

**SUNY**  
**UTICA/ROME**

# **Undergraduate College Catalog**



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*The information contained in this catalog is correct at the time of printing. Changes in policies, requirements, and regulations may occur during the year.*

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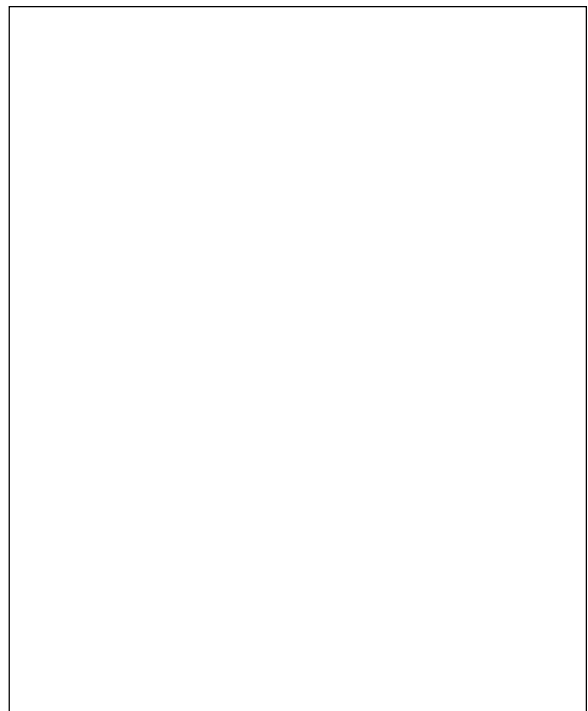
## President's Message

*“Learning is more than the mastery of skills, the accumulation of facts, and the application of memorized responses. Knowledge does not endure unless it is accompanied by intellectual curiosity.*

*Teaching must encourage independence of thought, personal initiative, the play of memory and imagination—qualities that seed the mind with ideas and lead the student in the joy of self-discovery.”*

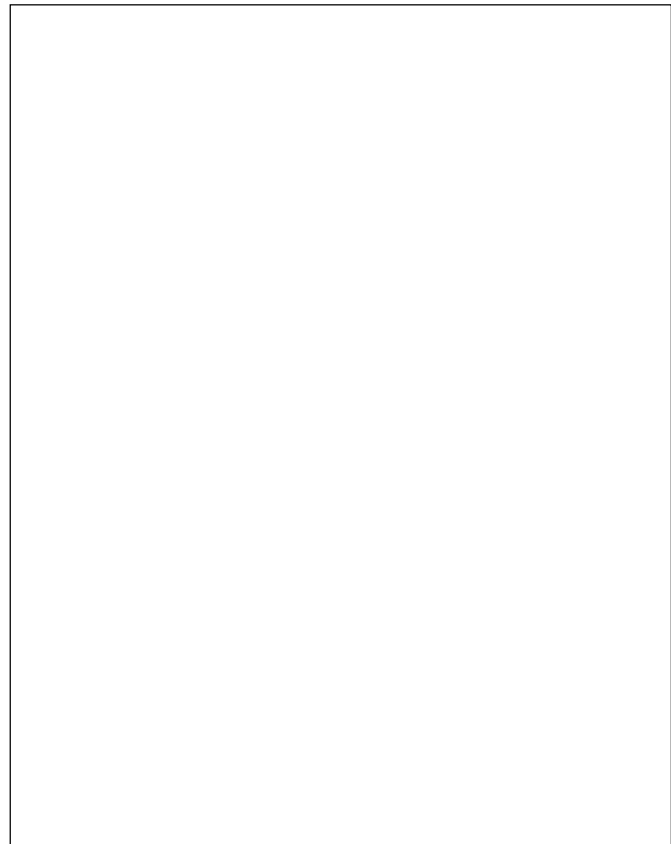
**Peter J. Cayan**

President



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# Programs/Options/Degrees

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*Note: The college also offers Master of Science degree programs in Accountancy, Adult Nurse Practitioner, Advanced Technology, Business Management, Computer and Information Science, Nursing Administration, Telecommunications, and an Advanced Certificate in Adult Nurse Practitioner.*

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# General Information

## The College

The State University of New York Institute of Technology at Utica/Rome is a special and, in fact, unique member of the SUNY family. The college has been serving students in its role as the state's only upper-level institution since 1966, when the State University established it as the Upper Division College to meet the needs of transfer and graduate students. In that capacity, the Institute of Technology has been able to offer two-year college graduates and master degree students a support system geared exclusively for their needs and interests.

Over the past three decades, students have been the beneficiaries of the expertise of admissions and financial aid professionals who deal daily with the issues of credit transfer and funding possibilities that face students graduating with an associate's degree or transferring from a four-year college. And the record shows the Institute of Technology has become a "crossroads college" for students making critical choices concerning their futures, and the logical next step for those from community and junior colleges, colleges of technology, and other institutions.

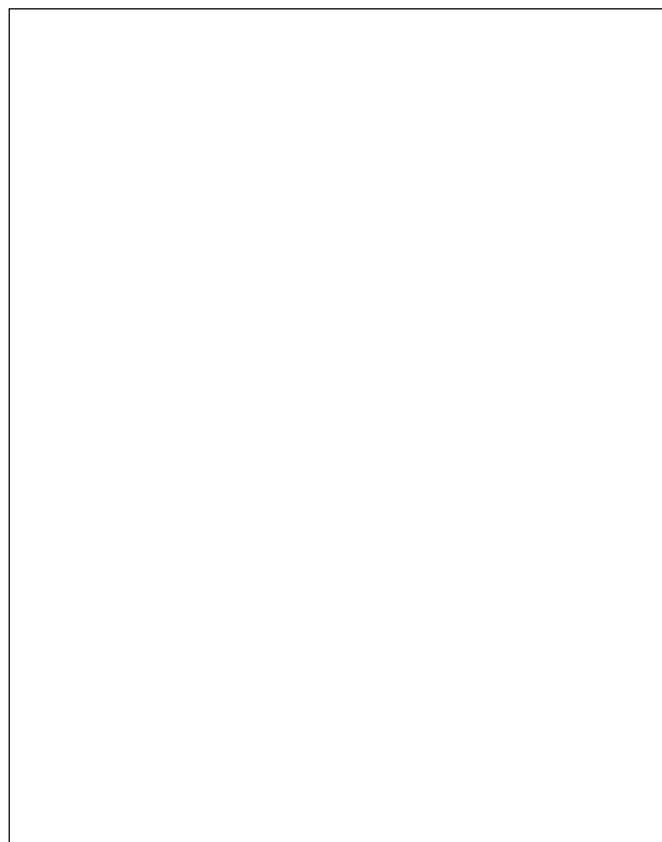
In addition to the rich human resources the college provides, the Institute of Technology offers students the many assets of the State University system's newest campus. The campus is both spacious and intimate, modern and established. For example, although established in 1966, the \$60 million dollar campus complex was completed in 1988.

Located on a beautifully-landscaped and scenic 800 acres, the campus includes two primary classroom buildings, residence hall complexes and a Campus Center. Classroom buildings are equipped with the most modern laboratories, where many of the college's professional, technical and liberal arts students develop through practice-oriented learning, taking advantage of state-of-the-art equipment.

The learning experience is enhanced through the Institute of Technology's educational partnerships with many businesses and professional organizations in Central New York, including those dealing with technology transfer, human services, health care, finance and other fields related directly to areas of study.

The Campus Center houses student services offices, a gymnasium, racquetball courts, exercise rooms, a swimming pool and saunas, a 400-seat dining hall, and meeting and recreation rooms.

Students at the Institute of Technology live in the State University system's most modern residence halls that include all of the conveniences of apartment living. These complexes have been rated by SUNY students as the best on-campus residence halls in the state. In addition, each student room is furnished with a link to the college's mainframe computer that also allows access to Internet. These townhouse apartments provide a setting that is safe and comfortable on a campus that is secluded from the hustle and noise of the city, but is just minutes away from Utica's downtown.



Consistently students mention small class size and individual attention they receive from the college's exceptional faculty as the primary factors in their successes at the Institute of Technology. And although the college has matured from the 58-student enrollment during its beginnings to some 2,500 full-and part-time students now working on bachelor's and master's degrees, it maintains a family atmosphere for those making crucial final steps toward their career goals.

More than 15,000 students have graduated from the Institute of Technology since its first commencement in 1975. The college has an exceptional placement record, with more than 90 percent of its graduates employed or attending graduate school. Its alumni hold a wide range of rewarding and exciting careers across the nation.

The Institute of Technology awards the following undergraduate degrees: Bachelor of Science (B.S.), Bachelor of Arts (B.A.), Bachelor of Technology (B.Tech.), Bachelor of Business Administration (B.B.A.) and Bachelor of Professional Studies (B.P.S.). There are also Master of Science degree programs in Accountancy, Adult Nurse Practitioner and an *Advanced Certificate in Adult Nurse Practitioner*, Advanced Technology, Business Management, Computer and Information Science, Nursing Administration, and Telecommunications.

The college offers 20 bachelor and seven master degree programs in professional, technical and liberal arts disciplines. The faculty possesses extensive professional experience and exceptional academic credentials; more than 70 percent hold doctorates or comparable degrees in their fields.

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# Utica and the Mohawk Valley

## Location and Transportation

In the geographic heart of New York State and western end of the Mohawk Valley, Utica is a natural gateway to the beautiful Adirondack Mountains and the scenic Thousand Islands. Utica is 233 miles from New York City and 190 miles from Buffalo; midway on the New York Thruway, 50 miles east of Syracuse and 90 miles west of Albany. The city is also 90 miles north of Binghamton and 100 miles south of the St. Lawrence River.

Several major routes pass through Utica, including the New York Thruway and state routes 8, 12 and 5. Local, regional and interstate bus services are available from Greyhound Bus Lines, Central New York Coach Lines, Adirondack Trailways, and other public and charter bus companies. Utica's historic Union Station is a major stop on one of the main rail lines of AMTRAK. Air service through nearby Oneida County Airport is provided by USAir and its many commuter airlines.

## Cultural Highlights

Utica has historically held a deep regard for the worlds of culture and fine arts. It is the home of internationally recognized Munson-Williams-Proctor Institute Museum of Art. The Museum of Art's galleries feature a world-renowned collection of 18th, 19th and 20th century European and American art, as well as numerous exhibitions of paintings, sculpture, graphic arts, and photography. The Munson-Williams-Proctor Institute offers lectures, live performances, film series, and assorted libraries of music, books, and art. Its annual summer festival is nationally prominent and is held in conjunction with a gala celebration in downtown Utica, "The Good Old Summertime Festival." Several other galleries can be found in the area, including the Rutger Street Gallery and Sculpture Space.

The Civic Musical Society of Utica maintains the Utica Symphony Orchestra and the Utica Civic Concert Band. Musical performances are also provided each year by the Chamber Music Society, the Great Artists' Guild, and a number of widely known choral societies.

Theatrically, the city offers a wide variety of productions each year. The Player's Theatre of Utica, one of the first amateur theatrical organizations in the country, performs several dramas, comedies, and musicals each year. Other local organizations also contribute to the year's productions. The Broadway Theatre League each season brings several major productions touring the nation to Utica. These nationally-acclaimed productions are staged in the city's Stanley Performing Arts Center.

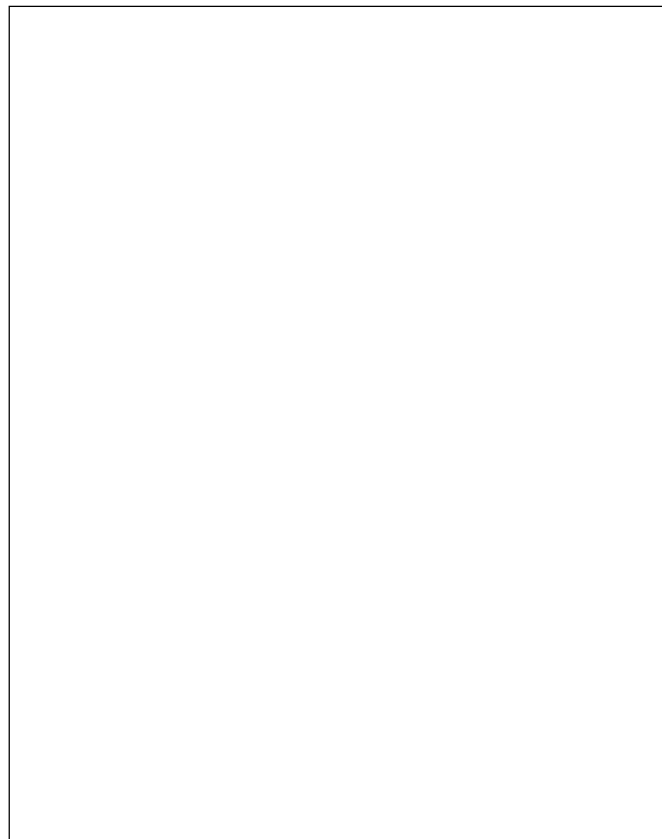
## Sports and Recreation

Utica and the surrounding area offers something for everyone throughout the entire year. In professional baseball, the city boasts of its Utica Blue Sox, members of the New York-Penn League, affiliated with the Florida Marlins. Their home field is the newly-renovated Donovan Field. Utica also hosts the Boilermaker Road Race. Rated as among the best races in the nation, this 15-kilometer run annually attracts the world's most elite runners and has grown to a field of nearly 10,000 participants, making it the largest 15-k competition in the U.S.

Within the city limits are more than 900 acres of parks, with abundant facilities for skiing, ice skating, golf, tennis, swimming, hiking, and picnicking. In one of Utica's mid-town parks, a ski center offers slopes and lifts for all skiers, from novice to experienced. Other ski areas, such as Snow Ridge, McCauley Mountain, and Schumacher Mountain, are just a short trip away.

Fishing and boating spots are easily accessible on nearby lakes such as Hinckley, Delta, and Oneida. Because Utica is located in the foothills of the Adirondack Mountains, numerous lakes, parks and campgrounds are within an hour's drive from the campus.

Utica, the Mohawk Valley and the Adirondack Park region provide ample social, cultural and recreational opportunities for SUNY Utica/Rome students.



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# Career Services

The college makes career services available to all of its students. The Office of Career Services works with students from their entry into the college, encouraging them to make use of the office's resources and assisting them in securing part-time, curriculum-related and career employment. It also provides information and counseling concerning careers and job search techniques.

## Resource Center

Our comprehensive Resource Center houses many resources to help students in career exploration and planning. A few of the resources available include microfiche classified ads from 64 newspapers; audio and video tape cassettes designed to teach job search techniques; subscriptions to various professional trade journals; annual reports and information on several hundred employers; books and directories concerning job search techniques and employer listings; employment information for federal, state and local government; graduate school catalogs, directories and literature.

## Workshops

The department offers a schedule of continuing workshops on various career-related topics. At the beginning of each semester, orientation workshops are designed to acquaint students with Career Services and to direct them toward the best utilization of our resources. Throughout the academic year, workshops on selected topics will be offered, e.g., Resume Writing, Interviewing Skills, Job Search Strategies, and others.

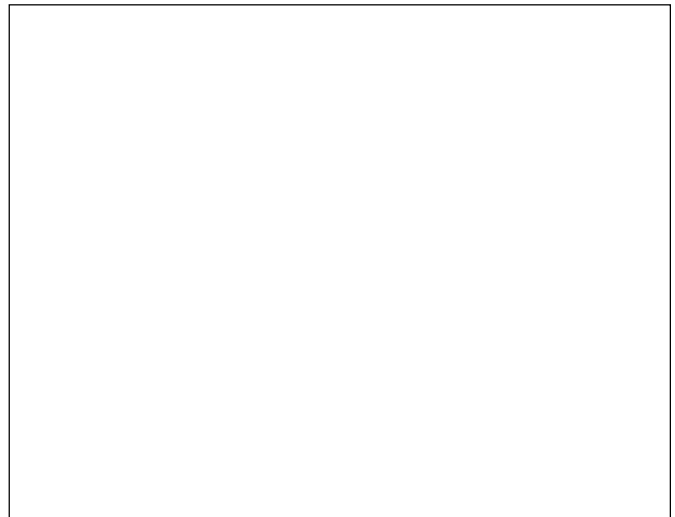
## Resume Expert Plus

Students can take advantage of the latest technology in resume design by using the Resume Expert Plus software package. This interactive software system is dedicated to resume design and production, as well as matching job candidates with appropriate summer, internship, and entry-level positions. Resume copies can also be produced on quality bond paper for students seeking employment.

## The Job Search

Career Fairs, on-campus recruitment and job leads are some of the options students can use in securing various types of employment. The office provides listings of employers and employment opportunities, and provides information concerning state and federal civil service examinations.

The department maintains its own resume databank for the purpose of bringing qualified students, graduating seniors and alumni to the attention of employers who have indicated specific personnel needs.



## Credential File Service

The Office of Career Services provides for the establishment of a credential file designed to support students in their search for jobs or entrance to graduate school. A credential file contains a basic data sheet, course listings, and letters of recommendation. Once assembled, this folder is reproduced and sent to prospective employers and graduate schools on request.

## Career Services Fee

This one-time fee provides the office with the financial resources to provide several of the services discussed above which otherwise would not be possible.

## Placement Survey

Surveys of all Institute of Technology graduates are conducted to study job placement and postgraduate activities.

The survey results do not imply guaranteed job placement or graduate school acceptance for Institute of Technology students. They do indicate the graduates of the college who have been successful in securing rewarding positions and opportunities for further education. More complete data is available from the Office of Career Services.

# Admissions

Students may transfer up to 64 lower division semester hours and up to 30 upper division semester hours into the Institute of Technology, with the total not to exceed 94 semester hours. The college's residency requirement is 30 semester hours. In assigning transfer credit, coursework offered at two-year colleges, or at the freshman/sophomore level of four-year institutions is designated as lower division credit. Coursework is generally designated as upper division, if it is at least junior level or equivalent.

## Credit by Examination

Examinations can provide students with credit applicable to degree requirements. Examination programs accepted by the Institute of Technology include the College Proficiency Examination Program (CPE), the College Level Examination Program (CLEP), the United States Armed Forces Institute (USAFI), and the Regents External Degree (RED).\*

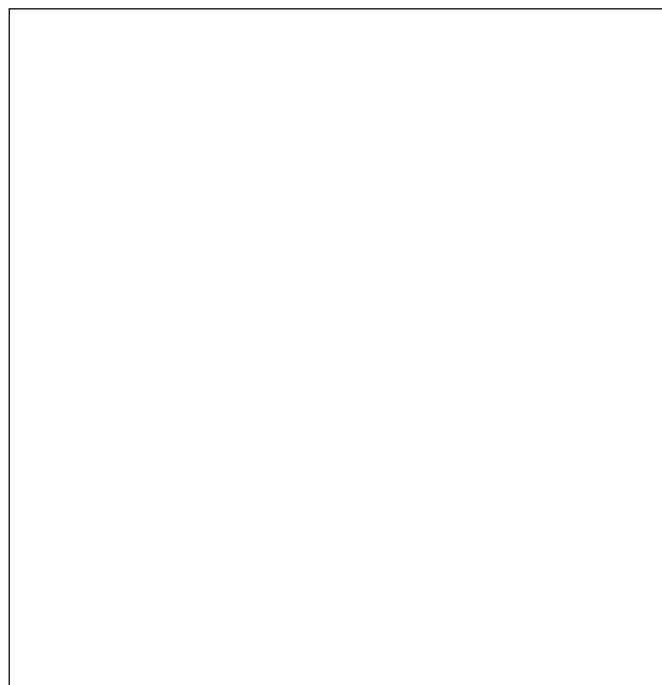
Information regarding undergraduate admission to the college and forms for admission may be obtained by contacting the Director of Admissions, State University of New York Institute of Technology at Utica/Rome, P.O. Box 3050, Utica, New York 13504-3050; telephone 315/792-7500 or 1-800 SUNY TEC.

