Admission

To qualify for admission to RIT through NTID, students must meet certain standards agreed upon by RIT and the U.S. Department of Education.

1. Students should have attended a school or class for deaf students and/or have needed special help because of deafness.

2. Students must have a hearing loss that seriously limits their chances of success in college without special support services. There is a general agreement that an average hearing loss of 60 decibels (ASA) or 70 decibels (ISO) or greater across the 500, 1,000, and 2,000 Hz range (unaided) in the better ear is a major handicap to education.

3. The NTID program at RIT is 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 the NTID program than by remaining in secondary school. Age and personal/social maturity are given special consideration in such a situation.

4. Students' educational backgrounds should show that they can probably succeed in a program of study at NTID or one of the other colleges of RIT. Students who are admitted should have an overall eighth grade achievement level or above. This means that the average score on an achievement test that includes reading, math, and language should be at an eighth grade level.

5. Students must show that they are personally and socially mature enough to enter a program at NTID or one of the colleges of RIT. The information is provided through the student's personal references.

6. Students must be citizens or permanent residents of the United States.

Summer vestibule program

The Summer Vestibule Program is designed to prepare deaf students for further postsecondary training, to determine their academic strengths and weaknesses, and to provide an environment for developing program and career choices.

During the program, new students can explore and evaluate,

through program sampling, the various programs of study available through NTID and the other colleges at RIT. Concurrently, faculty members evaluate students, offer counsel, and plan for Fall Quarter.

The counseling staff helps students to more fully understand their abilities, interests, and achievement levels through the interpretation and discussion of test data, background experiences, and personal and work values. Aptitudes and interests are then related to available academic programs and possible occupations. This gives students the opportunity to select a program and career that best suits their individual needs. The students also are guided through a series of specially designed living arrangements and self-governance experiences that help them adjust to college life and develop interpersonal relationship skills.

Charges and fees

The cost of attending the National Technical Institute for the Deaf includes tuition, room, board, and academic fees. For specific information on admission, costs and programs, please consult RIT's *Official Bulletin* for NTID, available from NTID.

Special support services

Special support services are provided to NTID-sponsored Students at RIT. Interpreting services are available upon request for any class in which one or more deaf students are in attendance. In many classes for baccalaureate programs, trained hearing RIT students take notes on special notetaking pads and give copies of them to deaf students. Tutorial services are provided to deaf students as needed.

Notetaking allows deaf students to watch the interpreter or teacher while the notetaker records classroom information.

In addition, each NTID student has a personal/career counselor who helps the student plan his or her educational program and adjust to college life. Mental health services and preventive mental health programming are provided for students. Services to assist in career development are an important part of the total NTID program. All special support services are geared toward helping deaf students gain the maximum benefit from their educational experiences at

RIT—experiences that will lead to successful employment in the mainstream of the work environment.

Personal, social, and cultural growth

Experiences aimed at enriching and increasing students' educational opportunities in personal, social, cultural, and aesthetic areas of growth are provided throughout NTID and RIT. Both academic courses and cocurricular programs support these areas of student development. Formal certification for many of these learning experiences is available through RIT's Complementary Education program. Successful experiences in these areas help students become well-rounded individuals. Skills and attitudes are developed and practiced to help students become more successful professionals in their chosen careers, as well as more successful in their personal and community lives.

Educational experiences include Outdoor Experiential Education, Community Services, wellness programs, Leadership Development, intramurals, discussion sessions on issues of mental health and life adjustment, theatre, music and dance, student government and clubs, student newspaper, and student TV productions. Such activities are not only fun and educational, but also give deaf students opportunities to meet people from all areas of RIT and become creative and experienced leaders.

In addition to intramural athletics, NTID students may also become members of RIT varsity teams in intercollegiate competition. Deaf athletes have helped RIT to winning seasons in hockey, track, and swimming.

Employment opportunities

Historically, more than 95 percent of NTID-sponsored graduates who choose to enter the labor market have found jobs. Many graduates choose to continue their education through one of the other colleges of RIT or at other institutions.

The high employment rate is largely because these graduates hold technological skills that meet employers' needs. Also, NTID's highly individualized employment preparation program teaches students job search skills. Employment advisors help students develop strategies to find jobs and to maintain employment. They also

help employers understand NTID and other programs at RIT, deafness, and graduates' technical and communication skills.

Employment advisors constantly monitor employment and economic trends in order to provide the most current information to students. They maintain liaisons with employers in order to provide feedback to technical departments regarding employers' needs in terms of skills. This helps NTID update its educational programs to make students marketable in business and industry nationwide.

Programs of study

NTID's educational programs prepare students for a variety of successful careers. These programs are designed to meet the increasing demand for technicians, semi-professionals, and specialists for employment in industry, business, government, and the professions. Programs are available at the certificate, diploma, and associate degree levels. NTID students can prepare for technological careers in seven major areas.

Business careers respond to industry's need for people skilled in operating office equipment, keeping financial records, performing clerical duties, and using computers.

Computer careers provide opportunities, through the data processing major, to work in computer operations and to prepare computer programs.

Students selecting engineering technologies careers may choose among three areas. Construction technologies careers involve helping to design and construct buildings, roads, and bridges. Industrial technologies careers involve working with manufacturing systems and special equipment used in industry. Electromechanical technology careers involve work with systems and special equipment used in industry throughout the country.

The AAS programs in Industrial Drafting Technology, Electromechanical Technology, Civil Technology and Architectural Technology are accredited by the Technology Accreditation Commission of the Accreditation Board of Engineering and Technology (ABET).

NTID Undergraduate Programs

	Certificate	Diploma	A.A.S.
Applied Accounting		•	•
Applied Art		•	•
Applied Photography	•	•	•
Architectural Drafting		•	
Architectural Technology			•
Business Occupations	•		
Civil Technology			•
Data Processing	•	•	•
Educational Interpreting			•
Electromechanical Technology			•
Histologic Assistant	•		
Industrial Drafting		•	
Industrial Drafting Technology			•
Manufacturing Processes		•	
Media Production Technology		•	•
Medical Laboratory Technology			•
Medical Record Technology			•
Office Practice and Procedures		•	•
Optical Finishing Technology	•	•	•
Printing Production Technology	•	•	•
Ophthalmic Optical Finishing Technology			AOS

Students who have an interest in science and who like doing things to benefit people can combine both interests in Applied Science/Allied Health careers. Three program majors are offered: Medical Laboratory Technology, Medical Record Technology, and Optical Finishing Technology.

Visual Communication careers offer four program areas: Applied Art, Printing Production Technology, Applied Photography, and Media Production Technology. The NTID Applied Art Department sponsors an In-House Co-op—a cooperative work program on campus where students get experience with the real world of applied art.

All curricula at NTID include appropriate general education and communication courses. These encompass the common knowledge, skills, and attitudes needed to be effective as a person, a member of a family, an employee, a consumer, and a citizen.

NTID at RIT recognizes the need for good communication and has services covering all types of communication instruction. Related services are provided in reading, writing, use of residual hearing, speechreading, speaking, and manual/simultaneous communication.

Cooperative work experience
Cooperative work experience (co-op) is an important component of students' career development at RIT. Almost every program of study requires at least one co-op experience before graduation. Co-op jobs range from one quarter (10 weeks) to five quarters (50 weeks) of actual job experience, depending on the requirements of the specific program. Most co-op employment occurs during Summer Quarter.

Educational Interpreting Program

The purpose of the AAS degree in interpreting is to develop skills for the delivery of interpreting and other services needed by deaf persons in educational and other settings. While the emphasis is on developing interpreting skills, additional skills related to assisting deaf students in mainstream programs—notably, tutoring and notetaking—are also included. It is anticipated that graduates of the program will be able to get jobs in educational and community settings and other positions requiring a combination of skills. The degree may also serve as a starting point for more advanced educational degrees in other disciplines related to working with deaf persons.

All students must successfully complete the interpreting core courses (63 credit hours).

Transfer credits from another institution may be accepted, and in some instances students have the option of credit by exam for some of the professional courses if they already possess the skills required. Transfer and credit by exam options are determined on an individual basis.

Yr.	Two-Year Associate Degree in Interpreting	Qtr. Credit Hours		
		FALL	WTR.	SPG.
1	NITP-203 Principles of American Sign Language for Interpreters	3		
	NITP-204, 205 American Sign Language Interpreting 1,11		3	3
	NITP-210 Fingerspelling and Number Comprehension	3		
	NITP-211 Voice Interpreting I		3	
	NITP-251, 252 Aspects and Issues of Deafness I, II	3		3
	NITP-261, 262 Theory and Practice of Interpreting 1, II	3	3	
	NITP-271 Professional Interpreter I			3
	NITP-331 Expressive Transliteration I			3
	*NITP-391 Principles of Tutoring/Notetaking			3
	**Liberal Arts Requirements	4	8	
	‡Physical Education Elective	0	0	0
2	NITP-212, 213 Voice Interpreting II, III	3	3	
	NITP-281, 382 Interpreting Practicum 1, II	5		5
	NITP-283, 384 Interpreting Seminar 1, II	1		1
	NITP-332 Expressive Transliteration II	3		
	NITP-343 Expressive Oral Interpreting/Transliteration	3		
	NITP-372 Professional Interpreter II	3		
	NITP-395 Mainstreaming; Educational Programs & Alternatives		3	
	*NITP-392 Tutoring/Notetaking Practicum		3	
	NITP-396 The Support Service Professional			3
	NITP-Professional Elective			3
	*Contemporary Science Course		4	
**Liberal Arts Requirements		8	4	

*Courses may be offered/taken in quarters other than shown.

**See page 122 for Liberal Arts requirements.

‡See page 177 for policy on Physical Education.

Application Procedures and Admissions Services

Applying for Admission

Applying for admission

RIT accepts students on a "rolling admissions" basis. This means that decisions regarding acceptance are made within a few weeks 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.

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 post-educational experiences (military, etc.). An admission interview and recommendations from those familiar with your academic performance also are often influential.

Students applying to RIT must 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 and Undeclared Engineering.

Admission to RIT is competitive and based on our prediction of your likelihood of success. Standards vary from program to program. Each year approximately 7,500 students apply for freshman and transfer admission; 5,200 to 5,500 gain admission; and 2,400 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. 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

Completing the application procedure for admission to RIT is easy! You need to submit the following:

1. fully completed application for admission
2. non-refundable \$25 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 16 semester credit hours
5. official transcripts of all completed course work and a listing of any course work in progress (and not on the transcript) or to be completed prior to enrolling at RIT

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 40 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 your RIT program. Usually a grade of "C" or better is required for a course to transfer.

Credit by exam

RIT grants credit for satisfactory scores on examinations covering objectives and contents parallel to the RIT courses for which you 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, 1987, will be considered for invitation to the OFS program. Transfers must be accepted and make special application to the OTS program by March 1, 1987. Please contact the Admissions Office for more details on either program.

Visit to campus

Selecting the appropriate college is a difficult decision, and visiting a campus often helps students form more accurate impressions. We encourage campus visits and personal admission interviews, because they allow students to see our outstanding facilities firsthand and to be provided with answers to questions they may have.

The admissions staff

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 and veterans and commuter, minority, returning, part-time, handicapped and international students. In addition to daily counseling and recruiting responsibilities,

each admissions counselor acts as an advisor and program coordinator for a different group on campus.

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. Our involvement also keeps us in contact with currently enrolled students.

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 career goals.

To obtain answers to questions about RIT programs and procedures, contact the Admissions Office. Skilled counselors are available to help students sort out their questions and concerns. Appointment may be scheduled by writing RIT Admissions, One Lomb Memorial Drive, P.O. Box 9887, Rochester, N.Y. 14623 or calling (716) 475-6631, (Monday-Friday, 8:30 a.m.-4:30 p.m.).

College of Continuing Education (CCE) applicants should phone the college for help with their particular questions. The phone numbers are: City Center, (716) 262-6266; main campus, 475-2234. For further information about CCE, refer to pages 50-76 in this book.

Students with a severe to profound hearing loss may be eligible for admission to RIT with the support of the National Technical Institute for the Deaf (NTID). NTID is described in detail on pages 149-152 of this bulletin. Deaf students may request additional information about NTID at RIT by writing to: Rochester Institute of Technology Associate Director of Admissions (NTID)

One Lomb Memorial Drive
P.O. Box 9887
Rochester, N.Y. 14623

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 1986-87 school year are as follows:

Fall Qtr.	August 19, 1986
Winter Qtr.	November 12, 1986
Spring Qtr.	February 17, 1987
Summer Qtr.	May 7, 1987

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. A late payment fee will be charged to all student accounts that become past due. 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.

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 — \$43 charged to new students living in the residence halls
Orientation Fee — \$40 one-time charge for new students

Photo Facilities Fees — \$51 per quarter charged to all full-time photo students; \$25 per quarter charged to all part-time photo students

Late Registration Fee — A late registration fee of \$25 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 accident and sickness insurance plan

A charge of \$100 is assessed Fall Quarter to all full-time students who have no other medical insurance and have not signed the waiver option.

FEE SCHEDULE 1986-87 (MATRICULATED DAY COLLEGE STUDENTS)

Tuition	Per Quarter	Per 3 Qtr. Yr.
Full-Time Undergraduate (12-18 Credit Hrs.)	\$2567	\$7701
Part-Time Undergraduate (Less than 12 Credit Hrs.)	\$183/Cr. Hr.	
Student Activities Fee (Mandatory Charge)		
Full-Time Undergraduate	15	45
Part-Time Undergraduate	5	15
Student Health Fee (Mandatory Charge)		
Full-Time Undergraduate	30	90
Off-Campus Student Association Fee (Mandatory Charge)		
Full-Time Undergraduate Not Residing in Residence Halls	2	6
Residence Hall Room Charges		
Double Occupancy	641	1923
Single Occupancy	513	1539
Double Room as a Single	553	1659
Residence Hall Fee (Mandatory for All Residence Hall Students)	5	15
Board/Meal Plans		
20 Meals Per Week	591	1773
Any 14 Meals Plus	591	1773
15 Meals Per Week	535	1605
Any 10 Meals Plus	535	1605
(Commuter meal plans are also 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	\$7701
Fees	150
Room	1923
Board	1773
Books	307
Personal & Transportation	605
Total	\$12,459

As indicated in the preceding paragraphs, expenses will vary according to individual circumstances.

12-month payment plan
For the 1986-87 academic year, RIT will offer a 12-month payment plan. This combines the elements of a pre-payment/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.

Refund Policies

It is the student's responsibility, not the instructor's, to assure that all paperwork and refunds are properly processed.

"Die 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 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 reasons 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 percent

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 shall 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 appeal 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.

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

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 \$15 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 \$50.00 late fee will be assessed for failure to pay the remaining 50 percent on time.

FEE SCHEDULE 1986-87
(Matriculated CCE and Day College/Evening Division students)

Tuition –	\$153.00/Credit Hour
	Undergraduate
	231.00/Credit Hour
	Graduate

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 \$25.00 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 Day College Students are charged the day rate for all courses taken (CCE, Day College/Evening Division and courses taken while on co-op).
- Non-matriculated students 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 and Procedures.

Refund policies

The student must arrange to drop or withdraw from courses in person at their College of 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 the student's copy of the change in Class Schedule form. The postmark date of the letter to the college, or the date on which the change in Class Schedule form is properly complete, is the date used to determine the refund. It's the student's responsibility (not the instructor's) to assure that the paperwork and refund are properly processed. The

*Room and board policies are established by Residence Life and Food Service.

official drop period is the first 6 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 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.