Additionally students may obtain an application and transfer information regarding the Institute of Technology from transfer counselors at most two-year colleges.

## Requirements for Admission

- A. To be considered for admission to degree study, generally a student must have earned 56 semester hours of college credit prior to entry. In addition, the student must present a minimum 2.00 G.P.A. to be considered for admission.
- B. Acceptable credentials vary by academic program. Because of heavy student demand for certain programs and limited availability of seats, some programs enforce selective admissions standards. A broad area of discretion is practiced in selective admissions. Previous academic record, special talents, and personal factors all play important roles in a decision on admission. These considerations are usually discussed in an on-campus interview.
- C. Even though the student has been provisionally admitted to the college, he or she must still present final transcripts for evaluation prior to registration for classes. Failure to meet this requirement will jeopardize financial aid awards and matriculation standing.
- D. All full-time students must submit a completed health history and physical examination form. This form is sent to each student who has paid a deposit and should be completed prior to registration. Any student who fails to complete this requirement will lose their matriculation standing.
- E. Prospective students are urged to apply early. Students presenting acceptable admission credentials are accepted on a "rolling admission" basis until the available seats in a program are filled.

\*Refer to section "Academic Requirements and Policies" in this catalog for more detailed information.



## Students with Disabilities

The Institute of Technology does not discriminate against qualified individuals with disabilities in admissions or in access to programs. See also Services for Students with Disabilities on page 89.

## Admissions Procedures

### How To Apply

The prospective student can obtain the State University of New York application guidebook from a two-year college, or the Admissions Office of the Institute of Technology. Students using the State University of New York Institute of Technology application should note that the Institute of Technology code is 48. The program codes for the Institute of Technology are:

Accounting .....	281
Applied Mathematics .....	0087
Business/Public Management .....	275
Business Administration .....	275
Civil Technology .....	1102
Computer and Information Science .....	170
Computer Information Systems .....	095
Computer Engineering Technology .....	899
Electrical Engineering Technology .....	216
Finance .....	282
General Studies .....	360
Health Information Management .....	179
Health Services Management .....	253
Industrial Engineering Technology .....	257
Mechanical Engineering Technology .....	235
Nursing .....	291
Photonics .....	812
Professional and Technical Communication .....	1021
Psychology .....	347
Sociology .....	352
Telecommunications .....	890



## Transcripts

Official transcripts must be forwarded from all previous colleges attended to: Director of Admissions, State University of New York Institute of Technology at Utica/Rome, P.O. Box 3050, Utica, New York 13504-3050.

## Interviews

Although an interview is not required for admission, prospective students are urged to visit the campus and discuss educational plans with a member of the admissions staff. For students wishing to visit the campus, write to the Director of Admissions, or telephone 315/792-7500 or 1-800 SUNY TEC.

## Foreign Students

Foreign students who meet the admission requirements of upper-division study may obtain foreign student application forms by contacting the Director of Admissions, State University of New York Institute of Technology at Utica/Rome, P.O. Box 3050, Utica, New York 13504-3050. Foreign students may be required to have their transcripts evaluated through World Education Services (WES), contact Admissions for more information.

## Readmission

A student seeking readmission to the college must file a readmission petition with the Admissions Office. Readmission requirements vary from program to program.

## Non-Degree Study

Students may register for coursework at the Institute of Technology without application or admission to the college on a continuing education basis. Seats for non-degree students may be limited for some courses. Students must have completed the necessary prerequisites for coursework to be undertaken at the college. Like all students at the college, non-degree students must generally have completed 56 semester hours (or equivalent) of college credit before enrolling in coursework at the Institute of Technology.

For further information, contact the Admissions Office.

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# Graduate Studies

## Degree Programs

The Institute of Technology offers graduate degree programs in:

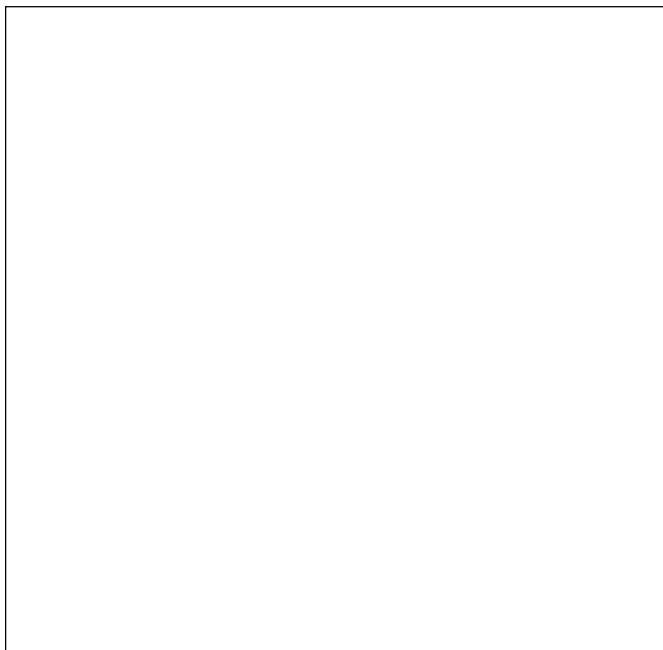
	<i>Degree</i>
Accountancy .....	M.S.
Advanced Technology .....	M.S.
Adult Nurse Practitioner .....	M.S.
Adult Nurse Practitioner .....	C.A.S.
Business Management .....	M.S.
Computer and Information Science .....	M.S.
Nursing Administration .....	M.S.
Telecommunications .....	M.S.

## Non-Degree Graduate Study

Qualified students may enroll in graduate coursework at the Institute of Technology as non-degree students with the approval of the Office of Admissions. Non-degree graduate students requiring such approval must possess a bachelor's degree. Non-degree students who plan to apply for admitted degree status in a graduate program should contact the Admissions Office to begin the application process.

## How to Apply

The prospective graduate student can obtain a graduate catalog and application from the Admissions Office at the Institute of Technology. Admissions procedures and requirements vary by program and are outlined in the Institute of Technology's graduate catalog. Graduate catalogs may be obtained by writing to the Admissions Office at the SUNY Institute of Technology at Utica/ Rome, P.O. Box 3050, Utica, NY 13504-3050 or by telephoning 315/792-7500 or 1-800 SUNY TEC.



# Part-Time Studies

## Admissions

Part-time students seeking matriculation into a degree program must be formally accepted by the Admissions Office of the Institute of Technology. Refer to section on admissions in this catalog. The Admissions Office is open weekdays from 8:00 a.m. to 5:00 p.m. by appointment (phone: 315/792-7500 or 1-800 SUNY TEC). Summer office hours are 8:00 a.m. to 4:00 p.m.

## Registration

Part-time degree students register in the same manner as full-time students during both advance registration and formal registration which are scheduled prior to the beginning of each term. Part-time degree students are assigned advance registration times. Please consult the academic calendar in the catalog for registration dates.

Students with questions about part-time degree study can call or visit the Admissions Office at 315/792-7500.

## Financial Aid for Part-Time Attendance

Matriculated part-time students may qualify for the following types of financial aid:

- Pell Grant
- Supplemental Education Opportunity Grant
- Federal Nursing Loan
- Perkins Loan (formerly National Direct Student Loan)
- Federal Direct Loans
- College Work Study Program
- Aid for Part-Time Study

Refer to the financial aid information section on page 17 of this catalog for details.

## Counseling Services

Educational, vocational and personal counseling is available to part-time students Monday through Friday from 8:30 a.m. to 4:30 p.m. and by appointment. (Hours are subject to change.) Services include vocational testing to help the student clarify career goals, workshops in life skills, and advisement. Career counseling and information about graduate and professional schools is available at the Career Services Office.

Services are also offered through the Counseling Center for Educational Opportunity Program students, disabled students, and international students.

# Tuition, Fees and Refunds

The tuition and fees for full-time and part-time students are given below. Students carrying 12 or more credits are considered full-time. Fees and other charges are subject to change without prior notice at the discretion of the college administration and the State University of New York.

## Tuition

<b>Undergraduate</b>	<b>Full-Time</b>	<b>Part-Time</b>
New York Resident*	\$1,700 per semester	\$137 per credit hour
Out-of-State Resident	\$4,150 per semester	\$346 per credit hour
College Fee**	\$12.50 per semester	\$.85 per credit hour
Student Activity Fee (U.G. students only)	\$65 per semester	\$2 per credit hour
Intercollegiate		
Athletics Fee***	\$57 per semester	\$5.25 per credit hour
Health Services Fee+	\$60 per semester	\$5 per credit hour
Technology Fee**	\$75 per semester	\$6.25 per credit hour
<b>Graduate</b>	<b>Full-Time</b>	<b>Part-Time</b>
New York Resident*	\$2,550 per semester	\$213 per credit hour
Out-of-State Resident	\$4,208 per semester	\$351 per credit hour
College Fee**	\$12.50 per semester	\$.85 per credit hour
Intercollegiate		
Athletics Fee***	\$57 per semester	\$5.25 per credit hour
Health Services Fee+	\$60 per semester	\$5 per credit hour
Technology Fee**	\$75 per semester	\$6.25 per credit hour

\* "Residence" for purposes of tuition refers to a student's principal or permanent home. In order to qualify as a New York State resident for tuition purposes, in addition to other criteria, a student must be "domiciled" in New York State for a 12 month period immediately prior to the date of registration for the academic term for which application is made. A "domicile" is defined as that place where an individual maintains his / her **permanent** home and to which he / she always intends to return. Mere presence in New York State for educational purposes does not necessarily constitute domicile, regardless of time spent in NYS.

Effective July 1, 1986, resident tuition rates are applied to members of the Armed Forces of the United States on full-time active duty, stationed in New York State, their spouses and dependents. Spouses and dependents must obtain proof of their dependent status from appropriate personnel at their base education office and present it at the Business Office each semester upon registration. Please contact the Business Office if you require further information.

\*\* The College Fee is established by the Board of Trustees of the State University of New York. It is a mandatory fee each semester for both graduate and undergraduate students and is non-refundable. The Student Activity Fee is mandatory for undergraduate students. This fee provides the funding for activities sponsored for the students, under the direction of the students' governing bodies.

\*\*\* The Intercollegiate Athletics Fee is a mandatory fee for all students. This fee provides funding to operate and sustain competitive intercollegiate athletics programs at the campus. It is not a fee for use of athletic facilities by the students.

+ The Health Services Fee is a mandatory fee assessed to all students attending classes on campus.

\*\* The Technology Fee is a mandatory campus fee assessed to all students attending classes on campus. It is used to upgrade, modify and make significant technological advances in classrooms and laboratories used by SUNY Utica / Rome students.

# Tuition Refund Policy

## Credit Courses

A student who has been granted permission to withdraw from a course (fall/spring) shall be liable for payment of tuition in accordance with the following schedule:†

### Undergraduate/Graduate - 15 Week Schedule (Full Semester)

Liability During:	1st week of classes*	0%
	2nd week of classes*	30%
	3rd week of classes*	50%
	4th week of classes*	70%
	5th week of classes*	100%

### Undergraduate/Graduate - Quarter or 10 Week Term

Liability During:	1st week of classes*	0%
	2nd week of classes*	50%
	3rd week of classes*	70%
	4th week of classes*	100%

### Undergraduate/Graduate - 8 Week Term

Liability During:	1st week of classes*	0%
	2nd week of classes*	60%
	3rd week of classes*	80%
	4th week of classes*	100%

### Undergraduate/Graduate - 7 Week Term

Liability During:	1st week of classes*	0%
	2nd week of classes*	65%
	3rd week of classes*	100%

### Undergraduate/Graduate - 6 Week Term

Liability During:	1st week of classes*	0%
	2nd week of classes*	70%
	3rd week of classes*	100%

### Undergraduate/Graduate - 4 Week Term

Liability During:	2nd day of classes*	0%
	Remainder of 1st week*	50%
	2nd week*	100%

† **Exceptions to this policy will be made for Title IV aid recipients who are first time attendees at a SUNY school. This exception is applicable for the student's first semester only. These refunds will be calculated in accordance with SUNY Board of Trustees Resolution 93-15, requiring pro-rata refunds, through the 9th week of classes, per Title IV Re-authorization Act stipulations. Please contact the Bursar's Office for details.**

\* The first week of class session is the first day of the semester, quarter or other term. The first week of classes, for purposes of this section, shall be considered ended after seven calendar days, **including** the first day of scheduled classes, have elapsed.

**All student fees are non-refundable once classes start** with the exception of the alumni fee. The fee is refundable by petition to the Alumni Office until the last day to withdraw without record.

Please check with the Business Office **immediately** about any refund/liability if you are contemplating withdrawing from any course. Consult with the Financial Aid Office also, as an aid package could be adversely affected by a decrease in credit hours.

No drop is considered official until the proper forms have been completed at the Registrar's Office and submitted to the Business Office.

## Pro Rata Refund Policy— Title IV Aid recipients

### Who is eligible?

The pro rata policy will apply only to Title IV recipients, attending a SUNY campus for the first time (first semester only). Students transferring from a community college to a state-operated campus are considered first-time students at the receiving campus. Transfers between state-operated campuses may be first-time.

### Refunds vs. Repayments

A refund is the unearned amount of institutional charges that must be returned to the student federal aid programs on behalf of a student who received federal funding under Title IV and who has ceased attending school.

A repayment is the unearned amount of a cash disbursement that a student must pay back. If the school calculates that the student has received a cash disbursement in excess of the living expenses he or she could have reasonably incurred while still enrolled, that excess must be repaid by the student.

### Refund Policy

When a first-time student withdraws during the first nine weeks of the semester, the student will be liable for reduction of tuition, college fee, student activity fee, health service fee, technology fee, and intercollegiate athletic fee charges in percentages as indicated below:

#### Pro Rata Refund (for first-time students only)

Week One	100% Refund	0% Liability
Week Two	90% Refund	10% Liability
Week Three	80% Refund	20% Liability
Week Four	80% Refund	20% Liability
Week Five	70% Refund	30% Liability
Week Six	60% Refund	40% Liability
Week Seven	60% Refund	40% Liability
Week Eight	50% Refund	50% Liability
Week Nine	40% Refund	60% Liability
Week Ten	0% Refund	100% Liability

Any amount refundable shall be credited first to outstanding loan balances and awards under federal student assistance programs order specified by Title IV of the Higher Education Act of 1965, amended. In addition to the above refund calculation, liability for repayment of funds already disbursed to a student will also be performed. **Students are responsible for repayment of any excess disbursements due as a result of the withdrawal.**

Room and Board Refunds will be calculated, also. Until adoption of mandatory state refund policies, these may be prescribed by percentages mandated in Federal Refund as follows:

### Federal Refund

The Federal Refund Policy mandates the percentage of institutional charges that must be refunded as follows:

- Withdrawal on the first day of class—**100% refund** of institutional charges (less the permitted administrative fee of the lesser of \$100 or 5% of institutional charges).
- Withdrawal after the first day of class through the first 10% of the enrollment period—**90% refund** of institutional charges.
- Withdrawal after the first 10% of the enrollment period through the first 25% of the enrollment period—**50% refund** of institutional charges.
- Withdrawal after the first 25% of the enrollment period through the first 50% of the enrollment period—**25% refund** of institutional charges.

### Non-Credit Courses

Non-credit programs are operated on a self-sustaining basis. Fees are variable. Therefore, due to the nature of these programs, **no refunds** are allowed.

### Room and Board Refunds

Room and board refunds are granted in accordance with stipulations in the current year Room and Board License issued to each resident. Room rental refunds are determined when all personal effects are removed from the room, keys surrendered, room inspected by Residential Life, all debts related to room rental incurred by the resident paid in full to the college, and the resident has signed out of the room.

Room and board refund requests **must** be in writing. Failure to terminate occupancy in the manner stipulated in the Room and Board License may result in additional charges accumulating for the period of time between termination of residency and the date of approval by the Director of Housing.

A resident who registers and occupies a room for three weeks or less receives a percentage refund of room and board charges based upon the number of weeks housed. A week is defined as beginning on Sunday and ending the following Saturday at midnight. A part week is counted as a whole week for refund purposes. Students occupying a room after the Saturday following the second full week of classes are liable for room and board charges for the entire semester.

\* *The first day of class session is the first day of the semester, quarter or other term . The first week of classes, for purposes of this section, shall be deemed to have ended when seven calendar days, including the first day of scheduled classes, have elapsed.*

## Schedule of Other Fees and Charges

	Full-time	Part-time
Room		
Charges —Semester Rate Single Room	\$1,890	n/a
—Semester Rate Premium Double Room	\$1,780	n/a
—Semester Rate Double Room	\$1,660	n/a
Board		
Charges —Semester rate-19 meals/wk.	\$1,100	\$1,100
—Semester rate-14 meals/wk.	\$1,050	\$1,050
—Semester Rate-10 meals/wk.	\$1,000	\$1,000
Parking Fee (see section entitled "Parking Fees")	\$54	\$27
Alumni Fee—voluntary, one-time charge	\$20	\$20
Diploma Cover Charge—payable when applying for diploma	\$10	\$10
Drop/Add Fee—paid per transaction	\$15	\$15
International Student Health Insurance	\$478	\$478
Domestic Student Health Insurance	\$146	Not required
ID Card Replacement Fee	\$15	\$15
Late Registration Fee	\$30	\$30
Transitions Program Charge—paid once; during first semester	Under Grad \$50 Grad \$25	\$50 \$25
Career Services Fee—voluntary; paid once (non-refundable)	\$55	\$55
Late Payment Fee—charged to accts for payments received after assigned due date	\$30	\$30
Returned Check Charge—levied against maker for checks returned unpaid or charge payments declined by cardholder bank	\$20	\$20
Transcript Fee—per transcript	\$5	\$5
Diploma Replacement Fee—per replacement	\$20	\$20
Diploma Cover Replacement Fee—per replacement	\$25	\$25
Yearbook Reservation Fee—optional, student must indicate preference on billing statement	\$10	\$10

## Required Disclosures

Please take notice, if payment is not received for obligations due to the Institute, this agency is required to pursue other collection alternatives. Pursuant to Chapter 55 of the Laws of 1992, State agencies may refer past-due accounts to a private collection agency, the New York State Attorney General's Office, or the New York State Department of Taxation and Finance. In addition, State agencies are required to charge interest on outstanding debt at the current corporate underpayment rate (9% at time of printing), compounded daily, on accounts considered more than 30 days past due. Chapter 55 allows State agencies to charge a fee on dishonored checks or like instruments.

In addition, the New York State Attorney General's Office and SUNY Central Administration have reached an agreement requiring the addition of any interest and collection fees. Students are liable for interest, late fees, a collection fee of up to 22%, and other penalties on past due debt. Collection fees will be added to new past due debts transferred, from this campus, to the Attorney General or private collection agencies, effective January 1995.

These terms and rates may be modified, without prior notice, as required by legislative action or Board of Trustees requirements.

## Deposits

Full- and part-time graduate students are not required to pay admissions deposits but must return a deposit waiver card within 30 days of acceptance to hold a seat in their graduate program.

Students who wish to reserve dormitory rooms are required to pay a \$100 dormitory deposit, due with their admissions waiver card. Requests for housing deposit refunds must be made in writing to Residential Life and Housing Office, and are subject to terms and conditions of the room and board license. Only full-time students may reserve a dormitory room.

## Health Insurance

In accordance with State University policy, health insurance is mandatory for all full-time students. The charge for health insurance purchased by the University will be added to the student's account each semester unless he/she is able to provide the college with proof of insurance coverage and fill out a Health Insurance Waiver Card by the end of the first week of classes. It is the student's responsibility to insure that the waiver card is on file, as the charge becomes final on the last day to waive. Waiver cards will then no longer be accepted and the student is responsible for the payment of the insurance fee. Part-time students may purchase coverage if they so desire. Waiver cards must be submitted **each semester**.

Health Insurance fee is not automatically refunded when a student drops below full time. Written request for refund will be accepted at the Business Office for the first week of classes only. After the last day to add for the semester, no further refunds of insurance will be allowed.

**All international students** (domestic students traveling abroad under an exchange program, or foreign students attending college in the U.S. on a student visa) **must purchase International Student Health Insurance** regardless of whether they are full- or part-time. International students, who have been issued an I-20 from the Institute of Technology, must be covered the entire time they remain in the U.S., whether attending classes or remaining in the country during summer break. Exemption from participation in the plan may be granted only in very few and specific circumstances.

Since both the international and domestic insurance plans are obtained through prior arrangement with insurance agencies independent of the State University of New York, cost per year is variable based on experience rating for the program. Students will be charged the appropriate rate at the time they begin attendance. Those graduating in December should contact the Health Center and Business Office in advance of registration. Current rates are as follows, but are subject to change annually:

Basic Health Insurance ..... \$146 per year  
(full-time students only)

International Student Insurance ..... \$478 per year  
(both full- and part-time students)



## Parking Fees

Effective January 1, 1991, a parking fee must be paid by all students and employees (not exempt as a result of collective bargaining agreements) who park a vehicle on campus. That vehicle must be registered with Public Safety and **exhibit a valid parking decal**. Fees are established using SUNY Parking Model Costs and Charges, and are subject to New York State and local sales taxes (currently 8%). All regulations pertaining to the use of vehicles on campus are enforceable 24 hours a day throughout the year.

Payment of the parking fee may be made at the Bursar's Office during normal business hours. The Bursar's Office will provide a receipt to be presented at the Public Safety Office, where students may obtain a valid parking decal and complete vehicle registration cards. Parking fees for various categories are as follows (including applicable sales taxes):

<i>Time Period</i>	<i>Full-time</i>	<i>Part-time</i>
Annual (full 12 month period)	129.60	64.80
Academic Year (fall/spring only)	108.00	54.00
Single Semester Only	54.00	27.00
Summer Semester Only	21.60	21.60

Parking fees are non-refundable. A full-time student is a student registered for 12 or more credit hours.

Provision for additional vehicles must be made with the Public Safety Office. Only one vehicle may be parked on college property at any given time. Each vehicle must be registered and display a valid registration decal.

Employees may opt for salary deduction for payment of the parking fee, as approved by the Office of the State Comptroller. Students who have more than enough aid to cover their appropriate semester charges may authorize the payment of their parking fee against their incoming financial aid.

## Billing Tuition Payment

Students may either register for classes at open registration, by phone, via WWW, or attend pre-registration, if they are presently enrolled or are a returning matriculated student. In accordance with requirements established by the SUNY Board of Trustees, **students registering after semester bill due date must pay for tuition and fees at that time**. Any deferrals due to financial aid or hardship require prior approval from the Financial Aid Office. No deferrals are granted based on estimates, or for programs that have not yet been applied to and awarded, as of registration date. Deferrals for veterans, clients of VESID (OVR) and DVR (federal and state vocational rehabilitation programs), and approved third parties require prior arrangement. Documentation of such must be presented, in writing, at time of payment/registration.

Students who pre-register will be billed on or at a date subsequent to the date they selected their course schedule, with a payment deadline specified on their statement. **All registered students are required to return one confirmation copy of their billing statement, with payment or deferral, by the required due date**. This serves as confirmation of student's intention to attend for the advance registered semester. **All students who have enough financial aid to reduce their balance due to zero, who are covered by Third Party Deferrals, or who participate in our time payment plan, must return the confirmation copy as evidence of their intention to return.**

Failure to return a confirmation copy with valid deferral or full payment by payment due date, will result in the advance registration being deleted. The student may then either reinstate the records within a specified timeframe and pay a Late Payment fee (refer to Reinstatement of Deleted Records section), or re-register at a later time. However, a late registration fee will be charged regardless of when re-registration for the term occurs. This charge reflects the multiple processing of registration records for the same semester.

## SUNY Utica/Rome Time Payment Plans

SUNY Institute of Technology is pleased to offer its own Time Payment Plan as an alternative for students who find it difficult to pay all charges by the payment due date. This plan is available for the Fall and Spring semesters in either three or five payment options. The cost to you is \$25.00 per semester and is non-refundable.

### Three-Payment Option

The three-payment option is based on *actual* enrollment when you receive your initial semester billing statement. Enrollment is easy, simply sign the enrollment form which appears on the reverse of your billing statement and return it with your initial payment by the due date. The initial payment is calculated by taking one half of the amount due and adding the enrollment fee. You will then be billed in 2 equal installments for the remaining balance.

## Five-Payment Option

Beginning with the Fall 1996 semester, the Institute of Technology offers a five-payment option for students who wish to spread their payments out even further. Enrollment in this plan is based on your *estimated* tuition and fee charges at the time you join the plan. The enrollment period for Fall begins in June with equal monthly installments due on the tenth of each month, July through November. Enrollment for Spring begins in November with equal monthly installments due on the tenth of each month, December through April. Your \$25 participation fee is due with your first payment. Late enrollments will be accepted only if all past installments are paid at time of late enrollment. Contact the Bursar's/Student Accounts Office for further details.

## For All Plan Participants

Approximately two weeks prior to the payment due date for the contracted amount, an invoice will be sent to your mailing address. If you wish to have the invoice mailed to an address other than your **mailing** address, you must notify the Bursar's Office. Please notify the Bursar's Office of any changes that may arise from changes in enrollment, housing, or financial aid.

Payment for past due amounts can be included in the same check or credit card payment but cannot be deferred as part of the payment plan. Past due amounts must be paid to retain your registration status.

Any payment not **received by the due date** will be assessed a \$30.00 late payment fee. Any returned check payment will incur a \$20.00 return check fee as well as a late payment fee. We reserve the right to deny future payment plan privileges if payments are not made as agreed upon.

If you have any questions regarding the plan, please contact the Bursar/Student Accounts Office at 315/792-7529 or 7412.

## Financial Aid Deferrals

Students who have financial aid that is already verified by the Financial Aid Office will **have these** Financial Aid Credits appear on their statement, treated as credits. However, should a student be found to be ineligible for any listed aid, he/she is responsible for any unpaid balance. **Students registered for less than 12 credit hours are not eligible for TAP awards**, unless the award is made under the Vietnam Veteran's Tuition Assistance program.

If a student has a valid form of aid, not listed on the statement, it may be used as a credit if appropriate proof of award is included with your remittance. The following items are acceptable as proof: TAP Awards—enclose the school portion of the award certificate; Direct Student Loans—enclose a copy of the loan award notice; Pell, SEOG, Perkins Loans, or Nursing Loans—enclose a copy of the award letter from Financial Aid; Private Scholarships—enclose a copy of the scholarship award letter. Private scholarships must be made payable directly to the Institute of Technology.

If you are unsure of the status of a financial aid award, contact the Financial Aid Office at 315-792-7210. They may verify the amount of allowable deferral. **It is important to note that applying for aid does not automatically guarantee eligibility.**

## Other Third Party Deferrals

### Armed Forces Representatives

Present properly completed federal contract authorizations forms (DD1556; DD1227) at time of payment.

### Employers

Any third party employer arrangement is subject to approval by the college. Third party payments are acceptable only if the employer, unconditionally, agrees to pay the college upon receipt of a billing statement. No stipulations regarding student academic performance are allowable. Tuition liability is ultimately the responsibility of the student, should an employer not remit payment in a timely fashion.

Tuition reimbursement **does not** qualify for deferral. Reimbursement arrangements are strictly between the student and the employer. These students must remit payment when due, regardless of the timing of employer reimbursement.

### NYS Employees and UUP Personnel

**NYS Employees and UUP Personnel** must submit completed, approved waivers on or before payment due date. The student is responsible for payment of all tuition and fees at time of registration/payment unless the above are furnished. Subsequent authorization will entitle the student to a refund when vouchers are honored by the issuing campus.

### **State or Federally Sponsored (VESID, TRA, DVR, etc.)**

It is the student's responsibility to ensure that the sponsoring agency has provided the Bursar's Office with the appropriate vouchers or authorizations required to obtain payment. Confirmation, in writing, of the amount and limitations of the award(s) must be furnished on or before payment due date. TRA sponsored students must have a valid confirmation number available at time of payment/registration.

The student is responsible for payment of any tuition and fees not confirmed by the sponsoring agency at time payment is due. Subsequent authorization will entitle the student to a refund for covered amounts when voucher is honored.

### **Veteran's Deferrals**

If you are eligible for a veteran's deferral, the appropriate forms must be filled out each semester and on file at the college, on or before the billing due date. Note that you have a Veteran's Deferral and the amount on your semester billing statement. You will be rebilled as your tuition payments become due. Inquiries about eligibility for these deferrals should be addressed to the Registrar's Office at 315/792-7265.

### **Reinstatement of Deleted Preregistration Records**

Advance registered students who do not return their confirmation/remittance copy with payment (or deferral) by the required due date are assumed to be "no-show registrants." Notification will then be mailed indicating the student's advance registration records have been deleted.

These students may reactivate their advance registered status during a **limited** reinstatement period, specified in the cancellation notice. To reactivate a registration a student must notify the Student Accounts/Bursar's Office of this intention, submit the confirmation (remittance) copy of the bill along with any payment due, **plus** a \$30 late payment fee within the prescribed time frame. The late payment fee must be paid at the time of reinstatement in order to restore the original preregistration records. (Late payment fee is not deferrable.)

After the reinstatement period ends, a student whose records have been deleted, **must** re-register at a later time. **A late registration fee will be charged**, regardless of when the re-registration for the term occurs. As previously indicated, this charge reflects the multiple processing of registration records for the same semester. *Students who are re-registering are not guaranteed seats in classes for which they were originally registered!*



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# Financial Aid Information

## Applying For Financial Aid

In order for the Financial Aid Office to process aid for a student, the following steps must be completed.

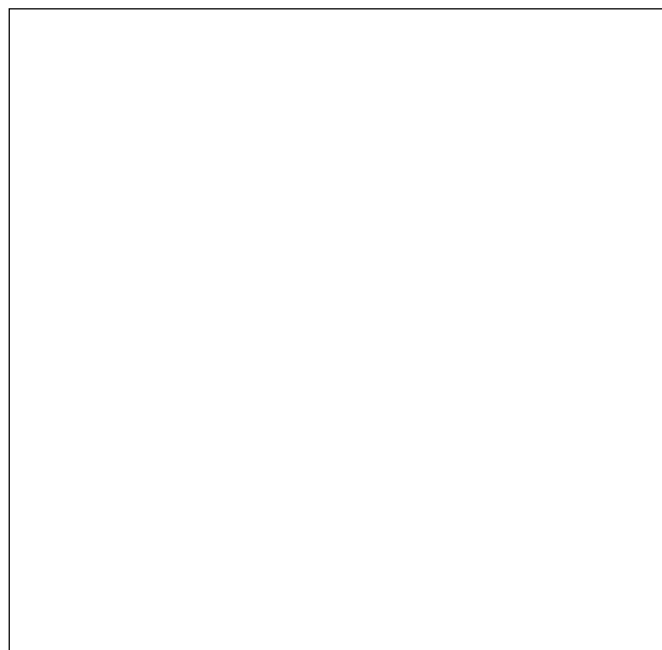
1. Obtain a financial aid application packet by contacting the Financial Aid Office. The packet contains the applications and information necessary to apply for financial aid.
2. Submit a completed **Free Application for Federal Student Aid (FAFSA)**. The application can be mailed to the federal processor in the envelope provided or it can be submitted to the Financial Aid Office with a copy of the prior year's federal tax return (and parents' or spouse's if applicable). If a renewal application has been or will be submitted, do not submit the FAFSA.
3. Complete and return the **SUNY Institute of Technology Application for Financial Aid**.
4. Mail a completed **New York State Tuition Assistance Program (TAP)** application using the pre-addressed envelope included with the form.
5. Applicants may be asked for additional documents at a later date (ie. verification worksheet, tax returns). Be sure to submit them to the Financial Aid Office in a timely fashion.
6. Mid-year transfer students (students starting during the spring term) must have Financial Aid Transcripts forwarded to the Financial Aid Office from their prior schools.

The primary responsibility for meeting educational costs rests with the student and his/her family. Estimating a reasonable family contribution is accomplished by using a needs analysis system approved by the U.S. Department of Education to review the family's financial situation.

The college gives priority in the awarding of financial aid to those students with the greatest net financial need. Net financial need is determined by subtracting the expected family contribution and the estimated Federal Pell Grant and Tuition Assistance Program awards from the student's estimated cost of attendance. The family contribution, determined from the information on the FAFSA, is made up of the expected parents' contribution (dependent students only), expected student's earnings, expected contribution from the student's assets, and any benefits (veterans, welfare, etc.) that the student may receive.

The college does not have a deadline for applying for financial aid but processes applications on a rolling basis starting in late February. Campus-based financial aid will be awarded until the funds are exhausted. It is important to note that these funds are limited and no guarantee can be made that they will be offered to all students.

A financial aid award letter will be sent to each student who has applied for admission and has submitted all required financial aid documents. Returning students must have pre-registered for the fall semester.



The federal government chooses some applications to be verified. In those cases, the Financial Aid Office will request additional documents including a verification worksheet and copies of federal tax returns. These documents must be reviewed and necessary corrections made before financial aid is awarded.

If there has been a significant decrease in the student's (if independent) or family's (if dependent) income from the prior year, a Special Condition form may be submitted to the Financial Aid Office along with supporting documentation. If the situation meets the basic requirements on the form, the Financial Aid Office may be able to use the current year's estimated income to determine eligibility for federal aid.

Students receiving financial aid can expect one-half of their award to be credited to their account each semester. Any balance due to the student after charges owed the college have been satisfied is refunded to the student as the funds arrive on campus. Work study students will be paid on a bi-weekly basis for the work accomplished during the previous pay period.

## Federal Financial Aid Programs

### Campus-Based Federal Aid Programs

**Application Process:** To apply for aid from any of the campus-based programs, the student simply follows the procedure described in the "Applying for Financial Aid" section of this catalog. If and how much aid you receive from these programs depends on your net financial need, on the amount of other aid received, and on the availability of funds at the college. Unlike the Federal Pell Grant Program, which provides funds to every eligible student, each college participating in the campus-based programs receives a certain amount of funds for each program. When that money is gone, there are no more awards from that program for that year.

**Federal Perkins Loan Program:** A Federal Perkins Loan is a low-interest (5 percent) loan for undergraduate and graduate students with exceptional financial need, as determined by the college. The annual maximum that an undergraduate student may be awarded is \$3,000, while a graduate student can receive up to \$5,000 annually. The maximum aggregate loan amount is \$15,000 for an undergraduate student and \$30,000 for a graduate student, including loans borrowed as an undergraduate student. Repayment begins nine months after the student graduates or drops below half-time status.

**Federal College Work Study Program:** The Federal College Work Study Program provides jobs for undergraduate and graduate students who need financial aid. Students are paid by the hour and receive at least the current federal minimum wage. Jobs are located both on and off campus and students are paid every two weeks. Students generally work ten hours per week and set their work hours so they do not conflict with their class schedule.

**Federal Supplemental Educational Opportunity Grant Program:** A Federal Supplemental Educational Opportunity Grant (FSEOG) is an award to help undergraduates with exceptional financial need. Priority is given to Federal Pell Grant recipients. Because the funding for the FSEOG program is limited, there is no guarantee every eligible student will be able to receive a grant.

**Federal Nursing Student Loan (FNLP):** Eligibility for the FNLP program is based on net financial need. Loans are available to students majoring in nursing and attending full-time. The maximum available per year is \$4,000 with repayment at 5% interest beginning nine months after the student graduates or drops below half-time status.

### **Non-Campus Based Federal Aid**

**Federal Pell Grant Program:** If financially eligible, undergraduate students who have not earned a bachelor's or first professional degree may qualify for a Federal Pell Grant. To be academically eligible, a student must be accepted into a degree program and be in good academic standing for financial aid eligibility. To determine if the student is financially eligible, the Department of Education uses a standard formula, passed into law by Congress, to evaluate the information reported on the FAFSA. The amount of the award will depend on the amount of money Congress has allocated to the program, whether the student is full-time or part-time, and whether the student attends school for a full academic year, or less than that.

**Federal Direct Subsidized Stafford/Ford Loans:** These are low-interest loans made by the U.S. Department of Education, through the school, directly to the student. Interest, which is variable and capped at 8.25 percent, is paid by the government while the student is in school. The amount a student can borrow is based upon financial need (see Applying for Financial Aid) and cannot exceed \$5,500

per year (\$8,500 for graduate students). All Direct Loan borrowers are charged a four percent origination fee which goes to the government to help off-set the costs of the program. The school will use your loan to pay your school charges and will give you any remaining money for living expenses. Repayment of the loan begins six months after you cease to be a half-time student and is made directly to the federal government.

**Federal Direct Unsubsidized Stafford/Ford Loans:** This loan program was created to provide loans to middle-income borrowers who do not qualify for federal interest subsidies under the Federal Direct Subsidized Stafford/Ford Loan program. A borrower's unsubsidized loan amount is determined by calculating the difference between the borrower's cost of attendance for the period of enrollment and the amount of estimated financial assistance, including the amount of a subsidized loan for which the borrower qualifies. The combined total of these two loans may not exceed the annual and aggregate limits for loans under the Federal Direct Loan program. Graduate and independent undergraduate students may be eligible for an additional \$5,000 for each year of undergraduate study or \$10,000 per year of graduate study. Interest, which is variable and capped at 8.25 percent, must be paid or capitalized by the student from the date the loan is disbursed. Unsubsidized loans will be disbursed the same as the subsidized loans.

**Federal Direct Parent Loans for Undergraduate Students (FPLUS):** FPLUS loans are for parents of dependent students who want to borrow to help pay for their children's education. A parent can borrow an amount not to exceed the student's estimated cost of attendance minus any estimated financial assistance the student has been or will be awarded during the period of enrollment. Repayment of the loan begins within 60 days of the disbursement of the funds.

**Average Loan Indebtedness:** For May 1996 graduates who borrowed while attending the Institute of Technology, the average loan indebtedness was \$4,803 for subsidized loan borrowers and \$3,659 for unsubsidized loan borrowers. The average of all loans was \$6,362 per borrower per two-year enrollment period.

**Loan Consolidation:** Loan consolidation allows borrowers to combine multiple federal education loans into a single account to make repayment easier. The benefits of consolidation include eliminating the need to deal with multiple lenders and making only one payment each month. Direct Loan borrowers must consolidate into a Federal Direct Consolidation Loan because Direct Loans cannot be sold. The Direct Consolidation Loan program offers four repayment options with the ability to change repayment plans at any point. The interest rate is variable and capped at 8.25 percent. For more information on the Direct Consolidation Loan, call 1-800-557-7392. Borrowers wishing to consolidate education loans other than a Direct Loan should contact their lenders for consolidation information.

**U.S. Bureau of Indian Affairs Aid to Native Americans:** To be eligible, the applicant must be at least one-fourth American Indian, Eskimo or Aleut and meet eligibility requirements. Awards vary depending on need and availability of funds. Application forms may be obtained from the Bureau of Indian Affairs, Federal Building, Room 523, 100 South Clinton St. Syracuse, NY 13202.

**Veterans Administration (VA) Educational Benefits:** The Veterans Readjustment Act of 1966, and subsequent legislation, enables certain veterans, or sons or daughters of deceased or disabled veterans, to obtain financial assistance for a college education. Contact the local Veterans Administration Office for further information or call 1-800-635-6534.

## New York State Financial Aid Programs

**Tuition Assistance Program (TAP):** The Tuition Assistance Program (TAP) is an entitlement grant program for New York State residents attending postsecondary institutions in the state. Undergraduate students are eligible for up to four years of assistance for full-time study or up to five years in certain programs. Graduate or professional students may also receive up to four years of TAP for a combined undergraduate-graduate total of eight years. To be eligible, the student must: enroll for 12 credit hours per semester (6 credit hours during summer session) at a college or school in New York State; meet income requirements; be a New York State resident; be either a United States citizen or an eligible non-citizen; be matriculated in an approved program and be in good academic standing (good academic standing requirements are listed later in this section); be charged a tuition of \$200 or more per year; and have no debt from a previously defaulted student loan or have established a satisfactory repayment plan. Awards vary according to tuition, type of institution attended, family net taxable income and the academic year in which the student receives first payment. The award cannot exceed tuition. Students must apply each academic year by completing a Free Application for Federal Student Aid and a Tuition Assistance Program application.