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 the student's college. Matters that cannot be resolved will be referred, for further action, to Richard B. Schonblom, bursar.

Financial Aid

How can I afford to attend college?

That's a pretty basic question. It's also one you'll need to answer as you plan your education. It's reassuring to know that financial aid programs have made it possible for many to receive a quality education—in spite of the fact that incomes might not normally be able to meet the costs.

At RIT, we are committed to assisting qualified students in meeting the costs of attending the Institute. Toward this commitment, we offer a comprehensive financial aid program of scholarships, grants, loans, and work awarded on the basis of academic potential and financial need. In addition to traditional aid programs, RIT also offers students and parents a 12-month, interest-free payment plan, an interest-subsidized RIT supplemental loan program, and a supplemental higher education loan financing program.

If you are seeking assistance, there are numerous programs to meet your need. Eligibility for aid at RIT begins with two basic requirements: you must be matriculated (accepted and enrolled in a degree program at least half time—six or more credits per quarter) and must be able to demonstrate financial need.

Financial need is the difference between the cost of an education and the amount that you and your family can afford to pay toward meeting that cost. Assistance programs are designed to supplement your own and your family's contributions. Even if you are unable to pay any of your own expenses, it still may be possible for you to attend. It is important to understand that attending college with assistance does not limit you to a less expensive school that might not offer a program reflecting your edu-

cational interest. This is true because your need is determined according to the cost of the institution that you choose to attend.

Your financial need for RIT is determined by analysis of the Financial Aid Form (FAF) available through your high school guidance office or any college financial aid office. Your 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 your financial situation. After completing the FAF send it to the College Scholarship Service (CSS). The CSS processes your FAF and applies a formula that fairly and accurately evaluates your family's total financial situation. After CSS has determined a reasonable contribution by you and your family, the report of its findings is sent to RIT.

At RIT, there are four general categories of financial aid: scholarships, grants, loans, and employment. When you apply for financial aid, you are automatically considered for all categories and may be offered a combination of two or three of them. This combination results in an aid "package." The exact composition of this package depends on your academic record, the availability of specific funds and the extent of your needs.

The following is a brief explanation of each category of financial assistance at RIT.

Scholarships are generally awarded on the basis of academic record and financial need. RIT awards many such scholarships each year. Other typical scholarship sources are competitions, corporations, private donors, foundation, fraternal organizations, union and local and state governments. Repayment is not necessary.

Grants are outright gifts of financial assistance, which are awarded on the basis of demonstrated need. RIT awards institutional grants that vary anywhere from \$100 to \$7701 for the academic year. Many RIT students also receive grant support from entitlement programs such as the federal Pell Grant and the New York Tuition Assistance Program (TAP).

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 Guaranteed Student Loan Program (GSL) in meeting their costs. Also, RIT awards National Direct Student Loans (NDSL) a federal program administered by colleges, to eligible students as part of financial aid packages.

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 \$3,000 per year are available to supplement other aid programs in meeting educational costs. While PLUS loans are not based on need, the amount borrowed in any year cannot exceed educational cost, taking into account other financial aid received.

RIT also offers a Supplemental Education Loan Program (SELP) designed to provide loans to families beyond amounts they would receive through existing federally subsidized programs. In the RIT Supplemental 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 Supplemental Higher Education Loan Financing Program (SHELF). This loan is primarily available to parents of RIT students attending at least half time. In certain cases, students or spouses may also borrow. The maximum loan available is equal to total cost minus approved financial aid, and the minimum loan is \$1,500 per year. Applications are available from the Office of Student Financial Aid.

There are many opportunities available to defray educational expenses through part-time employment. Any full-time RIT student,

regardless of financial circumstances, may apply for institutionally funded jobs through the Student Employment Office. Institutional employment is not based on family income and does not require filing the FAF. All students who submit the FAF, however, are considered for the federally funded College Work-Study Program.

The term entitlement assistance describes additional grant programs administered by state or federal agencies that are awarded on the basis of financial need or the special characteristics of the recipients. Entitlements, based on need, include the Pell Grant, which is applied for through the FAF, and the New York State Tuition Assistance Program, which requires a separate application. Examples of entitlements based on special qualifications are the GI Bill and State Vocational Rehabilitation benefits.

State Aid—New York Tuition Assistance Program (for N.Y. residents only) (TAP)

The Tuition Assistance Program attempts to minimize the difference in cost normally found between New York public and independent colleges so that students are able to make their choice based on program characteristics alone and not the difference in cost. There is no competition for TAP support.

Selection and eligibility for New York State Tuition Assistance Program

In order for a student to receive a Tuition Assistance Program grant, an individual must be admitted as a full-time matriculated student, meet New York State income requirements, must pursue the program of study in which he or she is enrolled and must make satisfactory progress towards completion of his or her program of study. Two tables 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 1-3

Complete 9 credits per quarter to receive TAP payments 4-6

Complete 12 credits per quarter to receive TAP payments 7-12.

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

I. 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 (Item II). 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 shall 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 may also 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.

II. Reasons for which a waiver may be granted (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

*Normally this will be the student who has attained a satisfactory grade point average but has lost degree credit hours due to changing majors.

ment of the institutional representative, for academic pursuits.

- D. **Change of academic/career goals:** Students who fail to meet academic progress standards and subsequently change academic majors *or* students whose failure to meet progress standards was directly caused by changing academic majors* may be considered for a waiver. The student's entire academic record will be considered. A performance contract may be required.
- 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.
1. *First quarter transfer students who fail to meet TAP academic standards in the first quarter of attendance may request performance contracts.*
 2. *Third, fourth, fifth year undergraduate students with a cumulative GPA of 2.0 or better may request performance contracts for waiver of program pursuit requirements.*

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 Services 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.

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.

Costs

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 1986-87 academic year charges and related educational expenses:

Tuition	\$7701
Room	1923
Board	1773
Fees	150
Books	307
Transportation	300
Personal	505

TOTAL \$12,659

*Based on double occupancy and a 20-meal-per-week plan

**Tuition and room and board charges subject to change without notice.

•••Students in the College of Fine and Applied Arts and the School of Photographic Arts and Sciences enrolling in degree programs leading to the bachelor of fine arts degree will incur supply costs which exceed the estimates listed under the above budget.

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 this program may be obtained from the Bursar's Office.

In addition to the RIT program, monthly payment programs are available through a number of commercial banks and agencies. Inquiries regarding these programs should be directed to the Financial Aid Office.

Standard of satisfactory progress for the purpose of determining eligibility of Federal (Title IV) Financial Aid*

In order to continue receiving financial aid, a student must maintain full-time, matriculated (degree) status and must complete a minimum number of quarter credit hours with a minimum grade point average to be considered making satisfactory academic progress toward his or her degree.

At the completion of this full-time quarter	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A student must have accrued at least this many credits	6	12	24	36	48	60	75	90	102	114	126	138	150	162	174
with at least this grade point average	1.00	1.25	1.5	1.5	1.75	1.75	1.8	1.8	1.8	1.85	1.85	1.9	1.9	1.9	2.0

** This chart does not apply to the New York State Tuition Assistance Program.*

Standard of Satisfactory Progress for the Purpose of Determining Eligibility for 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 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

Undergraduate Financial Aid at a Glance

Scholarship/Grant

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 or Firefighters	Residents of New York State who are children of certain deceased policemen or firefighters	\$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 \$2,850 per year	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	\$250 to \$2,100 per year	File Financial Aid Form 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 and are in exceptional financial need, and are pursuing their first bachelor's degree	\$200 to \$2,000 per year for full-time students	Through RIT by use of the Financial Aid Form, File F.A.F. 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 Opportunities Program (HEOP)	Economically and academically disadvantaged residents of New York State	Amounts vary	Director of HEOP at RIT
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 student	Undergraduates - up to \$2,500 per year. \$12,500 cumulative maximum.	Local Lenders
Auxiliary Loan to Assist Students (ALAS)	Must be at least half-time and qualify as an independent student	\$2,500 per year minus any amount borrowed under Guaranteed Student Loan in the same year.	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	\$3,000 per year for each dependent who is a full-time student.	Local Lenders
National Direct Student Loans	College students who meet financial need requirements established by Federal Government	Up to \$3,000 for first two years of undergraduate study. Maximum of \$6,000 for four and five years of undergrad. study	Through RIT by use of the Financial Aid Form. File between Jan. 1 and Mar. 1 each year."
RIT Supplemental Loan Program	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 Officer
Supplemental Higher Education Loan Financing Program (SHELF)	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 between Jan. 1 and Mar. 1 each year."
Other college part-time work	Considerable variation in kinds of positions, hours, and wages		Consult other RIT publications and RIT Student Employment Office.