**Aid for Part-Time Study (APTS):** The Aid for Part-Time Study program provides awards of up to \$2,000 (or tuition, whichever is less) for New York State residents studying part-time in an undergraduate program at participating degree-granting schools in New York State. Unlike the TAP program, Aid for Part-Time Study is not an entitlement program. The college selects recipients and determines individual award amounts. The basic eligibility criteria is the same as the Tuition Assistance Program with the exception of enrollment status. APTS requires a student to be enrolled for at least three, but less than twelve credit hours per semester.

**Vietnam/Persian Gulf Veterans Tuition Awards:** Vietnam and Persian Gulf veterans who are New York State residents may receive up to \$1,000 per semester (\$500 per semester if part-time) to help pay the tuition at an undergraduate degree-granting institution or in an approved vocational training program in New York State. If a Tuition Assistance Program award is also received, the combined academic-year award cannot exceed tuition. To be eligible, students must: (1) be enrolled in an approved undergraduate degree program; (2) have served in the U.S. Armed Forces in Indochina between January 1, 1963 and May 7, 1975 or in the Persian Gulf from August 2, 1990 to November 30, 1995; (3) have been discharged from the U.S. Armed Forces under other than dishonorable conditions; (4) be a New York State resident; (5) have applied for TAP and the Federal Pell Grant. Veterans may obtain an application by writing to New York State Higher Education Services Corp., 99 Washington Ave., Albany NY 12255.

**Air/Army National Guard and N.Y. Naval Militia Incentive Program:** Matriculated undergraduate students who are members in good standing of the Army/Air National Guard or the N.Y. Naval Militia may be eligible for a tuition voucher. More information can be obtained by contacting the unit commander.

**Regents Award for Children of Deceased or Disabled Veterans:** These awards are for children of veterans who are deceased, disabled, or missing in action as a result of service during World War I, World War II, Korean Conflict, or Vietnam or who died as a result of injuries sustained in the line of duty. The award provides \$450 per year for up to four years of full-time undergraduate study at a college or school in New York State. Additional information can be obtained by contacting the New York State Higher Education Services Corp., 99 Washington Ave., Albany, NY 12255.

**Regents Awards for Children of Deceased Police Officers, Firefighters, and Correction Officers:** These awards are for children of police officers, firefighters, and correction officers who served in New York State and who died as a result of injuries sustained in the line of duty. The award is \$450 per year for up to four years of full-time undergraduate study. Those who are eligible for this award, with the exception of children of correction officers, will also receive the Memorial Scholarship (see below). Study must be at a college in New York State. Additional information can be obtained by contacting the New York State Higher Education Services Corp., 99 Washington Ave., Albany, NY 12255.

**Memorial Scholarships for Children of Deceased Police Officers and Firefighters:** This scholarship supplements the \$450 received through the Regents Award for Children of Deceased Police Officers, Firefighters, and Correction Officers. The award amount is based on tuition and non-tuition costs of attendance. The award is available for four years of full-time study at a college or school in New York State. See above for address for additional information.

**Health Services Corps Scholarships:** These are competitive awards of up to \$15,000 per year to students enrolled in an approved undergraduate or graduate program. Eligible health care professions include, among others, nursing. Upon completion of study and certification requirements, the recipient must agree to work in certain not-for-profit or state-operated facilities for 18 months for each annual award. Failure to meet the service requirements results in an obligation to repay all scholarship monies received plus a substantial penalty and interest. Contact the New York State Higher Education Services Corp., 99 Washington Ave., Albany, NY 12255 for additional information.

**National Science Scholars Program:** This federally funded program provides merit awards for undergraduate study in sciences, computer science, math, and engineering. To be eligible for an award, the student must meet established criteria. The award is based on the annual federal budget and cannot exceed cost of attendance. Scholars may receive scholarships for no more than three academic years of undergraduate study. Additional information can be obtained by writing the New York State Higher Education Services Corp., 99 Washington Ave., Albany, NY 12255.

**State Aid to Native Americans:** The applicant must be on an official tribal roll of a New York State tribe or the child of an enrolled member of a New York State tribe. Awards are up to \$1,350 per year for four years. Application forms may be obtained from the Native American Education Unit, New York State Education Department, Albany, NY 12230.

**Educational Opportunity Program (EOP):** The primary objective of the EOP program is to provide educationally-related services to students whose educational and economic circumstances limit their opportunity for postsecondary education. A student is eligible for the EOP program if he/she has received prior aid through an EOP, Higher Educational Opportunity Program (HEOP), Search for Elevation and Education Through Knowledge (SEEK) program, or College Discovery (CD) program. Further information can be obtained by writing to the Director of EOP at the Institute of Technology.

**Vocational Rehabilitation Program:** Eligibility for vocational rehabilitation services is based upon: (1) the presence of a physical or mental disability which, for the individual, constitutes or results in a substantial handicap to employment; and (2) the reasonable expectation that vocational rehabilitation services may benefit the individual in terms of employability. Further information is available from the nearest NYS Office of Vocational and Educational Services for Individuals with Disabilities (VESID).

## Scholarships

The philosophy of the Institute of Technology is to assist students attending the college by providing supplemental financial resources based on academic performance and community or college service.

A student's eligibility is determined at the time of his/her acceptance to the college. Using the transfer grade point average as an indicator of academic excellence (a minimum of 3.5 is required for consideration), students' applications for admission are screened to determine if they meet the specific criteria of each individual scholarship. Scholarships are awarded during the spring only to students entering during the following fall semester. Therefore, students wishing to be considered should complete the college's admissions process as early as possible. *There are no separate applications to be completed to be considered for these scholarships.*

### Institute of Technology Endowed Scholarships

*Senator James H. Donovan Scholarship:* Four two-year scholarships are awarded annually to outstanding students from Herkimer, Lewis or Oneida Counties.

*Dr. Spencer J. Roemer Scholarship:* Four awards are made annually to students from the Utica area who exhibit a strong academic background.

*Florence Roemer Bevan Scholarship:* In memory of Florence Roemer Bevan, these two awards are restricted to students from the greater Utica/Rome area.

*Kenneth Roemer Scholarship:* In memory of Kenneth Roemer, these two awards are restricted to outstanding students from the Utica/Rome area.

*"WSTA, Partners in Information and Network Technology," Scholarship:* Awarded annually to provide fiscal aid for a financially needy full-time student in the department of telecommunications.

*Stetson-Harza Scholarship:* An annual award open to students from any curriculum.

*Senator James H. Donovan Lewis County Scholarship:* An annual award to an outstanding scholar from Lewis County.

*Brodock Press Scholarship:* An award is made annually to an academically strong student in the engineering technology fields.

*New York State Telephone Association Scholarship:* Established to acknowledge a superior student who is a telecommunications major.

*General Electric Scholarship:* Created by General Electric management at the French Road plant, this award is directed toward women, Vietnam veterans and minority students in the technologies, including computer science and telecommunications.

*Globe Mill Scholarship:* An annual award open to students from any curriculum.

*College Association Scholarship:* This annual award was established to recognize superior academic performance and is open to students from any curriculum.

*Ruddy Paul Cayan Memorial Scholarship:* Established by friends and family of Ruddy Cayan. Two annual awards are restricted to second-year nursing students.

*Contel Scholarship:* Established to acknowledge a superior student in the telecommunications program.

*Racal-Datacom Award for Excellence:* An annual award to an outstanding senior in the telecommunications program. Created by *Racal-Datacom* Corporation.

*Howard Hart/Kiwanis Scholarship:* In memory of Howard Hart, the award is restricted to a student from the Utica area.

*Women's Christian Association of Utica Scholarship:* Created to provide awards to female students at the Institute of Technology. Preference is given to residents of Oneida County.

*The Norman Saltzburg Memorial Scholarship:* In memory of Norman Saltzburg, an award is made to a superior student in need of financial aid.

*The Rose D. & Harry B. Saltzburg Scholarship:* This annual award is made to an outstanding scholar from any discipline.

*Class of 1982 Service Award:* Established by the Class of 1982 to recognize student leadership. The award is made annually to a senior at the Institute of Technology.

*The Robert S. Best Memorial Scholarship:* In memory of Robert Best, past Assistant to the Vice President for Academic Affairs at the SUNY Institute of Technology, a scholarship is awarded annually to a non-traditional student from any curriculum.

*Class of 1983 Scholarship:* Created by revenues from a loan fund, the Class of 1983 scholarship is dedicated to academic excellence.

*The Dr. Robert D. Leidig Memorial Scholarship:* In memory of Robert D. Leidig, past Vice President for Administrative Services at the SUNY Institute of Technology, two scholarships are awarded annually to students from any curriculum.

*TIE Communications Scholarship:* This scholarship is awarded annually to a student entering the telecommunications program.

*Dr. Ellen P. Coher Nursing Scholarship:* Two awards are made annually, in the name of the former long-time Dean of the School of Nursing, to academically excellent students in the nursing curriculum.

*David & Lillian Leffert Scholarship:* An award is made annually to an academically excellent student.

*George F. Pitman Scholarship:* Book scholarships awarded annually, in the name of the founding Director of Business Affairs at the Institute of Technology, to students from any curriculum.

*NYNEX Scholarship:* Two scholarships are awarded annually to students in the telecommunications program.

*James A. Burns, Jr. Scholarship:* In memory of James A. Burns, Jr., alumnus and longtime employee in the department of information services, a scholarship is awarded annually to an outstanding senior in the telecommunications program.

*CIGNA Telecommunications Scholarship:* An award is made annually to a full-time student majoring in telecommunications.

*Milton L. Smith Scholarship:* In an effort to establish a perpetual testimony to his 22 years of dedicated work on the college's behalf, the Milton L. Smith scholarship was started. An annual award is open to students from any curriculum.

## Institute of Technology Annual Scholarships

*Alumni Book Scholarships:* Established through the annual gifts of the SUNY Institute of Technology graduates, at least 30 two-year scholarships each year are awarded to new students from any curriculum.

*NFL Alumni, Inc., Scholarship:* An award is made annually to an academically excellent student in the telecommunications program.

*March Associates Scholarship:* An award is made annually to an outstanding student from any curriculum.

*Marcy Chamber of Commerce Scholarship:* This annual award is open to any senior who owns, or whose family owns property in the Town of Marcy, and has resided there for at least five years.

*Utica Foundation Scholarship:* Awards are made annually to outstanding scholars from Oneida or Herkimer County.

*SUNY Empire State Minority Honors Scholarship:* Scholarships awarded to members of under-represented minorities with at least a 3.0 grade point average. Number and amount of scholarships depend on annual funding.

*Julia O. Wells Foundation Scholarship:* Scholarships are awarded to nursing students, half of which must go to Albany Memorial Hospital School of Nursing graduates. The number and amount of the scholarships depend on annual funding.

*Slocum-Dickson Foundation Scholarship:* Awards are made annually to nurses enrolled in the master of science in nursing degree program who are from the Utica area.

*Northern Telecom, Inc. (NORTEL) Scholarship:* An award is made annually to an academically excellent student in the telecommunications program.

*Central New York Communications Association (CNYCA) Scholarship:* One scholarship is awarded to an outstanding student in the telecommunications program.

*TWIST/Leatrice Golden Scholarship:* Established in honor of Leatrice Golden, after lengthy service in the office of the vice president for academic affairs, restricted to a woman in a science or technology discipline.

*International Communication Association (ICA) Scholarship:* Intended for full-time students who have declared a major in a telecom-related degree. All students receiving a scholarship from the ICA Foundation will be required to be an affiliate member of ICA.

*Independent Telephone Pioneer Association, Inc./ Empire State Chapter:* An award is made annually to a full-time student majoring in telecommunications.

## Additional Sources of Aid:

Check your local library for the following publications:

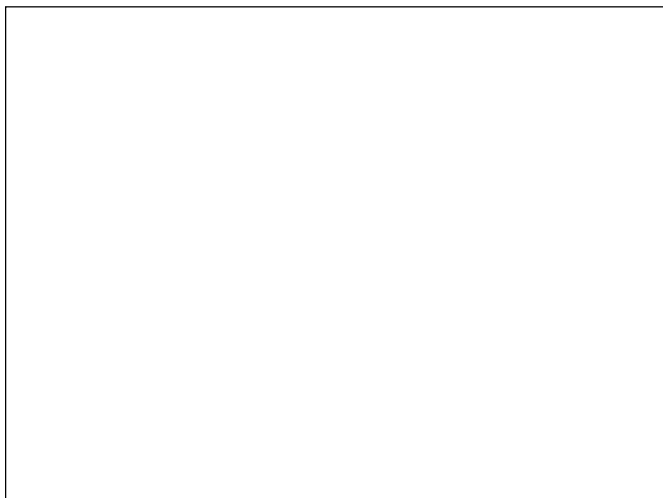
Directory of Financial Aid for Women

Directory of Financial Aid for Minorities

Chronicle Student Aid Annual

The Great American National Scholarship & Grants Guide  
Scholarships, Fellowships & Loans

You may also access scholarship information through the Internet's World Wide Web. FastWEB, an on-line scholarship database, is available by typing: <http://www.finaid.org/>.



## Miscellaneous Programs

**Shirley Wurz Loan Fund:** The Institute of Technology has established the Shirley Wurz Loan Fund to assist students in meeting unanticipated financial needs. Through this fund, a student can borrow up to \$150 for 30 days with no interest or service charge. If the loan is not repaid on time, there is a \$2.00 administrative charge assessed for each 30 day period or portion thereof until the loan is repaid. All funds must be repaid by the end of the semester during which they were borrowed. Loans will not be made during the last two weeks of the semester. To be eligible, a student must be enrolled at least half-time and working toward a degree. A student will not be able to borrow if he/she already has a loan outstanding, has continually repaid loans after the due date, or if classes are not in session. Applications can be obtained from the Financial Aid Office.

**Mohawk Valley Engineers Executive Council Loan Fund:** The Mohawk Valley Engineers Executive Council, an affiliation of technical societies, established a student loan fund to assist students enrolled in the technologies. The provisions of the program are the same as for the Shirley Wurz Loan Fund.

**Class of 1983 Loan Fund:** The Class of 1983 established a loan fund to assist students by providing loans of up to \$300. To be eligible, a student must provide a valid award notice from any federal or state aid program which pays the aid directly to the college and to which the student is entitled to a refund. A student may take out only one Class of 1983 loan a semester. Applications for a Class of 1983 loan can be obtained from the Financial Aid Office.

**Foundation of Record Education Loans (FORE):** Students in medical record administration may apply for a FORE Loan from the American Health Information Management Association. Interested students should obtain an application from: FORE, c/o American Health Information Management Association, 919 N. Michigan Ave., Suite 1400, Chicago, Illinois 60611.

**Book Credit:** Students who have financial aid which exceeds their bill for that semester may be eligible for book credit which can be used to purchase textbooks and supplies at the campus bookstore. Applications can be obtained from the Financial Aid Office.

## Estimated Costs for the Academic Year

	Commuter Students (living with parents)	Off-Campus Students	On-Campus Students
Tuition	\$3,400	\$3,400	\$3,400
Fees	695	695	695
Books & Supplies	650	650	650
Room	750	3,285	3,780
Board	750	1,800	2,100
Travel	1,240	1,240	445
Personal Expenses	960	1,280	1,280
Total Budget	\$8,445	\$12,350	\$12,350

Tuition for out-of-state residents is \$8,300. In-state graduate students should substitute \$5,100 (out-of-state use \$8,416) for the tuition costs.

The above budgets represent average expenses. Generally, a student who is careful about his/her expenses can complete the year for less. Living expenses are based upon the assumption that the student will be sharing an apartment, and the associated expenses, with another student.

Tuition, fees, and other charges are estimated at the time of printing and are subject to change without prior notice at the discretion of the college administration and the State University of New York.

## Repayment of Financial Aid

Students who drop from full- to part-time or who withdraw from the college during a semester may be required to repay a portion of the financial aid awarded for that term. The amount of such repayment, if any, is dependent upon the amount of aid actually given to the student and the number of weeks the student actually attended classes. The calculation of any repayment will be made by the Bursar subsequent to the official dropping of a class or withdrawal from college.

## Students' Rights and Responsibilities

You have the right to ask a school:

1. The names of its accrediting and licensing organizations.
2. About its programs; its instructional, laboratory, and other physical facilities; and its faculty.
3. What the cost of attending is, and what its policy is on refunds to students who drop out.
4. What financial assistance is available, including information on all federal, state, local, private, and institutional financial aid programs.
5. What procedures and deadlines are for submitting applications for each available financial aid program.
6. What criteria it uses to select financial aid recipients.
7. How it determines your financial need. This process includes how costs for tuition and fees, room and board, travel, books and supplies, and personal and miscellaneous expenses are considered in your cost of education. It also includes the resources considered in calculating your need.
8. How much of your financial need, as determined by the institution, has been met.
9. How and when you will be paid.
10. To explain each type and amount of assistance in your financial aid package.

11. What the interest rate is on any student loan that you have, the total amount you must repay, the length of time you have to repay, when you must start repaying, and what cancellation or deferment provisions apply.
12. If you are offered a college work study job—what kind of job it is, what hours you must work, what your duties will be, what the rate of pay will be and how and when you will be paid.
13. To reconsider your aid package if you believe a mistake has been made, or if your enrollment or financial circumstances have changed.
14. How the college determines whether you are making satisfactory progress, and what happens if you are not.
15. What special facilities and services are available to the handicapped.

It is your responsibility to:

1. Review and consider all information about a school's program before you enroll.
2. Pay special attention to your application for student financial aid, complete it accurately, and submit it on time to the right place. Errors can delay or prevent your receiving aid.
3. Know and comply with all deadlines for applying or reapplying for aid.
4. Provide all additional documentation, verification, corrections, and/or new information requested by either the Financial Aid Office or the agency to which you submitted your application.
5. Read, understand, and keep copies of all forms you are asked to sign.
6. Repay any student loans you have. When you sign a promissory note, you are agreeing to repay your loan.
7. Notify your school of a change in your name, address, or attendance status. If you have a loan, you must also notify your lender of these changes.
8. Satisfactorily perform the work agreed upon in a college work study job.
9. Understand your college's refund policy.
10. Maintain good academic standing to retain your eligibility for financial aid.

## Academic Requirements for Financial Aid Eligibility

The Higher Education Act of 1965, as amended by Congress in 1986 and 1992, and Part 145 of the Regulations of the New York State Commissioner of Education dealing with state student financial assistance require institutions of higher education to establish minimum standards of "good academic standing" for students to be eligible for financial aid. The Institute of Technology applies the federal standards to the Federal Perkins Loan, Federal College Work Study, Federal Supplemental Educational Opportunity Grant, Federal Nursing Student Loan, Federal Pell Grant, Federal Direct Stafford Loan Program, Federal Direct Unsubsidized Stafford Loan Program, Federally Insured Student Loan, and the Federal Direct Parent's Loan for Undergraduate Student programs and the state standards to the Tuition Assistance Program, Aid for Part-Time Study program and other state programs for the purpose of maintaining a consistent policy for all students receiving assistance. Failure to meet the academic requirements for financial aid eligibility does not affect the student's academic standing at the college.

The Federal and State regulations governing the financial aid programs require students to meet certain academic requirements in order to receive financial aid. To be academically eligible for financial aid, you must be matriculated (accepted into a degree program), be enrolled for at least 6 credit hours each semester for federal aid programs and 12 credit hours each semester (6 credit hours during the summer term) for the Tuition Assistance Program (courses you have previously passed and are now repeating cannot be counted toward the required hours for TAP), and be in good academic standing.

## Requirements for Federal Student Aid Programs

- A. Good academic standing is determined by measuring the student's academic performance at SUNY Institute of Technology and consists of the following two components.
  1. Satisfactory Academic Progress: In order to meet the satisfactory academic progress requirement, the student must maintain a cumulative grade point average greater than that which would result in academic dismissal. These are listed in this catalog in the Undergraduate Standing section of the Academic Requirements and Policies chapter.
  2. Pursuit of Program: In order to meet the pursuit of program requirement, the student must pass a minimum number of credit hours each semester and complete all degree requirements within a specified number of semesters. These are listed below:
    - a. a student who enrolls for 12 or more credit hours must pass a minimum of 12 credit hours;
    - b. the student who enrolls for 9-11 credit hours must pass a minimum of 9 credit hours;
    - c. the student who enrolls for 6-8 credit hours must pass a minimum of 6 credit hours;
    - d. the student who enrolls for less than 6 credit hours must pass all credit hours taken.
    - e. Students must meet all degree requirements within the first 90 credit hours for which they enroll. Graduate students must meet all degree requirements within the first 54 credit hours.

All requirements and procedures which follow apply to full-time and part-time students.

- B. Review Policies:
  1. Following each semester, the cumulative GPA and number of credits earned by each student are reviewed for compliance with the criteria for good academic standing. Students not receiving financial aid are subject to the same criteria and can be placed on financial aid probation or suspension for future consideration.
  2. The following are considered credits passed:
    - a. "A" through "D" grades;
    - b. "S" passing with credit;
    - c. courses repeated for credit, subject to the above grades.
  3. The following are not considered credits passed:
    - a. "F" grades;
    - b. "W" withdrawal;
    - c. any course audited with no credit;
    - d. "I" incomplete.

- C. Notification: Whenever possible the Financial Aid Office notifies by letter any student who does not maintain satisfactory academic progress that he/she is being placed on financial aid probation/suspension.
- D. Financial Aid Probation: A student who fails to meet the above criteria in any semester is placed on financial aid probation. A student placed on financial aid probation may receive financial aid for the next two semesters, but must pass 12 hours during one of the next two semesters. A student failing to maintain good academic standing can be placed on financial aid probation only once during his/her academic career at the Institute of Technology. A student who uses any portion of the probation period (i.e., one semester and then regains good academic standing) is considered to have used the entire period of probation for the purpose of determining the student's future eligibility for financial aid.
- E. Financial Aid Suspension: A student is placed on financial aid suspension if the student fails to pass any credit hours by withdrawing from all classes, failing all classes or a combination of both. If a student on financial aid probation does not regain good academic standing (as defined above) by the end of the probationary period, the student is placed on financial aid suspension. Any student who regains good academic standing and then loses it during a subsequent semester is also placed on financial aid suspension. Financial aid suspension results in the termination of financial aid from all federal financial aid programs.
- F. Appeal of Financial Aid Probation/Suspension  
A student may request a waiver of the Good Academic Standing Requirements through the following procedure:
  - 1. The student submits a Request for a Waiver form (can be obtained from the Financial Aid Office) to the Director of Financial Aid or his/her designee. The request should include:
    - a. reasons why he/she did not achieve the minimum academic requirements,
    - b. reasons why his/her aid should not be terminated, and
    - c. documentation which would support his/her reason for failing to maintain satisfactory academic progress (i.e., statement from doctor if reason given was medically related).
  - 2. The Director of Financial Aid or his/her designee reviews the appeal and determines whether the granting of a waiver is warranted. The student is then advised of the decision.
  - 3. A student wishing to appeal the initial decision may do so in writing to the Executive Vice President for Academic Affairs, or his/her designee.
- G. Conditions of Reinstatement:
  - 1. A student may regain his/her eligibility for federal financial aid for a subsequent semester if he/she meets the following requirements:
    - a. must pass 12 credit hours if enrolled for 12 or more
    - b. must pass 9 credit hours if enrolled for 8-11
    - c. must pass 6 credit hours if enrolled for 6-8

- 2. Students who are academically dismissed and who wish to return to the college must submit an appeal to the Admissions Office. Those students who are reinstated and have not used up their eligibility for financial aid probation will have their good academic standing status changed from suspension to probation. Paragraph 9 of the Undergraduate Standing section of the Academic Requirements and Policies chapter in this catalog contains information on reinstatement.
- 3. A student who enrolls after a 12 month absence will have his/her eligibility reinstated.
- 4. A grade change may result in the reinstatement of a student's eligibility. However, it is the responsibility of the student to notify the Financial Aid Office of any grade changes.

### Requirements for New York State Financial Aid Programs

In addition to the previously stated academic requirements, a student who has been determined eligible for an award from a New York State aid program must meet the requirements listed on the chart below:

<i>In order for you to receive this TAP payment:</i>	<i>You must have completed* this number of hours:</i>	<i>You must have a cumulative grade point average of:</i>	<i>You must have completed** this many credit hours during your last semester:</i>
1st	0	0.00	0
2nd	3	0.50	6
3rd	9	0.75	6
4th	18	1.20	9
5th	30	2.00	9
6th	45	2.00	12
7th	60	2.00	12
8th	75	2.00	12
9th	90	2.00	12
10th	105	2.00	12

\* Includes those hours you have transferred to the Institute of Technology.

\*\* Complete is defined as receiving grades of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, F, S, U, or I.

If you do not meet the above requirements, you will not be eligible for the Tuition Assistance Program, Aid for Part-Time Study, or other New York State aid programs.

If you received credit for a TAP, APTS, or other New York State aid award on your bill, and subsequent verification of your academic eligibility reveals that you did not meet the requirements, we are required to cancel your award and you will be required to pay any balance owed the college.

A student can regain eligibility only by being granted a waiver if extraordinary circumstances prevented the student from meeting the criteria, by making up deficiencies without receiving TAP, APTS, or other N.Y. State aid program awards, or by being readmitted to the school after an absence of at least 12 months.

Additional information on satisfactory academic progress requirements can be obtained by contacting the Financial Aid Office.

The information contained in the financial aid section of the catalog is correct at the time of printing. Changes in policies, requirements, and regulations may occur at any time.



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# Academic Requirements and Policies

## Degrees

The Board of Regents and the New York State Education Department have authorized the State University of New York Institute of Technology at Utica/Rome to confer the following undergraduate degrees: Bachelor of Professional Studies, Bachelor of Technology, Bachelor of Science, Bachelor of Arts, and Bachelor of Business Administration.

The Institute of Technology offers Master of Science degree programs in accountancy, adult nurse practitioner, advanced technology, business management, computer and information science, nursing administration, telecommunications, and an advanced certificate in adult nurse practitioner.

## Accreditation

The State University of New York Institute of Technology at Utica/Rome is accredited by the Board of Regents of the State of New York. Its academic programs are registered by the State Education Department.

SUNY Institute of Technology is accredited by the Middle States Association of Colleges and Schools. Its educational programs in nursing and health information management are accredited by the National League for Nursing (NLN), and the Commission on Accreditation of Allied Health Educational Programs (CAAHEP) in collaboration with the Council on Accreditation of the American Health Information Management Association.

The following programs are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology: electrical engineering technology, industrial engineering technology, mechanical engineering technology, and computer engineering technology.



## Undergraduate Grading System

The level of a student's scholarship is determined by the following system of quality points per semester hour of credit:

Grades	Quality Points Per Credit Hour
A + .....	4.00
A Excellent .....	4.00
A- .....	3.67
B + .....	3.33
B Good .....	3.00
B- .....	2.67
C + .....	2.33
C Satisfactory .....	2.00
C- .....	1.67
D + .....	1.33
D <i>Poor</i> .....	1.00
F Failure (no earned credit) .....	0.00
W <sup>1</sup> Withdrew	
I <sup>2</sup> Incomplete	
S <sup>3</sup> Average or Above	
U <sup>4</sup> Unacceptable	
EX Examination (Refer to Test-out Policy Below)	

The grade point average (GPA) is determined by dividing the total number of quality points by the total number of semester hours for which a student has been graded ("A" through "F"). If a student has retaken a course, only the course with the higher grade is used in computing the cumulative GPA.

1. *Withdrew from a course subsequent to the add/drop period and prior to the last class meeting at the end of the ninth week of classes.*
2. *The Incomplete Grade (I): A grade assigned at the discretion of the instructor when the student has failed to complete the course due to circumstances beyond the student's control. The incomplete must be removed by mid-semester of the following semester. An incomplete that is not removed within this period is recorded as an "F." NOTE: Students cannot re-register for a course in which they are currently registered and have an incomplete grade pending.*
- 3-4. *"S" and "U" grades apply only to those courses that have been approved as S/U grade courses. Grades "A" through "F" may not be awarded in such courses. The "S" grade signifies that the requirements of the course have been successfully completed and academic credit has been earned. The "U" grade indicates that the requirements of the course have not been successfully completed and no academic credit has been earned. S/U graded courses are indicated as such in the course descriptions. "S" and "U" grades are not included in calculating the student's GPA, and, if an "I" were to be given and not removed, the "I" reverts to a "U."*

## Final Grade Reports

Students should carefully review their final grade reports that are mailed at the conclusion of each semester. Errors should be immediately reported to the Registrar's Office. Students have one year from the end of any semester in which to request, in writing, a correction to their official transcript, and must provide appropriate documentation to support the request.

## Certifying Official

The College Registrar is designated as the college's certifying official and performs the following certification functions: Veterans Educational Benefit Certification, verification of enrollment (i.e., insurance, employment, enrollment certification for NYS Higher Education, loan servicing centers and banks, etc.), and certification/verification of graduation.

## Undergraduate Honors

Eligibility for the academic honor lists is based upon full-time (12 or more credit hours) matriculated student status in courses that are graded "A" through "F." One or more incomplete (I) grades renders a student ineligible for academic honors.

1. *President's List.* A semester GPA of 3.60 or more qualifies a student for that semester's President's List.
2. *Dean's List.* A semester GPA of 3.20 or more, and less than 3.60 qualifies a student for that semester's Dean's List.

## Graduation Honors

The SUNY Institute of Technology confers honors in recognition of excellence. This concept, by its nature, involves an overall academic performance which is unusual; noteworthy; extraordinary. Consequently, the students thus designated are normally expected to be few.

Accordingly, honors will be conferred according to the following pattern:

In each school of the Institute, generally not more than 15% of the graduating students shall be awarded graduation honors.

## Exceptions to Academic Policies

Students seeking an exception to an academic policy may do so by filing an academic petition through the dean of their academic school.

## Test-Out Policy

As a matter of policy, the Institute of Technology allows students to establish credit for coursework on the basis of activities other than normal class attendance. Each academic school establishes its own policy for testing out, observing the following guidelines:

- a. The basis for establishing credit must be explicitly formulated and approved in advance by the divisional faculty, the dean, and the Executive Vice President for Academic Affairs. A copy must be on file in the Registrar's Office.
- b. Credit established under this policy must be used to satisfy degree requirements and must not extend the total number of credit hours required for graduation.
- c. No more than 12 credit hours can be established under this policy.
- d. A grade of EX will be assigned for each course to students establishing credit under this policy. EX grades are not counted when calculating the student's GPA.
- e. Regular tuition will be charged for each course requirement satisfied under this policy.
- f. Credits earned through this procedure may not be applied toward the 30 semester hour residence requirement.
- g. A student may have the opportunity to test-out of a particular course only once.

## Undergraduate Standing

The following definitions and regulations apply to undergraduate standing:

1. *Matriculated Student.* Any student who has followed the standard SUNY admission policies for entrance to the college and is formally enrolled in an established program leading to a degree at the college. This includes the receipt and evaluation of that student's final transcript of previous college work with the finding that the work meets the minimum requirements of that program. To avoid loss of matriculated status, a student wishing to leave the college for a specific period of not more than one academic year should apply for a leave of absence. (See paragraphs ten and eleven of this section.)
2. *Full-Time Matriculated Student.* Any matriculated student who has enrolled in a minimum of twelve (12) credit hours of coursework during a semester.
3. *Part-Time Matriculated Student.* Any matriculated student who has enrolled in less than twelve (12) credit hours of coursework during a semester.
4. *Academic Overload.* Any student registering for more than 16 semester credit hours in any semester must have the written approval of the appropriate school dean, or his designated representative.
5. *Class Standing.* A matriculated student's class standing is determined as follows:
  - Junior* - 0 to 29 earned credit hours of upper division coursework.
  - Senior* - 30 or more earned credit hours of upper division coursework.
6. *Academic Good Standing.* A student is considered in good standing unless expelled, suspended, or academically dismissed from the college and not re-admitted.

7. *Academic Warning.* At the completion of each semester, a student's academic record is routinely reviewed, and if the cumulative grade point average is below 2.00, the student is placed on academic warning for the following semester. Academic warning is intended to encourage greater effort from students having difficulty meeting academic standards; a student on academic warning is still considered in good academic standing. A 2.00 cumulative grade point average is required for graduation.
8. *Academic Dismissal.* At the completion of each semester, a student's cumulative grade point average is routinely reviewed for academic dismissal reasons according to the following:

<i>Credits Taken</i>	<i>Grade Point Average Below</i>
8-11	1.00
12-24	1.33
25-36	1.56
37-48	1.67
49-64	1.75
65 or more	2.00

A student may be academically dismissed without first being on academic warning.

9. *Reinstatement.* Students dismissed for academic deficiencies who wish to return to the college must submit their appeal to the Admissions Office. The Admissions Office will evaluate the appeal in consultation with the appropriate academic dean and make a determination as to reinstatement.

Generally, a student on academic dismissal will not be reinstated until one full semester has elapsed since dismissal. Students who do wish to return to the college at a later date are strongly encouraged to meet with the Admissions Office as soon as practical after their dismissal to discuss those conditions which must be met prior to reinstatement and matriculation.

Establishing matriculation in a program or curriculum is governed by the regulations for matriculation in that program or curriculum at the time of reinstatement. The student must make satisfactory overall academic progress so that the student may reach a minimum cumulative grade point average of 2.00 by the time of graduation.

10. *Voluntary Withdrawal.* To retain good academic standing, students who withdraw voluntarily must officially withdraw through the Registrar's Office. Students who do not officially withdraw may receive failing grades in any courses not completed. The student who withdraws voluntarily without being granted a leave of absence loses matriculation status. Should the student desire to return at a later time, the student must file a Petition for Readmission form with the Admissions Office and be approved for readmission. (Graduation requirements in effect at the time of re-entry will apply.)
11. *Leave of Absence.* Leave of absence for a specified period of time may be granted to a student who is not subject to academic dismissal. The student applying for leave of absence must give a definite date for re-registration at this college of no longer than one academic year from the date of leaving the college. A student not returning for re-registration within the specified time will be classified as officially withdrawn from the college. Application for leave of absence must be made to the dean of the academic school in which the student is enrolled.

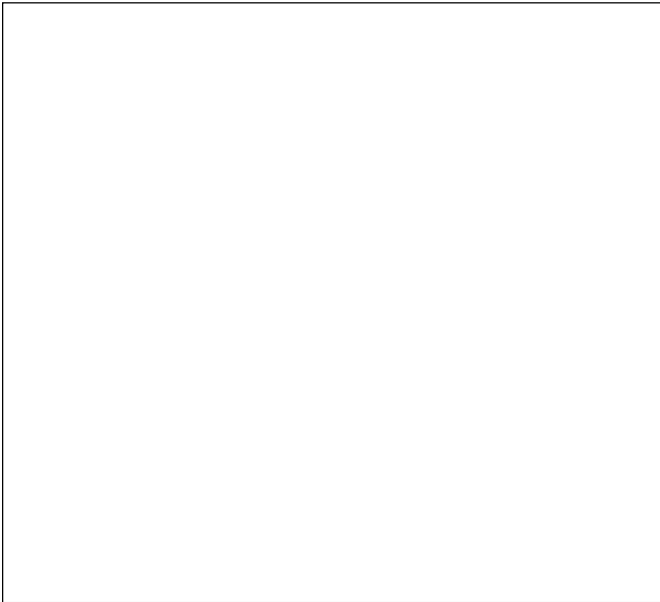
12. *Continuous Matriculation.* Degree requirements existing at the time of initial matriculation remain in force only if the student maintains continuous matriculation. A student who discontinues enrollment for one year or more without being granted an official leave of absence may apply for readmission, but the student must then meet the degree requirements in effect at that time. Degree requirements are determined by the catalog under which the student is admitted or readmitted. In either case course prerequisites listed in the catalog are subject to change.
13. *Registration in Credit Courses.* Registration is limited to students who have successfully completed at least 56 semester hours of lower-division work, or its equivalent.
4. *Waiver of Courses.* The academic school dean may allow substitutions for a particular credit course required in a program or curriculum. The student's advisor must formally recommend the substitution as part of the petition for waiver.
5. *Independent Study.* Independent study projects are designed to provide matriculated students with the opportunity for a learning experience in a specific area of knowledge not provided by regular courses in the college. They are not to be used in lieu of courses listed in the general catalog, nor are they to be considered guaranteed offerings; they are available to the student as facilities, faculty, time, and interest permit. Within these guidelines each academic school defines its concept of independent study.

## Code of Academic Conduct

Refer to the current Student Handbook for the college's Code of Academic Conduct.

## Undergraduate Course Requirements

1. *Class Attendance.* Each student is expected to attend class regularly in order to achieve the maximum benefit from educational activities. The student is responsible for all classwork missed, regardless of the reasons for absence. Each instructor sets the standards of performance to be met by each student for each course in keeping with the standards and policies of SUNY and the college, division, or department. Expected performance is defined at the beginning of the course. The student's performance in relation to the established standards shall determine the student's grade in a course.
2. *Time Requirement for Courses.* It is the policy of this college for all courses offered to conform to the New York State Education Regulations requiring at least 15 hours of instruction\* and at least 30 hours of supplementary assignments for each semester credit hour awarded in lecture/discussion courses. For example, a four credit course requires at least four hours of instruction plus supplementary assignments requiring at least eight additional hours each week for the 15-week semester.  
 Courses involving laboratories, independent studies, tutorials, or practicum experiences are required to have some combination of instruction, laboratory work, and/or supplementary assignments equaling at least 45 hours for each credit awarded.
3. *Repeating Courses.* A student may repeat any course in which he or she has received a grade of "F." Since no credit is earned for a course in which a grade of "F" has been received, the student must make up the credit deficiency. If a failed course is specifically required for the student's academic program, the student must repeat the course. A student may repeat any course in which he or she has received a "D" or better with the approval of the advisor, instructor, and chairperson of the department or dean of the school offering the course. While the student receives credit for only one course attempt toward completion of the degree or program, both grades remain on his or her record; only the higher grade is used in computing the student's cumulative GPA.
6. *Auditing Courses.* Students must register for a course to be taken for audit, and the form must be signed by the instructor of the course and the dean of the academic school within which the course is offered. Courses to be taken for audit cannot be registered for during advance registration. Courses taken for audit must be so specified *at the time of registration, or no later than the last day to add classes.* Tuition and fees are not charged for audited courses and there will be no notation of these courses on the college transcript.
7. *Adding or Dropping a Course.* A student may add or drop a course, without academic record, by completing the appropriate forms available in the Registrar's Office and obtaining the required approvals (refer to the comprehensive academic calendar for appropriate dates). During the third through ninth week of the semester, any student dropping a course receives a "W" grade. After the ninth week of class, a letter grade A-F is assigned.
8. *Section Changes.* Change of section is accomplished by the use of an add/drop form.
9. *Students Unable to Register or Attend Classes on Certain Days Because of Religious Beliefs.* The SUNY policy on attendance in class states: No person shall be expelled from or be refused admission as a student to an institution of higher education for the reason that the student is unable, because of religious beliefs, to register or attend classes or to participate in any examination, study, or work requirements on a particular day or days.



Any student in an institution of higher education who is unable, because of religious beliefs, to attend classes on a particular day or days shall, because of such absence on the particular day or days, be excused from any examination or any study or work requirements.