*NOTE: For first priority consideration, the F.A.F. 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

RIT provides four opportunities to register for classes. These are: preregistration, open registration, late registration and, for most part-time students, walk-in registration. The earlier the registration in which students participate, the better the opportunity of obtaining their choices. To be officially enrolled in the Institute, students must be academically eligible, scheduled into courses, and must have made the required financial commitment.

Students are expected to complete registration (including the payment of all fees) by the dates prescribed in the Institute Calendar. Students who elect to register after Open Registration will be assessed a \$25 late fee. After registration, any student who has added a course, but who has not made his or her financial commitment with the Bursar's Office, will be dropped from all courses.

Non-matriculated registration

Students who are not formally accepted into a program register as non-matriculated students. This registration occurs the day following Open Registration. Students who participate in this registration are not subject to the late registration fee.

Changes of registration

Any change in enrollment must be recorded with the Office of the Registrar. Students may add to, or drop classes from, their academic schedule during the first six days of a quarter (excluding Saturday, Sunday, and holidays).

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 records 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."

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. For Spring and Summer quarters, all grade reports will be mailed directly to the 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 49 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, 77.48 percent of first-year, full-time day students register for their second year; and 80.03 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

Rochester Institute of Technology stresses programs that lead to a high level of technical and professional competence. Programs of study are offered which lead to degrees at the associate, baccalaureate, and master's levels. Certificate, diploma and associate degree programs are offered by the College of Continuing Education (see page 50-76 and the National Technical Institute for the Deaf (request separate catalog).

Graduate degree programs

The many 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 (non-credit)
W	Withdrawn
X	Credit by Examination
Z	Audit

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.

Quality points

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 credit hour as follows:

A	—4 quality points
B	—3 quality points
C	—2 quality points
D	—1 quality points

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:

$$\text{GPA} = \frac{\text{Total quality points earned}}{\text{Total quality hours}}$$

Dean's list

By action of the college concerned, matriculated undergraduate students will be placed on the Deans' 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 quarter 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 Deans' 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 quarter 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 degree 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 removed from 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 readmitted 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 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 or 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.

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 Saturday classes 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 or satisfactory adjustment 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 or satisfactory adjustment of all financial obligations.
3. A minimum of 45 quarter credit hours shall 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

The writing policy of Rochester Institute of Technology 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 cho-

*"C" Average

**The principal field of study is generally defined to be all courses within the college offering the academic program. Exceptions to this definition exist for the computer engineering, microelectronic engineering, criminal justice, social work, food service management and general dietetics programs, which include only courses from specific disciplines in their principal field of study. The packaging science programs, the printing and engineering systems programs, and programs offered through the College of Continuing Education and NTID do not have principal field of study statistics calculated.

sen 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 is 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.

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.

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.

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 that 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.

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 achievement 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.

* Rochester Institute of Technology. "1980 Master Plan"
(March 1980)

¹George W. Hoke. *Blazing New Trails* (Rochester, N.Y.:
Rochester Athenaeum and Mechanics Institute, 1937) p. V.

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 individual 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.

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 judgement 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.

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 will help you plan and carry out a sound program of study at RIT. Because of its importance, you have several specialized sources for this planning.

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, you will be assisted in developing your curriculum plans, determining the requirements for graduation, and interpreting your academic needs. It is the student's responsibility, however, to seek out advising and take an active role in the maintenance of their academic records. When a specific advisor is assigned to you, he or she is a specialist in your career field. Don't hesitate to schedule regular meetings, ask questions and discuss your hopes for the future.

In the event you wish to re-examine your choice of academic major, or if you have questions about the appropriateness of a transfer to a new major, the Counseling Center can assist you in clarifying your educational and vocational plans.

The Office for Cooperative Education and Placement is another resource of the Institute, particularly in fulfilling cooperative education requirements in your major field and securing initial employment at the end of your program at RIT.

The support services at RIT are directed to meet your career and academic needs. If you need assistance in finding the appropriate office, call the coordinator of academic advising at ext. 6682.

Linking Students and Career Experiences

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." We made a commitment to career education as early as the 1880s. We began the Cooperative Education Program in 1912. Our friends called it a bright new idea; we called it common sense.

Since 1912 RIT has developed one of the country's largest and strongest co-op programs. 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. At RIT the center and the student are committed to the philosophy of career education that makes co-op an experience of a lifetime.

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. We take pride in being ready to give students an edge over the competition when they graduate. We provide individual career counseling and job search seminars to develop important skills, 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. We are serious about our student's career options.

That's why the staff not only counsels but also spends considerable time developing opportunities with employers nationwide for students in co-op programs and for graduates. We even help our alumni with lifetime services at their request. All of the services are available to students and alumni at no fee.

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 non-print forms 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 200,000 records.

In addition the library offers computerized searching of information from commercial data bases specializing in a broad spectrum of subject areas. 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 the deaf to serve the National Technical Institute for the Deaf 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.

Information Systems and Computing

Information Systems and Computing (ISC) provides computing services on VAX/VMS and VAX/ULTRIX (UNIX) computer systems and various microcomputers to students regardless of their majors. Many RIT colleges also have computing facilities available to students in their programs.

Students use the computers for course assignments, writing reports, analyzing statistics, manipulating numbers and data using electronic spreadsheet software, producing graphs, and performing many other functions. Students can also send messages and files to professors, other students at RIT, and throughout the world via the BITNET network.

The VAX/VMS systems can be accessed via terminals in the ISC User Computing Centers (UCC) located in the Lewes P. Ross Building (10), Grace Watson Hall (25), Max Lowenthal Memorial Building (12), James E. Gleason Memorial Building (9), and the Microelectronics Engineering Building (17) or via telephone. Microcomputers are available in some of the UCCs and in dedicated labs.

UCC employees assist students using the computer systems. Professional software specialists also are available for consultation. Documentation is available in the UCCs and can be purchased from ISC User Services. A monthly newsletter, and on-line NEWS and HELP facilities also are available for computer assistance.

A computer account is available to each registered student whether or not specific computer usage is

required in the student's program. The account remains active as long as the student is registered and in good standing.

Computer accounts and the files stored in those accounts, except for external accounts, are the property of RIT. ISC and departments that faculty, staff or student accounts are associated with have the right to review or delete accounts. Normally accounts are only deleted if the student leaves the Institute. ISC will take action against users who are abusing the privileges of having a computer account.

Questions and comments regarding ISC services and policies can be made to the ISC User Services staff in the Ross Memorial Building (10), room OA340 or by calling 475-6929. VAX/VMS computer accounts can be obtained from that office. Questions regarding the use of computing facilities operated by the RIT colleges should be made to the specific college.

Instructional Media Services

Instructional Media Services (IMS) provides a complete range of television and audio visual services to faculty, students and staff. The department consists of a television production and distribution service, a media production area, an audiovisual distribution service and three media learning areas. The Media Resource Center, The Language Laboratory and IMS at City Center.