It shall be the responsibility of the faculty and of the administrative officials of each institution of higher education to make available to each student who is absent from school, because of religious beliefs, an equivalent opportunity to make up any examination, study, or work requirements which the student may have missed because of such absence on any particular day or days. No fees of any kind shall be charged by the institution for making available to said student such equivalent opportunity.

If registration, classes, examination, study, or work requirements or opportunity to register are held on Friday after four o'clock post meridian, or on Saturday, similar, or make-up classes, examinations, study, or work requirements shall be made available on other days, where it is possible and practicable to do so. No special fees shall be charged to the student for these classes, examinations, study, or work requirements held on other days.

In effectuating the provisions of this section, it shall be the duty of the faculty and of the administrative officials of each institution of higher education to exercise the fullest measure of good faith. No adverse or prejudicial effects shall result to students because of their availing themselves of the provisions of this section.

Any student who is aggrieved by the alleged failure of any faculty or administrative officials to comply in good faith with the provisions of this section, shall be entitled to maintain an action or proceeding in the supreme court of the county in which such institution of higher education is located for the enforcement of the student's rights under this section.

*\*Inclusive of examinations. An hour of instruction equates to 50 minutes of actual class time.*

## Residency Requirements

The college maintains a minimum residency requirement of 30 semester hours, of which a minimum of 12 semester hours must be in the major. Consult your program description for any additional specific residency requirements.

## Transcript Request Policy

Institute of Technology transcript requests must be made in writing with the student's signature. Telephone requests cannot be legally honored. There is a \$5.00 processing charge for each copy of a transcript requested. All financial obligations to the college must be cleared prior to the issuance of a transcript.

## Transfer of Credit

It is the policy of the Institute to accept only those transfer credits that are applicable to the student's degree requirements, i.e., - a 64 semester hour transfer of credit into a baccalaureate program requiring 124 hours indicates that the student will need to complete an additional 60 hours to finish the bachelor's degree. A minimum 2.0 cumulative grade point average must be maintained for all credit transferred. Courses for which transfer credit is allowed may not be repeated for credit at the Institute. Total transfer of credits may not exceed 94 semester hours (141 quarter hours).

### A. Transfer of Credits Taken Prior to Matriculation

Students may transfer all applicable earned credit not to exceed 64 semester hours. Additional credit beyond 64 semester hours may be accepted from primarily four-year institutions if it is applicable to the student's degree program.

### B. Transfer of Credits Taken After Matriculation

Matriculated students who wish to take coursework at another college and receive additional transfer credit must receive prior approval by filing an academic petition in accord with the procedures of their academic department. Approval of transfer credit will be based on the applicability of the course towards the student's degree requirements, and successful completion of the course with a grade of "C" or better. Ordinarily, these courses shall be taken from four-year colleges, but under no circumstances may the student transfer more than 76 credits from community colleges or other primarily two-year institutions. It is the student's responsibility to have an official transcript forwarded to the Registrar's Office for evaluation upon completion of the course.

### C. Credit by External Examination

Credit is allowed for other types of educational experience when applicable to the student's degree requirements according to the following guidelines:

1. College Proficiency Examination Program (CPEP). Administered by the New York State Education Department, CPEP offers examinations in the arts and sciences, nursing, health, and teacher education.
2. College Level Examination Program (CLEP). The College Entrance Examination Board offers a national credit-by-examination program that includes general examinations in the humanities, social sciences, mathematics, natural sciences, English, composition, introductory accounting, and computer and data processing.
3. United States Armed Forces Institute (USAF/DANTES). The USAFI offers credit-by-examination in a variety of academic areas including the humanities, social sciences, and business administration.
4. Regents External Degree (RED). The Board of Regents of the University of the State of New York offers various programs in which students can demonstrate successful subject area competencies by examination.

#### D. Effect of Transfer Credits

Credits awarded under the above regulations have no effect upon the computation of the student's grade point average.

### Requirements for Graduation

1. Students with 124 credits accumulated and/or in progress must submit an application to graduate with the Registrar's Office by mid-semester of the semester in which they intend to graduate (refer to the comprehensive academic calendar for application deadline dates). A list of potential graduates for a given semester is posted outside the Registrar's Office and is made available in the academic school offices. If a student's name is listed, the student's advisor and academic school clears the student for graduation without any additional action from the student. Students completing coursework off-campus should contact the Registrar's Office for special instructions.
2. While each student is assigned a faculty advisor and is given an opportunity to obtain additional counseling on personal and collegiate matters, final responsibility rests with the student to assure that all degree program requirements are satisfied for graduation.
3. Satisfactory completion of 124 credit hours with a minimum GPA of 2.00 for all coursework taken at the Institute of Technology is required for graduation in addition to completing all program requirements.
4. There is a \$10.00 diploma cover fee which must be paid prior to graduation. All financial obligations must be cleared before the diploma is released.

### Graduation with Incomplete Grades

A student who has met all graduation requirements but who has an outstanding Incomplete grade can elect to graduate with the outstanding Incomplete grade. Students who elect to graduate in this manner may not change the Incomplete grade at a later time to another letter grade. Graduation honors will be set at the time of graduation and will not change. Students may also elect to delay their graduation to the next semester so that the Incomplete grade can be changed and the new grade may be calculated in the cumulative grade point average.

### Dual Baccalaureate Degrees

1. A student possessing a baccalaureate degree from another institution may earn a second baccalaureate degree\* from the Institute of Technology by completing the specific degree requirements and the college residency requirement. A student may satisfy both requirements simultaneously.
2. A student may earn two baccalaureate degrees\* from the Institute of Technology. The student must satisfy all degree requirements for each program. A student wishing to complete more than one baccalaureate degree may transfer a different set of courses for each degree but in no case is a student allowed to transfer more than 94 credit hours for each degree. A student must complete at least an additional 30 resident credit hours beyond the requirements for the first degree for each additional degree earned.

### Academic Minors

A student at the SUNY Institute of Technology at Utica/Rome can obtain an academic minor in an area of study that is different from the area of the major and that has been approved by the Curriculum Committee and the Executive Vice President for Academic Affairs. Approved minors are described in the catalog. Application for an academic minor must be made through the department offering the minor. Specific courses must be worked out in consultation with a faculty member in the minor. A statement of successful completion of the minor will appear on the student's transcript at the time of graduation.

The following additional criteria must be satisfied for approval of the minor:

1. The minor must consist of a minimum of 17 credit hours.
2. The minor must be in a different discipline from the student's major. "Different discipline" signifies a discipline other than the discipline comprising the majority of the courses in the student's academic major.
3. At least eight credit hours must consist of advanced level courses. "Advanced level" signifies courses beyond the entry-level sequence in the discipline; these courses normally carry prerequisites.
4. At least eight credit hours must be taken at the SUNY Institute of Technology at Utica/Rome.
5. At least eight credit hours must not be required courses in the major.
6. A student must maintain a minimum cumulative grade point average of 2.0 (average of "C") in the minor.



*\* The New York State Education Department requires that: "The conferral of two baccalaureate or associate degrees should be reserved as a means of recognizing that a candidate has competencies in two essentially different areas. For example, if a person obtains a Bachelor of Arts in History, it would be entirely appropriate to confer on the student a Bachelor of Business Administration or a Bachelor of Fine Arts, for those degrees represent professional preparation discrete from the learning identified for the Bachelor of Arts. However, it would not be appropriate to confer two Bachelor of Arts for double majors, say in English and psychology, since multiple academic majors may be properly identified on the transcript. Nor would it be logical to award a Bachelor of Arts for a completed major in English and a Bachelor of Science for a concentration in chemistry. If the liberal arts content is sufficient, one degree for both fields would be appropriate, for at this time the distinction between a Bachelor of Arts and a Bachelor of Science in many instances is at best thin, if not completely lost." Memorandum to Chief Executive Officers of Higher Institutions No. 4, September 10, 1971.*

## **Second Major**

By petition approved by both major departments and the Admissions Office, a matriculated student may complete the requirements for a second major at the Institute of Technology. The student continues as a matriculated student within the primary academic field; upon graduation the student must provide the dean or chairperson of the second major with documentation that the requirements of the second major curriculum have been fulfilled. The second major is then listed on the student's official transcript. Only majors are so recorded, not options.

# Undergraduate/ Graduate Calendars

## Fall Semester 1997\*

August 21/22	(Thurs/Fri)	New Student Testing/Advisement Registration
August 25	(Mon)	<b>ALL CLASSES BEGIN - 8:00 AM</b>
August 29	(Fri)	Last Day to Register for Fall 1997 Courses
September 1	(Mon)	LABOR DAY HOLIDAY - No Classes
September 8	(Mon)	Last Day to Add a Course or Drop Without Academic Record
September 9	(Tues)	Withdrawal (W Grade) from Courses Begins
October 13	(Mon)	Last Day of Classes for First Half Semester Courses
October 14	(Tues)	First Day of Classes for Second Half Semester Courses
		Incomplete Grades from Spring & Summer 1997 Revert to "F" Grades
<b>October 27</b>	<b>(Mon)</b>	<b>Last Day to Officially Withdraw (W Grade) From Courses</b>
November 3	(Mon)	Last Day to File for May 1998 Graduation
November 10-12	(Mon-Wed)	Advance Registration - Spring 1998
November 26-30	(Wed-Sun)	THANKSGIVING HOLIDAY RECESS
		(Recess begins at 6:00 pm, Tuesday, November 25th)
November 27/28	(Thurs/Fri)	College Closed for ALL Business
December 1	(Mon)	Classes Resume
December 6	(Sat)	Classes End
December 7	(Sun)	Reception for December Graduates
December 8	(Mon)	Final Exams Begin
December 11	(Thurs)	Final Exams End

\*A more detailed academic calendar will be published by the Registrar's Office just prior to each semester.

## Spring Semester 1998\*

January 15/16	(Thurs/Fri)	New Student Testing/Advisement Registration
January 19	(Mon)	<b>ALL CLASSES BEGIN - 8:00 AM</b>
January 23	(Fri)	Last Day to Register for Spring 1998 Courses
January 30	(Fri)	Last Day to Add a Course or Drop Without Academic Record
February 2	(Mon)	Withdrawal (W Grade) from Courses Begins
March 6	(Fri)	Last Day of Classes for First Half Semester Courses
March 9	(Mon)	First Day of Classes for Second Half Semester Courses
		Incomplete Grades from Fall 1997 Revert to "F" Grades
March 15-22	(Sun-Sun)	SPRING BREAK
March 23	(Mon)	Classes Resume
<b>March 27</b>	<b>(Fri)</b>	<b>Last Day to Officially Withdraw (W Grade) From Courses</b>
April 1	(Wed)	Last Day to File for August 1998 Graduation
April 13-15	(Mon-Wed)	Advance Registration - Summer and Fall 1998
May 2	(Sat)	Classes End
May 4	(Mon)	Final Exams Begin
May 7	(Thurs)	Final Exams End
May 9	(Sat)	Commencement
June 1	(Mon)	Last Day to File for December 1998 Graduation

\*A more detailed academic calendar will be published by the Registrar's Office just prior to each semester.



**Fall Semester 1998 \***

August 27/28	(Thurs/Fri)	New Student Testing/Advisement Registration
August 31	(Mon)	<b>ALL CLASSES BEGIN - 8:00 AM</b>
September 4	(Fri)	Last Day to Register for Fall 1998 Courses
September 7	(Mon)	LABOR DAY HOLIDAY - No Classes
September 14	(Mon)	Last Day to Add a Course or Drop Without Academic Record
September 15	(Tues)	Withdrawal (W Grade) from Courses Begins
October 19	(Mon)	Last Day of Classes for First Half Semester Courses
October 20	(Tues)	First Day of Classes for Second Half Semester Courses
		Incomplete Grades from Spring & Summer 1998 Revert to "F" Grades
<b>October 30</b>	<b>(Fri)</b>	<b>Last Day to Officially Withdraw (W Grade) From Courses</b>
November 2	(Mon)	Last Day to File for May 1999 Graduation
November 16-18	(Mon-Wed)	Advance Registration - Spring 1999
November 25-29	(Wed-Sun)	THANKSGIVING HOLIDAY RECESS (Recess begins at 6:00 pm, Tuesday, November 24th)
November 26/27	(Thurs/Fri)	College Closed for ALL Business
November 30	(Mon)	Classes Resume
December 12	(Sat)	Classes End
December 13	(Sun)	Reception for December Graduates
December 14	(Mon)	Final Exams Begin
December 17	(Thurs)	Final Exams End

\*A more detailed academic calendar will be published by the Registrar's Office just prior to each semester.

**Spring Semester 1999 \***

January 14/15	(Thurs/Fri)	New Student Testing/Advisement Registration
January 18	(Mon)	<b>ALL CLASSES BEGIN - 8:00 AM</b>
January 22	(Fri)	Last Day to Register for Spring 1999 Courses
January 29	(Fri)	Last Day to Add a Course or Drop Without Academic Record
February 1	(Mon)	Withdrawal (W Grade) from Courses Begins
March 5	(Fri)	Last Day of Classes for First Half Semester Courses
March 8	(Mon)	First Day of Classes for Second Half Semester Courses
		Incomplete Grades from Fall 1998 Revert to "F" Grades
March 14-21	(Sun-Sun)	SPRING BREAK
March 22	(Mon)	Classes Resume
<b>March 26</b>	<b>(Fri)</b>	<b>Last Day to Officially Withdraw (W Grade) From Courses</b>
April 1	(Thurs)	Last Day to File for August 1999 Graduation
April 12-14	(Mon-Wed)	Advance Registration - Summer and Fall 1999
May 1	(Sat)	Classes End
May 3	(Mon)	Final Exams Begin
May 6	(Thurs)	Final Exams End
May 8	(Sat)	Commencement
June 1	(Tues)	Last Day to File for December 1999 Graduation

\*A more detailed academic calendar will be published by the Registrar's Office just prior to each semester.

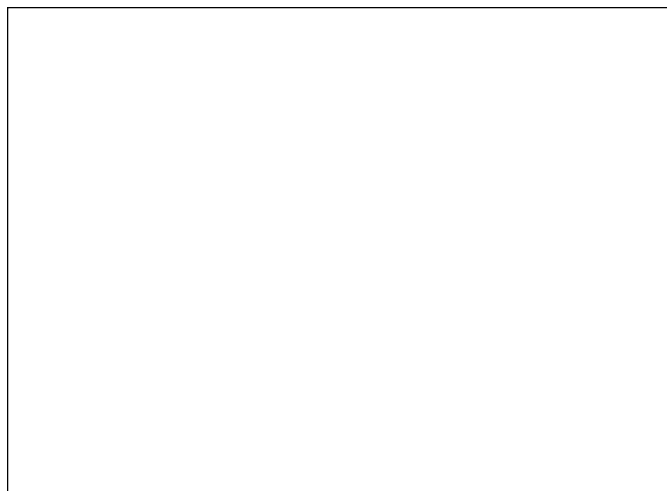
# General Education

The Institute of Technology is dedicated to the idea that a baccalaureate degree should not only prepare students to enter the work force, but also to take part fully in today's society. The college strongly believes that its graduates should be aware of life's complex nature in the twentieth century. They should have sufficient understanding of the present major issues and problems, so they may make informed choices in politics, in professional pursuits, and in personal endeavors.

To help them achieve all this, the college encourages its students to create three major areas of thinking within themselves. The first is an appreciation of the scientific method and the scope of scientific achievement. The second is a familiarity with the diverse traditions, institutions, and cultural expressions of our modern world. The third is an understanding of each person as an emotional, rational, and creative being.

Since our age is marked by rapid change and specialization, the college recognizes the compelling need of its students to think so they can easily see the connections that do exist among the apparently diverse actions of the people and world around us.

Each program of the college has adapted its curriculum to help students achieve an education such as this.



## Writing Requirement

Based upon the recommendation of the President's Blue Ribbon Panel on Basic Skills (1984), the college adopted the following writing requirement:

Each student must successfully complete at least ONE Upper Division writing course (i.e., COM 306, COM 308, COM 350, COM 400, MGT 340) to ensure a professional level of writing competency.

The college also established the Writing Faculty Committee to oversee the implementation of this requirement and to create an appropriate test-out procedure for those students interested in challenging the required writing courses for credit. Each semester the current registration booklet identifies the courses which meet the writing requirement and provides the procedure for challenging a course through the test-out.

## Arts and Sciences General Education Categories

The following list of SUNY Institute of Technology arts & sciences courses fulfill arts & sciences requirements as noted below.

### 1. Behavioral/Social Sciences

ANT PSY  
COM 410 SOC  
ECO SSC  
GOG STS  
POS

### 2. Written Communication (*Upper Division Writing Requirement*)

COM 306  
COM 308  
COM 350  
COM 400 (Computer Science Majors)  
MGT 340 (Business Majors)

### 3. Humanities

ART  
COM 315, 316, 380  
ENG  
HIS  
HUM  
MUS  
PHI  
STS 300, 490

### 4. Math

MAT

### 5. Computer Science

CSC

### 6. Statistics

STA

### 7. a) Natural Science

AST  
BIO  
CHE  
ENV  
PHY

### b) Lab Science

BIO 302  
CHE 300  
ENV 310  
PHY 301, 302, 303, 304, 313, 314

### Technology Only

#### Communication

COM  
ENG (except Written Communication - #2 above)

## Policy

All students will satisfy the following minimum distribution requirements during their four-year program of study:

Natural Science (Astronomy/Physics/Chemistry/Biology/ Environmental Science - must include one laboratory)	6 credits
Mathematics/Statistics/Computer Science	3 credits
Upper Division Writing	3 credits
Written Communication	3 credits
Behavioral/Social Science (Anthropology/Economics/Geography/ Political Science/Psychology/Sociology/Methods of Inquiry/ Science, Technology & Society)	6 credits
Humanities (Art/English/History/Music/Literature/Philosophy/ Foreign Language/Science, Technology & Society-300 & 490)	6 credits

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# Accounting

The B.S. degree program with a major in accounting is for students interested in becoming certified public accountants. Certified public accountants are licensed professionals, and serve in a variety of roles and organizations. Most CPAs are employed by accounting firms, or are self-employed, providing auditing and tax services to a wide variety of clients. Many CPAs are employed by government, particularly in state and federal tax departments. Private corporations also employ CPAs for various accounting functions.

The degree program is designed to prepare students for the CPA examination, and is registered by the State Education Department as a CPA preparation program. Degree requirements are rigorous, allowing less flexibility in the transfer and selection of courses than in some of the other degree programs at the Institute of Technology.

Although this degree program is designed to articulate with lower division programs, many students find that they need coursework beyond the normal four semesters to fulfill the degree requirements. This would likely apply for transfer to any registered accounting program. Careful advance planning based upon the following degree requirements can minimize the total time needed to complete CPA educational requirements.

## B.S. Accounting Program Degree Requirements

The degree outline presented is a four-year plan, where approximately half of the listed requirements are met at the lower division by transfer. Although some courses are listed by their Institute of Technology numbers, they are often fulfilled with transfer credits. The general requirements of the program are as follows:

- a) a total of 124 semester hours with a maximum 64 semester hours transferred from two-year institutions,
- b) a minimum of 62 semester hours (50% of degree requirements) in the arts and sciences,
- c) a minimum of 24 semester hours of accounting with at least 12 semester hours of accounting to be completed at the Institute of Technology,
- d) Auditing—ACC 450; Advanced Accounting Problems—ACC 475, and Taxes—ACC 310 or ACC 311, must be completed at the upper division,
- e) a minimum of C (2.00) in all accounting courses included in the degree program, both transfer courses and Institute of Technology courses,
- f) a minimum of 60 semester hours in business and accounting courses, and
- g) distribution requirements as outlined for the college.

## Course Requirements

*Arts and Sciences* (62 credits minimum)

Microeconomics (ECO 310)  
Macroeconomics (ECO 312)  
Money and Banking (ECO 450)  
College Mathematics (MAT 311)  
Computer Science  
Written Communication  
Natural Science (Biology/Chemistry/Environmental Science/Physics—two courses, must include one laboratory course)  
Anthropology/Psychology/Sociology—one course  
Humanities\* (Art/History/Music/Literature/  
Philosophy/Foreign Language—one course)  
Report and Technical Writing (COM 306)  
Arts and Sciences Electives (remainder of 62 credits)

\* *Written communication and technical writing courses do not fulfill this requirement.*

*Business and Public Management* (60 credits minimum)

*Accounting Requirements* (24 credits minimum)

Financial Accounting Principles (ACC 301 )  
Intermediate Accounting (ACC 385 and ACC 386)  
Taxes (ACC 310 or ACC 311, as appropriate)  
Auditing (ACC 450)  
Cost Accounting (ACC 370)  
Advanced Accounting Problems (ACC 475)  
Accounting Electives (remainder of 24 credits)

*Non-Accounting Business Requirements*

Finance (FIN 302)  
Finance II (FIN 402 or FIN 411, as appropriate)  
Business Law (BUS 305)  
Business Law II (BUS 306)  
Management (MGT 305 or MGT 307 by advisement)  
Statistics (STA 300)  
Management Science (MGS 411)  
Business Policy (BUS 485 or BUS 475 by advisement)  
Business or Accounting Electives (remainder of 60 credits)

*Unrestricted Electives* (if any, remainder of 124 credits)

In addition to the CPA preparation program, the B.S., B.P.S. or B.B.A. degree programs with a major in business and public management allow a student to “specialize” in accounting by utilizing accounting courses as elective choices within their degree program. Students transferring from A.A.S. programs or A.O.S. programs can qualify for a degree with a major in business sooner than if they enter the accounting major program. Students interested in corporate accounting, accounting in not-for-profit agencies, government accounting, etc., probably should choose this degree track. These students can also qualify for the Certified Management Accountant (CMA) national examination. Students should consult the business/public management section of this catalog for degree requirements. With careful course selection within the business degree program and appropriate post-graduation course selection, these students can eventually also qualify for admittance to the CPA examination, if they so choose.

For additional regulations and special features, consult the business/public management section of this catalog.

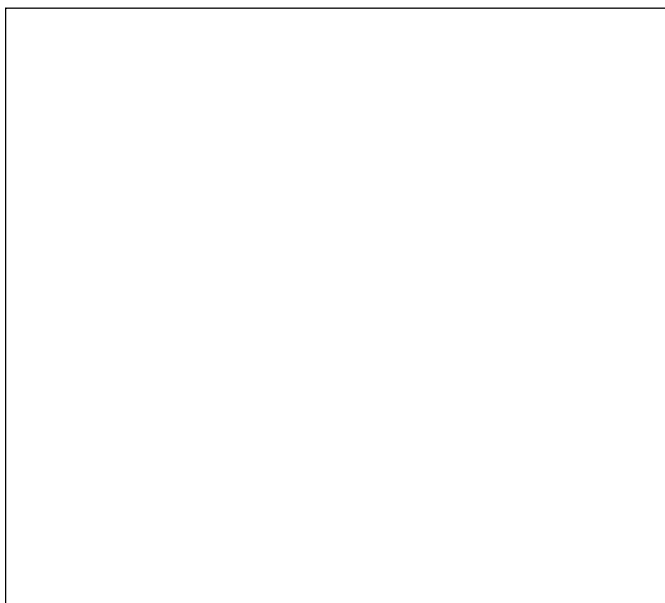
## Accounting Minor

See academic minor section on page 83.

# Applied Mathematics

Applied Mathematics employs a variety of mathematical methods and techniques to explore, describe, and predict the behavior of scientific, industrial, and engineering phenomena. Applied Mathematics appeals to individuals interested in applying their mathematical skills to real-world problems. There is a need nationally for individuals with rigorous training in applied mathematics. To help meet the need for well-trained professionals in this area, the Institute of Technology offers a program that leads to the Bachelor of Science (B.S.) degree in Applied Mathematics.

Applied mathematicians have the skills needed to pursue careers as statisticians, demographics analysts, scientific programmers, cryptographers, biological systems analysts, statistical forecasters, computer modeling consultants, reliability analysts, and aerospace systems analysts. They obtain employment in fields as diverse as aerospace, oil exploration, electrical manufacturing, geology, actuarial science, chemistry, communications, and computing. Health sciences, applied science, and engineering offer additional prospects to applied mathematicians in the academic, business, industrial, and government sectors. The basic skills required to succeed in any of these fields are acquired in the Applied Mathematics program.



## Applied Mathematics Computer Laboratory

Our computing laboratory is a modern facility comprised of networked PC's running the Linux operating system.

The Applied Mathematics laboratory is dedicated to education in applied mathematics and is funded by SUNY Institute of Technology and the National Science Foundation. The use of this laboratory is expanding every semester as more of our courses exploit the laboratory's facilities.

## Degree Requirements

Satisfactory completion of at least 124 semester hours of college-level work.

Satisfactory completion of at least 60 semester hours of upper-division college work, at least 30 of which must be taken at the Institute of Technology.

Achievement of at least a 2.0 cumulative grade point average in all course work taken at the Institute of Technology.

Satisfactory completion of both Calculus I & II with at least a 2.5 grade.

Satisfactory completion of the Core Mathematics Courses with an average grade of 2.0 or higher.

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| <p><i>I. General Education Requirements</i><br/>(minimum 18 credits)</p> <p>Written Communication (including an upper division writing course)</p> <p>Humanities (Art/History/Music/Literature/Philosophy/Foreign Language)</p> <p>Social and Behavioral Sciences</p> <p><i>II. Physics and Computer Science Courses</i><br/>(minimum 12 credits)</p> <p>Calculus Based Physics I &amp; II</p> <p>Computer Science (including one language course)</p> <p><i>III. Core Mathematics Courses</i><br/>(The following 9 courses) (27-36 credits)</p> <p>MAT 321-Calculus I (Differential Calculus)</p> <p>MAT 322-Calculus II (Integral Calculus)</p> <p>MAT 323-Calculus III (Multivariate Calculus)</p> <p>MAT 330-Differential Equations</p> <p>MAT 340-Matrix Methods</p> <p>MAT 370-Applied Probability</p> <p>MAT 401-Series and Boundary Value Problems</p> <p>MAT 420-Complex Variables and Their Applications</p> <p>MAT 423-Vector and Tensor Calculus</p> <p><i>IV. Restricted Elective Courses</i><br/>(Four courses from the following) (16 credits)</p> <p>MAT 335-Mathematical Modeling</p> <p>MAT 365-Computational Linear Algebra</p> <p>MAT 413-Discrete Mathematics for Computer Science</p> <p>MAT 425-Real Analysis</p> <p>MAT 435-Industrial Mathematics</p> <p>MAT 440-Linear Algebra</p> <p>MAT 450-Partial Differential Equations</p> <p>MAT 460-Numerical Differential Equations</p> <p>MAT 465-Scientific Computing</p> <p>MAT 490-Special Topics</p> <p>MAT 491-Independent Study</p> <p>CSC 420-Numerical Computing</p> <p>CSC 532-Applied Combinatorics</p> <p><i>V. Unrestricted Electives (Balance of 124 Credits)</i></p> | <p>Credits</p> <p>6</p> <p>6</p> <p>6</p> <p>6</p> <p>6</p> <p>6</p> |
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# Business/Public Management

A career in business, finance or accounting is possible for two-year college graduates (or students with a minimum of 56 semester hours of lower division study) through the degree programs of the School of Business and Public Management.

With the Bachelor of Business Administration (B.B.A.) or Bachelor of Professional Studies (B.P.S.) degree program, students may specialize in a functional area of business such as:

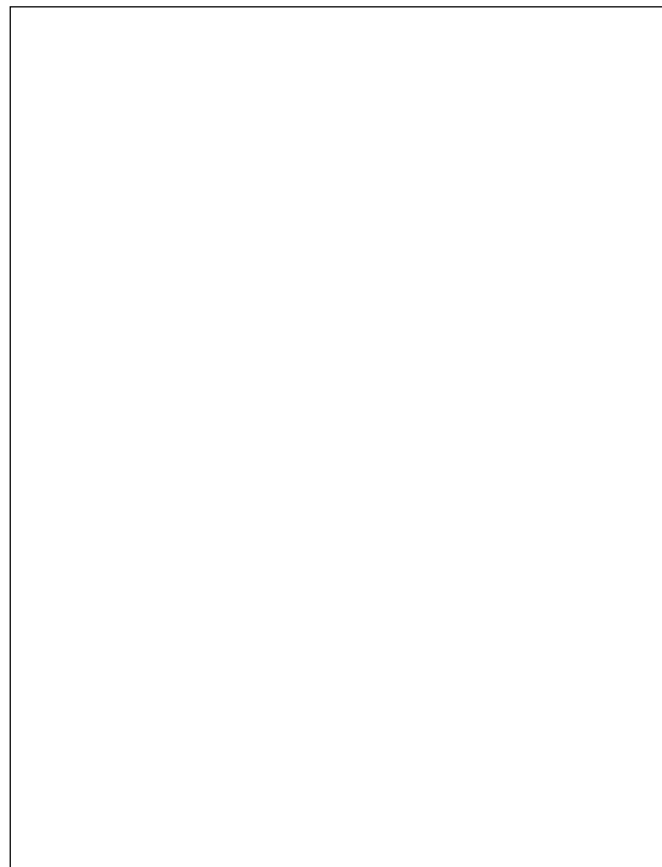
- Accounting
- Finance
- Marketing
- Management

The Bachelor of Science (B.S.) degree program provides a major in business supported by a broad general education program. Each student is counseled and evaluated in the admissions process as to the most appropriate degree program based upon career objectives, plans for future education, and previously earned college credits.

The Bachelor of Science (B.S.) degree program with a major in accounting is specially designed and registered with the New York State Education Department to prepare students for the Certified Public Accountant examination.

All degree programs offered through the School of Business and Public Management require the completion of 124 semester hours, which include at least 60 semester hours of upper division college work. At least 24 semester hours of business coursework must be completed at the Institute of Technology. See separate sections for accounting, health information management, and health services management.

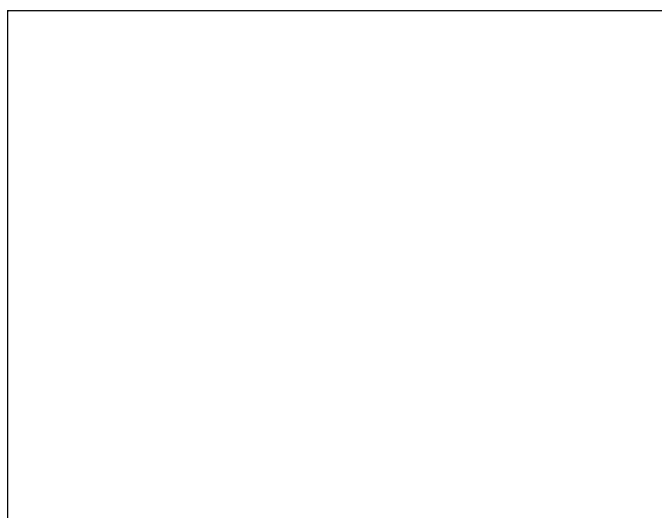
The Institute of Technology also offers a Master of Science (M.S.) degree program in business management. Students may concentrate in either management science, human resource management or health services management. Consult the graduate catalog and/or the Admissions Office for details.



## The B.B.A. with a Major in Business

This degree is similar to the traditional business degree offered by colleges and universities nationwide. It is specifically geared to those students who may have focused on business courses at their two-year colleges and want to continue that direction rather than a professional specialization which would be more appropriate for a B.P.S. This program provides a background in business and management which bridges the gap between specialization and generalization. It gives the student the opportunity for concentrated study in one of the basic areas of business as well as a broad-based background to grow with during an extended career. The general requirements of the degree program are as follows:

- a total of 124 semester hours with a maximum of 64 semester hours transferred from two-year institutions,
- a minimum of 40 semester hours in the arts and sciences for the B.B.A. degree,
- a minimum of one year (30 credits) completed at the Institute of Technology,
- distribution requirements as generally outlined.



## B.B.A. Program

A student from a typical A.A.S. or A.O.S. business program with a background in business courses will be able to finish the B.B.A. in four full-time semesters.

Arts and Sciences - <i>Minimum of 40 semester hours</i>		
Microeconomics	1 course	
Macroeconomics	1 course	
Humanities* (Art/History/Music/Literature/ Philosophy/Foreign Language)	2 courses	
Written Communication	1 course	
College Mathematics	1 course	
Statistics	1 course	
Computer Science	1 course	
Natural Science (one with a lab)	2 courses	
Behavioral Science	1 course	
Arts & Sciences Electives (remainder of 40 credits)		40
Business - <i>Minimum of 68 semester hours</i>		
Financial Accounting (ACC 301)	1 course	
Managerial Accounting (ACC 305)	1 course	
Corporate Finance (FIN 302)	1 course	
Business Law (BUS 305)	1 course	
Marketing Principles (MKT 301)	1 course	
Management Principles (MGT 305)	1 course	
Organization Behavior (MGT 307)	1 course	
Management Communications (MGT 340)	1 course	
Management Science (MGS 411)	1 course	
Management Policy (BUS 485)	1 course	
		68
Business Major, Specialty, or Electives	as advised	
Unrestricted Electives ( <i>up to 16 credits</i> )	as advised	
Total		124

\* *Written communication and technical writing courses do not fulfill this requirement.*

## The B.S. with a Major in Business

In contrast to the B.B.A., the B.S. program is for those students with an A.S. transfer program in business from a two-year college, or a broad background in the arts and sciences, who wish to study the fundamentals of business. It requires the same core of business courses as the B.B.A. program. In general, a student in the B.S. program has a broader education in content, whereas the B.B.A. student specializes. One is better than the other only in the context of the student's individual personal and career objectives. A student with an A.A.S. degree may also pursue the B.S. program, but this may entail more coursework than required for a B.B.A. degree.

## B.S. Program

The program is designed primarily for the student who has either an Associate in Arts (A.A.) degree or an Associate in Science (A.S.) degree.

The B.S. degree will be granted to those students who satisfactorily complete at least 124 semester hours of college-level work (including lower division study) distributed as follows:

Arts and Sciences— <i>64 Semester Hours</i>		
Computer Science	1 course	
Statistics	1 course	
Anthropology/Psychology/Sociology	1 course	
Economics (Microeconomics and Macroeconomics)	2 courses	
Written Communication	1 course	
Humanities* (Art/History/Music/Literature/ Philosophy/Foreign Language)	2 courses	
Natural Science (Biology/Chemistry/ Environmental Science/Physics—must include one laboratory course)	2 courses	
Mathematics	1 course	
Arts and Sciences Electives (remainder of 64 credits)		64
Business— <i>48 Semester Hours</i>		
Accounting (ACC 301, ACC 305)	2 courses	
Corporate Finance (FIN 302)	1 course	
Marketing (MKT 301)	1 course	
Management (MGT 305, MGT 307)	2 courses	
Business Law (BUS 305)	1 course	
Introduction to Management Science (MGS 411)	1 course	
Management Communications (MGT 340)	1 course	
Management Policy and Practice (BUS 485)	1 course	
Business Electives (remainder of 48 credits)		48
Unrestricted Electives— <i>12 semester hours</i>		12
Total		124

\* *Written communication and technical writing courses do not fulfill this requirement.*

## The B.P.S. with a Major in Business

The B.P.S. program is a professionally-oriented program which develops the many skills necessary to participate actively in the management of a modern organization. The coursework taken in professional programs at two-year colleges combines with the business program at the Institute of Technology. The degree requirements (both business and general education) at the Institute of Technology are based upon the nationally recognized core topics found in almost all collegiate programs in business.

The B.P.S. program in business is designed primarily for A.A.S. graduates from two-year colleges who studied career or job-related subjects in non-business areas such as data processing, secretarial science, office management, engineering technology, agriculture, hotel technology, food management, recreation, travel and tourism, or other professional programs. Advanced courses in some of these fields are also available at the Institute of Technol-

ogy. This unique degree program design allows the transfer of two full years of coursework and the opportunity to complete a degree in just two more years of appropriate coursework.

The B.P.S. program is designed for students wishing to become managers in specific “industries.” Opportunities to concentrate in functional areas of business (marketing, management, accounting, finance) may be available to most B.P.S. students where program electives permit.

### B.P.S. Program

The program is designed primarily for Associate in Applied Sciences (A.A.S.) or Associate in Occupational Studies (A.O.S.) degree graduates with a major (at least 30 semester hours) in business or another professional (career) field. The B.P.S. degree will be granted to those students who satisfactorily complete at least 124 semester hours of college-level work (including lower division study) distributed as follows:

<i>Arts and Sciences—40 Semester Hours (Minimum)</i>	
Computer Science	1 course
Statistics	1 course
Anthropology/Psychology/Sociology	1 course
Economics (Microeconomics and Macroeconomics)	2 courses
Written Communication	1 course
Humanities* (Art/History/Music/Literature/ Philosophy/Foreign Language)	2 courses
Natural Science (Biology/Chemistry/ Environmental Science/Physics—must include one laboratory course)	2 courses
Mathematics	1 course
Arts and Sciences Electives (remainder of 40 credits)	40

<i>Business—48 Semester Hours (Minimum)</i>	
Accounting (ACC 301, ACC 305)	2 courses
Corporate Finance (FIN 302)	1 course
Marketing (MKT 301)	1 course
Management (MGT 305, MGT 307)	2 courses
Business Law (BUS 305)	1 course
Introduction to Management Science (MGS 411)	1 course
Management Communications (MGT 340)	1 course
Management Policy and Practice (BUS 485)	1 course
Business Electives (remainder of 48 credits)	48

*Professional Specialization—20 semester hours in one of the following or similar fields (usually transferred from the lower division):*

Secretarial Science, Hotel Technology, Engineering Technology, Agriculture, Data Processing, Travel and Tourism, Foods	20
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Unrestricted Electives—16 semester hours	<u>16</u>
	124

\* Written communication and technical writing courses do not fulfill this requirement.

## Academic Regulations Business/Public Management

### Academic Overload

A student wanting to take more than 16 credits during a semester must demonstrate the ability to handle such a load by achieving a 3.25 average while carrying a full course load (15 to 16 hours) in the previous term.

A student wanting to take more than eight credits during a summer term must demonstrate the ability to handle such a load by achieving a 3.50 average while carrying a course load of at least 15 credits in the previous term. Any overload must be approved in writing by the dean before attempting to register. Permission to take an overload must be requested on a petition form. New students or first semester students must complete one semester before requesting such permission.

### Time Limit

A degree candidate will be permitted seven years to complete the degree requirements listed on the program of study provided that he or she maintains continuous matriculation. Failure to complete the degree in that time period will require a new program of study designating the requirements for the degree which exist at that time.

### Termination

Any student who does not maintain a minimum acceptable cumulative grade point average as noted under Academic Dismissal is automatically terminated from that degree program.

## Field Experience Projects

### The Small Business Institute

The School of Business and Public Management houses a federally-sponsored Small Business Institute (SBI) which offers managerial assistance to the business community. Senior-level students with good academic achievement who have completed the basic business core coursework are given the opportunity to enroll in a course which consists of consulting assignments with business firms, government agencies, or non-profit organizations. The students are closely supervised by appropriate faculty so that they can help the client solve the real problems while learning how to implement the knowledge and skills they have been taught in the classroom.

In addition, the School of Business has a number of externally funded projects working with various segments of the community on business related issues. These projects often provide opportunities for students to engage in field work. Students are assigned to these through the Small Business Institute. Currently the School of Business has a Small Business Development Center, an Entrepreneurial Education Resource Center, and a Management Assistance Center. These or similar programs will likely provide some students field assignments in the future.

## Special Event Programs

Professionals-for-a-Day allows selected students to spend one day in a local business, government office, or non-profit agency exploring in-depth their potential career field. Students are given the opportunity to step out of the classroom and into an actual work environment.