IMS Television Service provides videocassette players and monitors for classroom use as well as distribution of programming over a campus-wide cable system. There are two production studios and available remote equipment for on-site video recording. IMS also supports the RIT telecourse curriculum presented on American/People's Cablevision and WXXI-TV. Teleconferences and participation in the National University Teleconference Network are coordinated through IMS.

The Media Production Service produces instructional media such as copy slides, slide duplicates, posters, artwork for presentations, audio recordings and duplicate audio tapes. Producer/designers work with faculty to develop large-scale media programs, such as a series of television or slide-tape lessons. Within the IMS office area

there is a do-it-yourself section for producing transparencies, ditto duplicating and audiocassette copying.

The AV Distribution Service provides the RIT community with instructional material available from sources throughout the country. Research assistance is provided to locate and recommend materials to rent or buy. Projectors and projectionist services and lecture hall support are available, and a variety of audiovisual equipment, such as slide projectors and tape recorders, can be borrowed.

The Media Resource Center, located inside the main library entrance, contains a variety of non-print media and AV equipment for individual use. The center contains a collection of more than 75,000 slides, as well as viewing facilities for videocassettes, videodiscs and any one of the 700 motion pictures housed there.

The Language Laboratory in the George Eastman Memorial building, room 2338, provides audiocassette players for listening and recording. Audiotapes in a variety of foreign languages are available. This area is used as a laboratory by foreign language classes and the English to Speakers of Other Languages (ESOL) program. When not in use by classes, the laboratory is open for individual use.

The staff of Instructional Media Services encourages faculty and student requests for assistance in finding, producing and using media and provides consulting on all learning technologies.

The IMS offices are open from 7:30 a.m. until 9:30 p.m., Monday through Thursday; 7:30 a.m. to 5 p.m., Friday; and on Saturday mornings.

Learning Development Center

The Learning Development Center, an academic support unit of the Division of Academic Affairs, offers RIT students, faculty and staff, and the community a variety of services including diagnosis, individual and group instruction, and professional consulting.

Through center programs, RIT students have opportunities to improve their study techniques, critical thinking abilities, mathematical skills, reading and writing competence, and general facility in the uses of the English language.

There is a specialized English program for speakers of other languages (ESOL). In addition to providing individual and group instruction, the center maintains a math lab and a writing lab. Special programs, built around student requests, are provided for student groups and clubs. For the student who is experiencing academic difficulty, the center provides an individual learning assessment to discover factors that may facilitate or interfere with the student's academic performance.

Consultation, testing and instructional services are free to all RIT students with the exception of some ESOL instruction.

In addition to the programs listed above, the center offers three full-time programs of study: a College Anticipation Program, a specialized program of instruction for high school graduates desiring additional preparation prior to full matriculation at a college/university; a College Restoration Program, a matriculated instructional program for students who have been suspended or are liable to suspension from college for academic reasons; and ESOL (English for Speakers of Other Languages), a program for students who do not meet the RIT admissions requirements on the TOFEL (Test of English as a Foreign Language) or who want to improve their English skills.

For more information concerning these LDC programs, contact the center at (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 affective 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.

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.

This 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 common 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.

College Restoration Program

The College Restoration Program is a specialized, matriculated program of instruction for students who have experienced academic difficulty and suspension from a college.

A course of action can only be recommended after the reason for academic difficulty has been established. If it is determined that CRP can be helpful after an interview and diagnostic and achievement tested has been made, 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.

English to Speakers of Other Languages

The Learning Development Center offers both full-time and part-time study of ESOL. Classes included in each level are conversation, grammar, writing, vocabulary and reading. The intensive English language program consists of 25 hours of instruction per week. Fifteen hours are spent in classes and 10 hours in language lab work. This intensive study program meets the immigration requirements for the Certificate of Eligibility 1-20.

Before a specific course of study can be selected students must be tested to determine their level of English proficiency and to diagnose their specific language needs.

In addition to the full-time study program, students may register for one or more ESOL courses. Arrangements may also be made to receive individualized language instruction. Pronunciation, conversation, as well as grammar, writing, reading and vocabulary may be studied in this manner. There is a fee for instruction, but matriculated students receive a reduced rate.

In the ESOL writing lab matriculated students receive help with assignments, learn to edit their work and review English grammar. This service is provided free of charge.

For more information about ESOL Program offerings come to the Learning Development Center or call 475-6684.

Foreign language instruction
The ESOL Department offers a program in which international students teach their native language. 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. The language, the 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 Learning Development Center at 475-6684 or come to the ESOL office for an application.

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 Exploration Seminar
- Career Decision Program
- Career Resource Center
- SIGI
- Testing
- Developmental Programs and Groups
- Victims Assistance Program
- PASS (Programs on Alcohol for Student Success)
- Consultation
- Referral Services

Counseling center hours

Counseling Center hours are 8 a.m. to 6 p.m., Monday, Tuesday and Thursday; 8 a.m. to 8:30 p.m., Wednesday; and 8:30 a.m. to 4:30 p.m. on Friday. Counselors can be seen initially without an appointment by stopping by the Counseling Center from 9 a.m. to Noon and from 1 p.m. to 4 p.m. weekdays.

Personal/psychological counseling
Individual and group counseling are available for those 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 a personal crisis.

Career counseling

Career counseling is also available at the Counseling Center. 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 exploration seminar

For students who would like assistance with choosing or re-examining a chosen field of study, the Counseling Center also offers a three-credit Career Exploration course that provides an opportunity to increase their awareness of themselves, career options and the process of career decision making.

Career decision program

The Career Decision Program has been designed to provide RIT students with the opportunity for an in-depth structured career guidance experience as they choose or change a specific program of study. The program provides enrollment to selected students for up to three quarters and includes the following elements:

1. Intensive career/academic advisement during a period of exploration and choice;
2. Opportunity to sample preferred course work across as many as three majors before narrowing to a single field of concentration;
3. Continuation of financial aid for students receiving assistance (the program carries the benefits of full matriculation for students carrying a minimum of 12 credit hours);
4. Participation in the three-credit Career Exploration course referred to under "Career Exploration Seminar."

Since enrollment is limited and sufficient time is required for a thorough assessment of a student's situation, it is advisable to apply as early in the quarter as possible for the coming quarter. Interviews can be arranged by calling the Counseling Center at 475-2261.

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.

SIGI

SIGI (pronounced Siggy) stands for System of Interactive Guidance and Information. It is a computer-based guidance system designed to help people make informed and appropriate career decisions. Sigi is often used as part of the career counseling process.

Testing

The Counseling Center administers a number of psychological tests and interest 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.

Developmental programs/groups

The Counseling Center staff offers groups each quarter to assist students in their development. These groups offer a supportive environment in which to explore a variety of issues which typically affect the lives of students—such as forming relationships, handling loss, managing stress, clarifying values and choosing careers.

Additionally, Counseling Center staff members are prepared to present to student groups and organizations such programs as communi-

cation skills, team building, leadership development and goal setting. Individuals are asked to contact the Counseling Center at least three weeks before programs are desired.

Victims Assistance Program (VAP) VAP, 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

PASS (Programs on Alcohol for Student Success)

The program has two functions: education and counseling. Available resources include lectures, films, slides, questionnaires, pamphlets and informed dialogue. PASS also offers individual and group counseling for those who have an alcohol/drug problem, and for those who are involved with such a person.

Consultation

Staff members of the Counseling Center will provide consultation services to interested student groups and organizations in a number of areas within the scope of their expertise.

Special Services

Extra Help: HEOP

RIT's Higher Education Opportunity Program (HEOP) makes it possible for disadvantaged students to attend college. Students in the program not only have financial difficulty, but also have not excelled in high school. They have good academic potential, but may not have received encouragement from guidance counselors, may have attended academically poor schools, have had the care of younger brothers or sisters or time-consuming jobs.

HEOP's responsibility is to help such students reach and maintain academic competence. Many students in the program are deficient in essential math and verbal skills, but HEOP provides remedial instruction and tutoring and personal, academic and career counseling. The HEOP staff also make acceptance and financial aid decisions and help insure that students learn about and make use of the numerous services and opportunities available to all at RIT.

Every student admitted into HEOP must be both academically and financially disadvantaged. All are provided with full financial support, which is provided jointly by RIT and state and federal money. A supplemental grant is also available for any student who needs extra time (up to one year) to complete his or her program of study.

All students admitted to the program as freshmen must enter a five-week pre-freshmen program conducted during the first summer. They take math and remedial reading as necessary, and everyone is required to take Introduction to Psychology. The instructor tries to incorporate different facets of a college education—such as a research paper, a personal opinion paper and different types of tests—into the course. Students learn to use the library, organize a paper and read a textbook effectively.

In the 13 years of its existence HEOP has graduated nearly 200 students, many of whom have landed excellent jobs. Graduates in technical fields have the highest success rate.

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 11 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 com-

munity 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. Through experiences with special services students are able to understand and appreciate their own talents and capabilities. 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 College-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 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, issues International Student ID and American Youth Hostel cards, 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

"Because our veterans are a little older and realize the value of education, they undoubtedly try harder," says Gene Clark, director of Veterans' Affairs. "They have proven that one's level of maturity and interest in self-development are key factors in successful completion of one's goals. Our average veteran at RIT usually has the added responsibility of a family. With it, or course, comes the added financial pressure of maintaining a home and, more often than not, a full-time job. Because of the complexities of governmental regulations and benefit payment," says Gene, "our veterans are dependent

on our ability to service their needs. They come to the Office of Veterans' Affairs for counseling, information, assistance with problems, tuition deferments, and just to say hello. We, for the most part, are all veterans and feel that having been there makes it easier for those who are to follow. Veterans helping veterans is the basis of our services."

The Office of Veterans' Affairs, conveniently located on the lower level of the College-Alumni Union and easily accessible for day and evening students, is open from 8 a.m. until 8 p.m., Monday through Thursday, and until 4:30 p.m. on Friday. The OVA staff is comprised of the director, program secretary, peer-counselors, and VA work-study students, who work constantly to handle inquiries and assist veterans with VA-related and college information. With their assistance, a veteran or dependent can be sure of a steady transition into and through the RIT educational experience.

Students are encouraged to visit and experience 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 experience education.

Veterans are important to the RIT community. They bring experiences and expertise of a unique nature to the campus. The roles veterans accept at RIT extend into student government, as well as counseling, such as the Pre-Service Counseling Program offered through the Vets Club.

Benefit programs are often seen as complex, confusing and problem related. "Successful contact with our veterans has proven that \A problems can be effectively dealt with before they have a negative impact on our vets," maintains

Clark. "We are concerned that many veterans and the dependents of deceased and disabled veterans are not utilizing their benefits. Benefit payment rates have been recently increased and the length of eligibility extended to 10 years for program completion."

Gene is a U.S. Air Force veteran and presently serves as a commissioned infantry officer with the U.S. National Guard. His degree in business administration combined with his military experience and expertise in veterans' programs provide the background that enables him to successfully assist veterans and their dependents through the maze of veterans' benefits.

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 professional development of students by aiding the colleges in establishing programs within the context of their own curricula. 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 not credit bearing, but formal recognition that describes what was learned is offered.

Some specific programs that make up the total Complementary Education concept include the Community Services Program, which provides students with opportunities to volunteer in large, cooperative off-campus community projects, and non-profit agencies in Rochester to focus on the importance of civic awareness; the Group Development Program which offers student groups an opportunity to look at their work styles, communication styles 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 style. Participants have an opportunity to examine their own skills, receive feedback, and discuss the theories of leadership. Each of these activities offers formal learning before the event takes place and evaluation and sharing of the experience. Students will have the chance to expand their learning environment. Jointly sponsored by NTID, these programs also serve to increase the interaction of hearing and deaf students.

Certification also is given to non-funded projects already under way that involve students in extended activities that do not entail academic credit. Such documentation is valuable to students in developing their employment placement credentials. Complementary Education also sponsors the Institute Forum, a year-long series of nationally known speakers who focus each year on a different topic related to the quality of life and our society.

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 staffs, 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 6,000 students in residence halls or apartments. The Department of Residence Life, part of the Division of Student Affairs, 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. 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 with the housing information mailing.

Students cannot be guaranteed accommodations in the residence halls for more than one year due to current demand for housing.

Whenever housing projections indicate the need to do so, a number of upperclass students are required to vacate the residence halls to provide adequate space for new students. Most students leaving the residence halls can be accommodated in apartments near the campus.

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, business, computer science, engineering and photography; International House for both international and American students; and Unity House, which emphasizes the development of black culture.

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 some entering students may be assigned to triple rooms.

All corridors and rooms are carpeted. A bed, desk, chair, dresser, closet, and window covering are provided for each student in a room. Each corridor in the unit has its own bathroom, equipped with showers. Some suites are available, composed of three bedrooms connected to a common bathroom. Each house has its own lounge furnished for study and relaxation. Coin-operated laundry facilities are available in the basement.

Each student is furnished with information on residence hall living by the Department of Residence Life after he or she is accepted.

All residence hall students must participate in one of the Institute board plans. The charges for residency and meals are included in the section on student expenses.

Apartment housing

Apartment housing is available to all married and upperclass single students in Institute managed apartments and townhouses. 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 Off-Campus and Apartment Life, One Lomb Memorial Drive, P.O. Box 9887, Rochester, N.Y., 14623; (716) 475-6920.

Off-campus housing

The Office of Off-Campus and Apartment Life provides an Off-Campus Center that strives to meet the needs of off-campus students by providing a variety of services and programs. The center maintains up-to-date listings of available rooms, apartments and houses in the Rochester area and operates a Roommate Locator Service to help students find compatible roommates. The Off-Campus Center is located in the Residence Life Office and is open Monday through Friday from 8:30 a.m. to 5 p.m.

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 early June, and two for freshmen in mid-July. Summer programs concentrate on registration for classes, academic information, support services provided by the Institute, and Deaf Awareness. 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 Orientation, new students receive a copy of FACTS, 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 \$10 parent orientation fee to support the program.

All new, full-time, day, matriculated students are assessed a \$40 program fee to cover program development costs.

The Office of Orientation and Special Programs is located on the A-level of the College-Alumni Union, and is open 8:30-4:30, Monday through Friday. The phone number for Orientation is (716) 475-2508.

Student Clubs and Organizations

Off Campus Student Association OCSA is the representative student government for all RIT students who do not reside in a dormitory. The Off Campus Student Council, formed in 1978, is composed of off-campus students from the nine colleges and the four RIT-operated apartment complexes. 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 computerized ride pool system and off-campus survival booklets. The OCSA lounge, located in the basement of the College-Alumni Union, is a place for the off-campus student to relax. OCSA also publishes a newsletter twice per quarter that contains beneficial off-campus news.

If you are interested in getting involved, stop in at the OCSA office in the basement of the Union, or call 475-6680 for more information.

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 undergraduate and graduate students become members of the RIT Student Directorate through payment of 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.

College-Alumni Union

The College-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, 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 525-seat Ingle Auditorium; a complete gameroom for bowling, billiards, foosball, and electronic games; a unisex hairstyling salon; 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. In addition to offices for the staff, there are the offices of special services, Special Events, Student Affairs, Orientation, Complementary Education, College Activities Board, student activities, Student Directorate, WITR radio station, RITV, *Technmila*, *Reporter*, Off-Campus Student Association, and other student organization offices.

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.

Social events

Major social events on the activities calendar include Spring Weekend, Homecoming, Parents Weekend, and Winter Weekend. Many other dances, parties, speakers and events are sponsored by the College Activities Board, the Residence Hall Association, the Greek Council, special interest clubs of many kinds, and departmental and professional associations such as Alpha Chi Sigma, Delta Lambda Epsilon, Delta Sigma Pi and Sigma Pi Sigma. Two national sororities and nine national fraternities offer social activities and promote high scholastic and social standards among members.

The RITreat

The RITreat, formally known as the "new student lounge" or "the old bookstore," 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
- Copiers/typewriters/word processors
- Shuttle bus and RTS monitors
- Special Services
- Student Activities office
- Student conference room
- Student Directorate office
- Study tables/lounge area
- TDDs
- TV lounge

Student professional associations

A number of national technical associations have student affiliate chapters on the RIT 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. *Technmila*, the student yearbook, contains a student-edited pictorial and written description of student life at the Institute during the year. The *Reporter* and *Technmila* have consistently won state and national awards.

An activities calendar is issued quarterly.

A student handbook is issued early in the year, as a cooperative effort of students and staff. This includes the student directory listing addresses, telephone numbers, and other information about students. This becomes a handy year-long reference of activities and people.

These publications draw their talented staffs—artists, photographers, writers, managers and printers—from the entire student body.

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 total society and to create a greater understanding among the black students at RIT. Each year the committee sponsors various social and cultural programs designed to achieve these objectives.

Performing arts

The Department of Performing Arts at NTID supports a variety of activities.

- The NTID Theatre presents three plays during the year. These plays use deaf and hearing actors working together and are performed in both sign language and voice for the enjoyment of all audiences.
- The NTID Lab Theatre offers experimental, new or unusual productions. In addition, new directors and student writers use the space for developing their skills.
- The RIT Dance Company includes deaf and hearing dancers in at least one concert each year. They rehearse throughout the year; the company's emphasis is on modern dance.
- Sunshine Too is a company of six performers who travel throughout the country from October to June. They present shows for schools, alumni groups, special RIT groups and the general public. They provide information on RIT and deafness during their performances and workshops.
- RIT Tiger Band combines RIT and NTID students, faculty and staff and community members who perform a variety of music at various sporting events, awards and ceremonies, dedications and student activities. New members always welcome.
- RIT Tiger Band Auxiliary Squads' members are recruited from the total 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.
- The Sign/Sing Chorus includes students, faculty and staff, who present a holiday show and a winter/spring event. Songs are sung by a chorus of 25-30 members and signed by another group of 10-15 people. Rehearsals are once a week.
- The NTID Music Combo is composed of NTID music students who perform contemporary music for RIT and community events.
- Guest artists are invited to perform in the NTID Theatre. A dance company, a professional mime and the National Theatre of the Deaf are typical presentations each year.

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 interpreted for the deaf and hearing impaired.

RIT's beautiful Interfaith Center, on the east side of the College-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, concerts 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 (V/TTY) or by coming to the center when it is open.

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 day-school candidates for the baccalaureate degree entering as first or second year day-school 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 com-

pleted the equivalent of three quarters or more of physical education or earned a baccalaureate degree at another Institution.

Associate Degree—All day-school 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 equals 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 is conducted by the entire physical education staff in the main gymnasium within a week following academic registration. Hours for registration are 7 a.m. to 2 p.m. (7:30 a.m. to 2 p.m., Summer). 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.

Cardio and strength activities

Aerobic Dance, Army Conditioning Drills, Conditioning, Fitness for Life, Jogging, Judo, Karate, Kung Fu, ROTC, Swimming for Fitness, Weight Training, Yoga and Tai Chi

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, Sign Dance, Skiing (downhill), Swimming, Tennis, Water Polo, Western Horseback

Team activities

Basketball, Ice Hockey, Lacrosse, Soccer, Softball, Volleyball

Life support and safety programs
Care & Prevention of Athletic Injuries, CPR & Multi-Media First Aid, Emergency Medical Tech Training, Life Saving, 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, inner-tube 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 (bowling, 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

In recent years, RIT's intercollegiate athletic teams have achieved national prominence. Last year 12 teams were involved in post-season regional or national playoffs, highlighted by men's cross country placing third in the NCAA's. In the past four years, men's hockey has won two national crowns.

Featuring 18 varsity sports, RIT competes on the Division III level. The Tigers are members of several national and state organizations, including the National Collegiate Athletic Association (NCAA), Eastern College Athletic Conference (ECAC), New York State Women's

Collegiate Athletic Association (NYSWCAA), United States Intercollegiate Lacrosse Association (USILA) and Independent College Athletic Conference (ICAC).

Fall sports include men's and women's soccer, women's tennis and volleyball, and men's and women's cross country. Winter competition features basketball, men's and women's hockey, swimming and wrestling. In spring, teams compete in baseball, lacrosse, softball, men's and women's track and men's tennis.

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 11 p.m.). On Saturday and Sunday, a medical provider is available from 10 a.m. to 5:30 p.m. 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 through the Health Service. The health fee does not include prescription medications.

The Institute requires students to maintain health insurance cover-

age 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 campus stores on the main campus and at City Center.

The main store, Campus Connections, is located on the west side of the College-Alumni Union. It consists of two selling floors and is divided into eleven departments.

1ST FLOOR:	Clothing and Accessories Luggage General Reading and Reference Books Gifts and RIT Insignia Shop Stationery Print, Poster and Framing Shop Supplies – school, office, art, engineering Home Accessories Photography and
2ND FLOOR:	Electronics Products for the hearing impaired Computers – hardware, software, accessories, computer furniture Coursebooks – textbooks, study guides, etc.

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, 11:00 a.m. to 4:00 p.m.

The Candy Counter in the lobby of the College-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.

The RIT Sportshop is located in the lower lobby of the Frank Ritter Memorial Ice Arena. It stocks a variety of sporting equipment and clothing. Tickets to RIT hockey games may also be purchased at the Sportshop.

For current information about store hours, special sales and bargains, call the Bookstore Info Line at 475-6033.

Automobile 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. There is no fee attached to vehicle registration.

Failure to register a vehicle parked on campus will result in a \$10 fine. Fines for other infractions of regulations are \$5 and \$10. Fines are payable at the Bursar's office in the George Eastman Memorial Building.

Questions regarding parking regulations should be addressed to the Traffic Coordinator at 475-2074.

Campus safety department

The Campus Safety Department is a professional security agency that serves and protects the college community 24 hours a day, 7 days a week. While this staff constantly patrols all campus areas, RIT does not assume liability for lost or stolen personal effects of students, faculty or staff. We therefore urge you to maintain an insurance policy on your own through your family insurance program. The Campus Safety Department provides services in: preventative safety measures, criminal investigations, lost-and-found property services, and emergency assistance related to injury/illness, motor vehicle accidents and occurrence of fire.

You can contact the Campus Safety Department at these numbers:

General Information	(475) 2853
Vehicle and Traffic Questions	(475) 2074
Escort Service	(475) 2853
Emergency	(475) 3333
TDD	(475) 6654

The Campus Safety Offices are located in the Grace Watson Dining Hall, building 25.

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.

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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: Professor Stanley Widrick

College of Continuing Education

Fredrick 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: Professor 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

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 twenty years and his role as a champion of and an authority on industry and business. Mr. McCarthy has 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: Richard G. Budynas

College of Fine and Applied Arts

Charlotte Federicks Mowris Professorship in Contemporary Crafts

Established: 1976

Donor: Mrs. Charles F. Mowris

Purpose: To perpetuate her interest in the School for American Craftsmen through the work of faculty and students as talented craftsmen

Held by: Presently open

College of Graphic Arts and 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 Alfred F. Horton

Richard S. Hunter Professorship of Color Science, Appearance and Technology

Established: 1982

Donor: 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: Presently open

James E. McGhee Professorship in Photographic Management

Established: 1967

Donor: Master Photodealers & Finishers Association and friends of Mr. McGhee

Purpose: To provide a permanent memorial for Mr. McGhee, a former vice president of the Eastman Kodak Company and lifelong friend of the photo finishing industry

Held by: Professor James E. Rice

Paul and Louise Miller Distinguished Professorship in Newspaper Production Management

Established: 1976

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 Robert G. Hacker

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

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William A. Kern Distinguished Lecture Series

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 RIT Trustee from 1959 to 1964

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Captain Billy Freeborn, BA, Sam Houston State University—Assistant Professor
Captain Henry Waters, BSIE, Northeastern University—Assistant Professor
Sergeant Major James Lyles—Detachment Sergeant Major
Master Sergeant Timothy Rothrock—Training NCO
Staff Sergeant Robert Seay—Supply Specialist
Lt. Col. James W. Jacobs, Jr., BA, Purdue University; MS, Troy State University—Professor
Captain Michael Devine, BA, St Michael's College; MS, Air Force Institute of Technology—Assistant Professor
Staff Sergeant Daniel Elwell—Air Force Counselor, AFROTC and OTS
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INDUSTRIAL ENGINEERING DEPARTMENT

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Bemadette Merkel, BFA, MFA, Rochester Institute of Technology—Associate Professor; Chairman of Graphic Design
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Warren Daum, BS, MS—Administrative Consultant
Gaylene Morrill, BS—Communications Coordinator
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Hadrian Lechner, BS, MS, Boston University—Assistant Professor
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Jacob Rubin, MS, Rochester Institute of Technology
Allan Toth, MS, Rochester Institute of Technology

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William W. DuBois, BFA, M.Ed.—Chair, Biomedical Photographic Communications; Associate Professor
James E. Rice—Chair, Photographic Processing and Finishing Management; McGhee Professor
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Richard D. Zakia, BS, Ed.D.—Chair, Fine Arts Photography; Professor

Faculty

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Nuclear Medicine Technology

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Oneonta—Data Base Technician
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Dottie Hicks—Coordinator of Exit Interview Office and Academic Advising
Patricia Ingwers—Administrative Supervisor, Learning Assessment Program
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Rev. Jeffrey Hering—Lutheran Campus Minister

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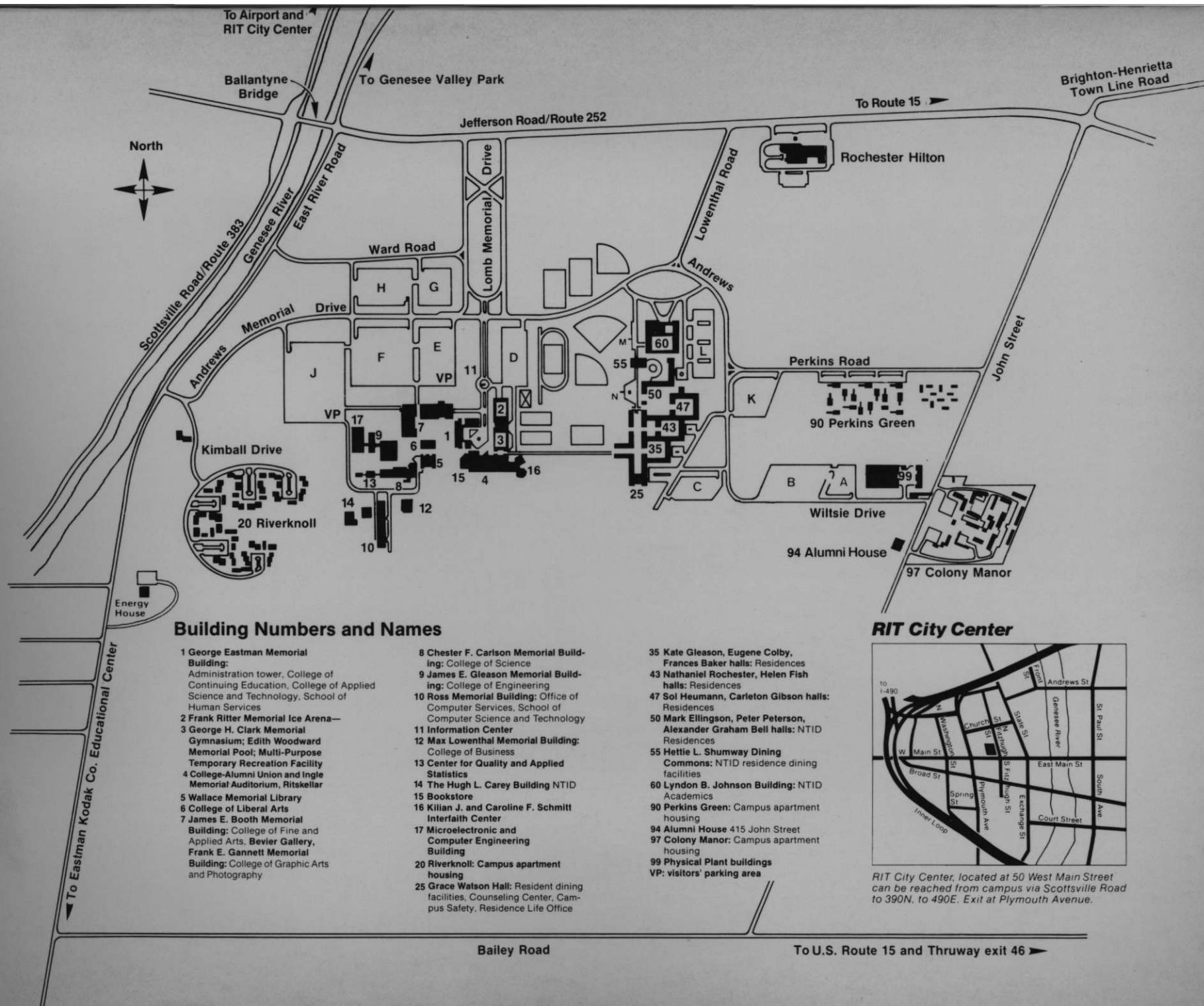
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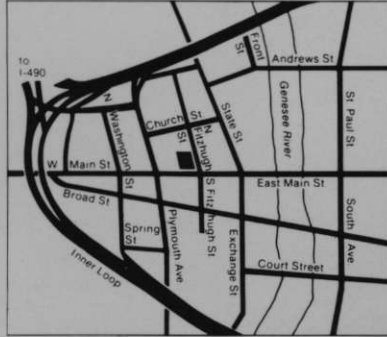
Building Numbers and Names

- 1 **George Eastman Memorial Building:** Administration tower, College of Continuing Education, College of Applied Science and Technology, School of Human Services
- 2 **Frank Ritter Memorial Ice Arena—**
- 3 **George H. Clark Memorial Gymnasium;** Edith Woodward Memorial Pool; Multi-Purpose Temporary Recreation Facility
- 4 **College-Alumni Union and Ingle Memorial Auditorium, Ritskellar**
- 5 **Wallace Memorial Library**
- 6 **College of Liberal Arts**
- 7 **James E. Booth Memorial Building:** College of Fine and Applied Arts, **Bevier Gallery, Frank E. Gannett Memorial Building:** College of Graphic Arts and Photography

- 8 **Chester F. Carlson Memorial Building:** College of Science
- 9 **James E. Gleason Memorial Building:** College of Engineering
- 10 **Ross Memorial Building:** Office of Computer Services, School of Computer Science and Technology
- 11 **Information Center**
- 12 **Max Lowenthal Memorial Building:** College of Business
- 13 **Center for Quality and Applied Statistics**
- 14 **The Hugh L. Carey Building** NTID
- 15 **Bookstore**
- 16 **Kilian J. and Caroline F. Schmitt Interfaith Center**
- 17 **Microelectronic and Computer Engineering Building**
- 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
- 90 **Perkins Green:** Campus apartment housing
- 97 **Colony Manor:** Campus apartment housing
- 99 **Physical Plant buildings**
- VP: visitors' parking area

RIT City Center



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.



Rochester Institute of Technology

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