## Program Features

### The Management Simulation

A computer simulation (sometimes called a “management game”) of actual management decisions has been successfully integrated into the course in management policy (BUS 485). In the game, students are grouped into competing companies and are required to make decisions concerning production, finance, marketing, sales, and research expenditures. They are held accountable for the results through a complex computer program which determines the profitability and net worth of each company. In the past, some students have represented the college in national competitions of management simulation.

### Microcomputer Experiences

The School of Business and Public Management has its own student laboratory which is equipped with advanced microcomputers. Each of these computers is connected through the school’s local area network to a central file server and to the Institute of Technology mainframe computer system and to various local and international internet systems. Each faculty member’s office also has a computer which is connected to the local area network. Accordingly, students are afforded telecommunications access which is literally worldwide.

### Personalized Program of Study

Planning assistance for students, often called advising, is important and is quite different for transfer/upper division students than for freshmen. The advising process in a business program should assist students in planning without making them dependent upon an advisor. It becomes part of the management education for which the student is studying. The advising system gives each student, on the day of their initial registration, an individualized program of study that indicates those courses or requirements for which he or she has received transfer credit and the requirements remaining to be taken. This advising is done through the dean’s office to ensure uniform treatment of all students regardless of faculty advisor. It allows students the opportunity for long-range planning of their academic program.

The program of study is filed in a computer-assisted advising system and is updated for each student every semester just prior to the advanced registration period. Students are, therefore, able to plan their own academic schedule. Transfer students who complete the admissions process in a timely manner will ensure that this advisement analysis is ready for them. They will also have the opportunity to request a draft analysis that could be

valuable in the transfer decision process. Students attending two-year colleges with formal agreements with the School of Business and Public Management may follow sample programs while still at the two-year school to ensure maximum transferability.

## Academic Concentrations in Business and Public Management

The School of Business and Public Management offers “concentrations” of coursework for those students who desire to specialize in particular fields of study. Upon completion of a series of courses at the Institute of Technology, a student may apply to the office of the dean and be awarded a School Concentration Award, recognizing this accomplishment. Concentrations are available only to those students with sufficient elective hours in their program of study analysis. Students without such elective opportunity may, at their option, complete the necessary concentration work beyond their minimum degree requirements.

Students who have sufficient electives available may decide to satisfy the requirements of two concentrations. Concentrations are presently awarded in entrepreneurship, corporation finance, managerial accounting, personnel, or marketing.

These concentration awards may be of value to students who wish to provide prospective employers with evidence of extended work in an area related to a specific employment opportunity.

A student must complete the course sequences at the Institute of Technology. They may substitute by petition other Institute of Technology courses designated by a faculty concentration advisor. Students should not repeat topics completed at the lower division. All courses must be completed with grades of “C+” or better before the award is approved. All of these sequences require preliminary work (in parenthesis under each concentration) in these fields either at a two-year school or at the Institute of Technology. Additional courses in these fields are also available.

<p><b>Entrepreneurship</b> (Business Core) + BUS 375 BUS 475 FIN 411</p>	<p><b>Managerial Accounting</b> (Financial &amp; Cost Accounting) + ACC 385 Two of: ACC 310 ACC 320 ACC 475</p>	<p><b>Managerial Finance</b> (Finance Principles, Accounting, Business Law) + FIN 341 FIN 411 FIN 420</p>
<p><b>Marketing</b> (Marketing Principles)+ MKT 312 and Two of: MKT 321    MKT 365 MKT 345    MKT 470 MKT 444</p>	<p><b>Personnel Management Principles, Organization Behavior, Management Communication)+</b> Three of: MGT 318 MGT 320 MGT 415 BUS 420</p>	



## Project Plus

Project Plus is a special bachelor's degree program in business for people who have already earned a bachelor's degree in another field. The program was designed to serve individuals anticipating a career change, preparing for promotion, returning to the work force, or seeking a new academic challenge. A student can qualify for a second bachelor's degree in two years as a part-time student or in one year as a full-time student although this program is more difficult on a full-time basis. No prior courses in business are necessary, but the student must fulfill the undergraduate general education requirements of the Institute of Technology, or their equivalent. The requirement for admission is a bachelor's degree from an accredited college or university (other than the Institute of Technology) in any non-business academic major. Each student will have his or her previous coursework reviewed and a personalized program developed.

Students interested in and qualified for admission to the M.S. in business management but lack the prerequisite courses in business, may find Project Plus a useful intermediate step in their business preparation. Such students may be eligible for a specialized version of Project Plus whereby they can fulfill the M.S. prerequisites and qualify for a business bachelor's degree. The Admissions Office can supply more details and assess eligibility. The degree requirements are nine courses (35-36 semester hours) at the Institute of Technology as follows:

ACC 301 — Accounting  
 MKT 301 — Marketing  
 MGT 305 — Management  
 FIN 302 — Finance  
 BUS 305 — Business Law  
 MGT 340 — Management Communications  
 MGS 411 — Management Science  
 BUS 485 — Management Policy  
 Directed Elective(s)

## Accelerated Program for Honors Graduates

Students who graduate from a two-year college with a major in business and at least a 3.50 grade point average are eligible to apply for the accelerated program which allows most students to complete the B.S./Business or B.B.A./Business in fourteen months.

The accelerated program recognizes that there are a number of exceptionally talented and motivated students who may progress toward their degree at a faster rate. The program utilizes the two summer periods which fall between the normal sophomore and senior years. By allowing the student to take an academic overload each term, a student who enters in June of Summer I may graduate in August of Summer II.

While the individual requirements depend on the work taken during the prior two years of lower division college, a general program for a student who receives an associate degree in Spring 1998 would follow the pattern of:

Summer 1998—three 4-credit courses	12 credits
Fall 1998—five 4-credit courses	20 credits
Spring 1999—five 4-credit courses	20 credits
Summer 1999—three 4-credit courses	<u>12 credits</u>
	64 credits*

The program is limited to a small number of qualified students. In order to qualify, a student must:

1. Apply for acceptance to the Office of Admissions of the SUNY Institute of Technology at Utica/Rome.
2. Graduate from a SUNY two-year college with a 3.50 grade point average.
3. Request permission to enter the Accelerated Program. (Permission may be obtained by writing to the Dean, School of Business and Public Management.)
4. Maintain a 3.25 cumulative average while enrolled at the Institute of Technology.

A student who enters the Institute of Technology in the Accelerated Program may return to the normal program at any time. Similarly, any student who enters under this option, but does not maintain the required 3.25 average, will be required to continue his or her course of study at the normal rate.

\* Students who have 64 applicable credit hours can complete this program in 60 hours. Students who do not enter on the Accelerated Program, but have honor grades at the SUNY Institute of Technology at Utica/Rome, may accelerate their graduation by one semester through summer study and overload scheduling.

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# Civil Technology

At no time in recent history has the field of civil technology been more poised for growth than now. With the aging of the infrastructure (highways, city water supplies, waste water treatment plants, and bridges) and the upturn in construction caused by past years of delay in industrial expansion, the market for civil technology graduates is strong.

Civil technology students may choose courses in transportation, structural, construction, or a combination, studying a diversity of topics including: structural design, hydraulics/fluid flow, highway planning and design, and environmental engineering. New courses include network scheduling, construction administration, welding design, finite element analysis, and drainage design. Graduates from civil programs have a wider understanding of the engineering field based on a broad-based education rather than concentrating on narrow areas of specialization. The B.S. degree requires additional arts and sciences electives designed to enhance the employability of students. The program is designed to provide students with the necessary skills to pursue a life-long career in civil technology.

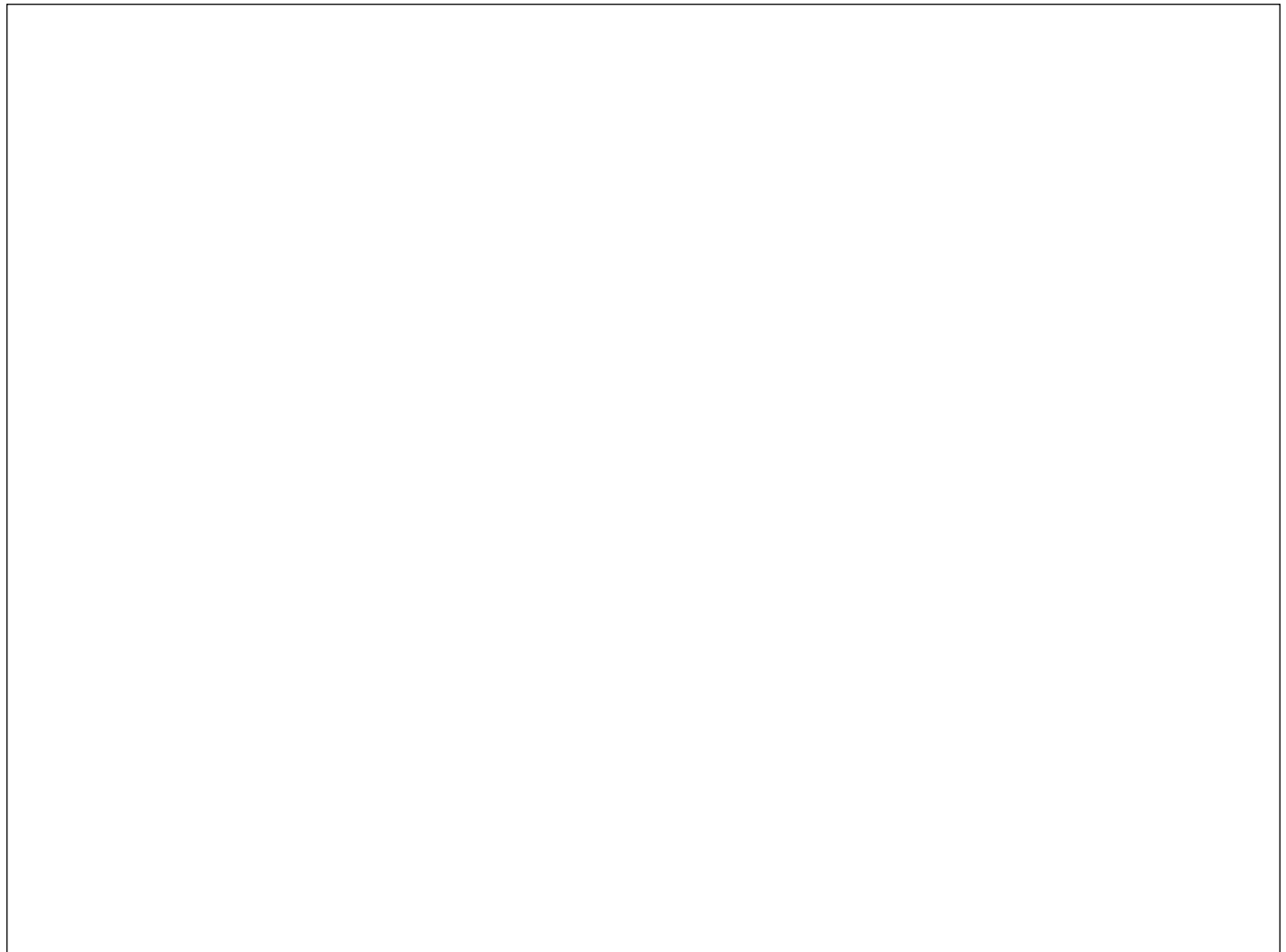
The B.S. in Civil Technology can be used as a stepping stone to a master's program and to a professional engineering license.

Structural, transportation and construction are the primary areas of emphasis.

**Structural** - Students choosing the structural emphasis are most often employed by engineering design firms, by design/build construction firms, or by local, state and federal governments. Coursework is provided in areas of structural analysis, building/structural design, conception to finish design projects, welding design and finite element analysis.

**Transportation** - Students choosing the transportation emphasis, are most often employed by county or city highway departments, by state or federal departments of transportation or by road/bridge construction contractors. Coursework is provided in structural analysis, transportation planning, design of roadways and bridges, and drainage design.

**Construction** - Students choosing the construction emphasis are most often employed by design/build firms, construction contractors, and by local, state and federal agencies. Course work is provided in project scheduling, project administration, light/commercial and heavy/highway construction methods and structural analysis.



## B.S. Degree Requirements

To earn a Bachelor of Science (B.S.) degree in Civil Technology, a student must complete a minimum of 128 credit hours and fulfill the following requirements:

### 1. Arts and Sciences (60 credits) *Minimum Credits*

#### A. Liberal Arts - 24 credits

Oral Communication	3
Written Communication (Including Upper Division Writing Course)	6
Humanities (Art/History/Music/Literature/ Philosophy/Foreign Language)	6
Behavioral Science (ANT/SOC/PSY) and/or Social Science (ECO/POS/GOG/SSC)	6
Liberal Arts Elective - Balance of 24 credits	3

#### B. Mathematics and Sciences - 24 credits

Physics with Lab	4
Chemistry with Lab	4
Calculus I	3
Calculus II	3
Applied Statistics	3
Math/Science Elective - Balance of 24 credits	7
	<u>24</u>

#### C. Computer Programming Language

D. Liberal Arts, Math, Science, Computer Science Elective	9
Balance to bring the total of A, B, C, and D to 60 credits	

### 2. Technical Courses (minimum of 54 credits)

#### Courses Required to be Taken at the Community College Level\*

Problem Solving Techniques	3
Surveying	3
Civil Engineering Materials	3
Soils and Foundations	3

#### Courses Normally Taken at the Community College Level - SUNY Institute of Technology Courses are sublisted

Statics—MTC 318	2
Strength of Materials—MTC 322	2
Engineering Graphics—MTC 460 or ITC 362	3

#### Courses Normally Taken as Upper Level Work at SUNY Institute of Technology

CTC 430—Dynamics	3
CTC 461—Hydraulics	3
CTC 475—Engineering Economics	3
CTC 320—Structural Analysis	4

#### \*Select One Emphasis:

##### Structural (minimum credits - 8)

CTC 420—Structural Design	4
and	
CTC 465—Special Topics	2
or	
CTC 476—Finite Element Applications	4
or	
CTC 435—Welded Structures	4

##### Transportation (minimum credits - 8)

CTC 340—Transportation Analysis	4
and	
CTC 440—Highway Design	4

##### Construction (minimum credits - 11)

CTC 370—Network Analysis	3
and	
CTC 470—Construction Administration	4
and	
CTC 413—Construction Methods-Heavy	4
or	
CTC 414—Construction Methods-Light	4
or	
CTC 325—Computer Methods in Construction Estimating	4

Civil Tech Electives - Balance of 54 credits

**Open Electives                      Balance of 128 credits**  
**TOTAL CREDITS - 128**

## Civil Technology Lab

Civil technology laboratories are heavily computerized. Dynamics and fluid mechanics also require extensive use of bench type lab equipment. Labs encompass all aspects of civil technology and the computer applications which represent the industry standards. Laboratories are PC-based networks running applications in Auto CAD, Intergraph, Frameworks, InXpress, Microsoft Project and Timberline. Students are expected to use Text processing, spread sheets, desk top publishing and problem solution software (Math CAD or TKSolver) in the preparation of labs. Other laboratory equipment includes, CAD/CAM milling equipment, a subsonic-wind tunnel, creep and fatigue testing equipment and LDS vibration testing equipment.

## Computer Proficiency

Students enrolling in the Civil Program at SUNY Institute of Technology are expected to be entry-level proficient in text processing (Word Perfect or Word) spread sheets (Quattro Pro, Excel, or Lotus), and computer drafting (Auto CAD, Intergraph, or equivalent). In addition, students will find it beneficial to be familiar with Netscape (or equivalent), desk top publishing, and a problem-solving software such as Math CAD, TK Solver or Mathematica.

# Computer Engineering Technology

Graduates of this program are prepared for positions which rely on an understanding of hardware and software applications of digital, microprocessor, and computer-based systems. An emphasis is placed on the technical, analytical, problem-solving and communications skills necessary to excel in the technical workplace. Some companies hire computer technology graduates to install, maintain, calibrate and repair both hardware and software systems for their customers. Other students may work on integrated systems which are comprised of both hardware and software components.

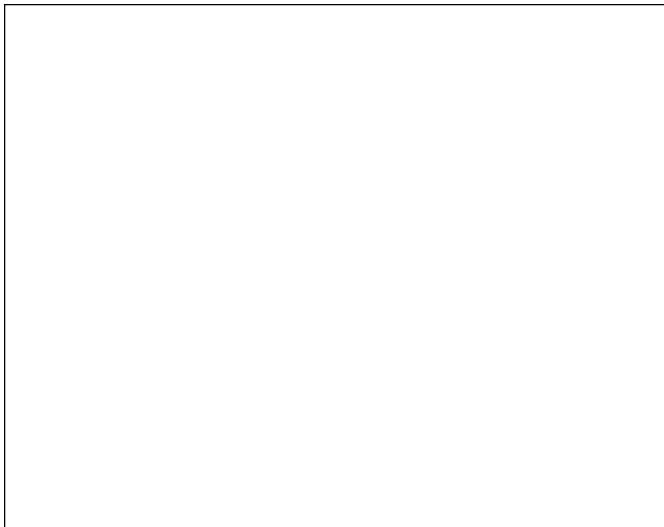
## The Program

The Bachelor of Science (B.S.) degree in computer engineering technology is designed for graduates of two-year colleges with degrees in computer engineering technology, electrical engineering technology, or similar fields. The program is intended to provide smooth transfer for students wishing to prepare for professional careers, and whose interests lie at the intersection of computer science and electrical/electronics technology.

## Computer Engineering Technology Employers

The following organizations have been reported as hiring CET graduates:

Amerada Hess, Avis Car Rental, Cabletron Systems, Canon/MCS, CompUSA, E-systems, Eastman Kodak, Fujitsu-ICL, ISIS Corporation, MAPINFO, Northern Telecom, Inc., Performance Engineering Corporation, Photographic Sciences, Inc., Prisma Systems Corp., Rochester Telephone, SUNY Health Science Center at Syracuse, TDH Medical Systems, US Navy, Welch Allyn, West Point-Pepperell Foundation, Inc.



## Placement

A degree in computer engineering technology has helped build rewarding careers for many of the college's graduates.

## B.S. Degree Requirements

To earn a Bachelor of Science (B.S.) degree in computer engineering technology, a student must complete 128 credits, with a minimum of 60 credits in arts and sciences disciplines, and complete the following degree requirements:

	<i>Minimum Credits</i>
<b>1. Arts and Sciences</b>	
<b>A. Liberal Arts - 24 credits</b>	
Oral Communication	3
Written Communication (including Upper Division Writing Req.)	6
Humanities(Art/History/Music/Literature/ Philosophy,Foreign Language)	6
Behavioral & Social Science (Anthropology/ Psychology/Sociology/Economics/Geography/ Political Science)	6
Liberal Arts Elective (balance of 24 credits)	3
	<b>24</b>
<b>B. Mathematics and Science - 24 credits</b>	
Physics with lab & Natural (Basic) Science with a lab (Biology/Chemistry/Physics/ Environmental Science)	8
Math, including the following:	12
MAT 321	
MAT 322	
Restricted Math Elective (MAT 313, MAT 330, or MAT 340)	
Math/science elective (balance of 24 credits)	4
	<b>24</b>
<b>2. Technical Courses - 62</b>	
<b>A. Required Core</b>	
Advanced Digital Systems (CET 311)	
Microprocessor & Embedded processors (CET 342)	
Microprocessors & Machine architecture (CET 429)	
Microprocessor Interfacing (CET 423)	
Programming Foundations (CSC 308)	
Data Structures (CSC 340)	
Network Applications (CET 416)	
PC Computer Integration and Maintenance (CET 431)	
Two Programming Language Courses (minimum 4 credits), typically chosen from the following CSC courses: CSC 300, 302, 304, 305, 307, 343, 348, 350, 353, 495	
<b>B. Balance of 62 credits in CET, ETC &amp; CSC</b>	<b>62</b>
<b>3. Unrestricted Electives</b>	Balance of 128
<b>Total Credits</b>	<b>128</b>

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# Computer Science

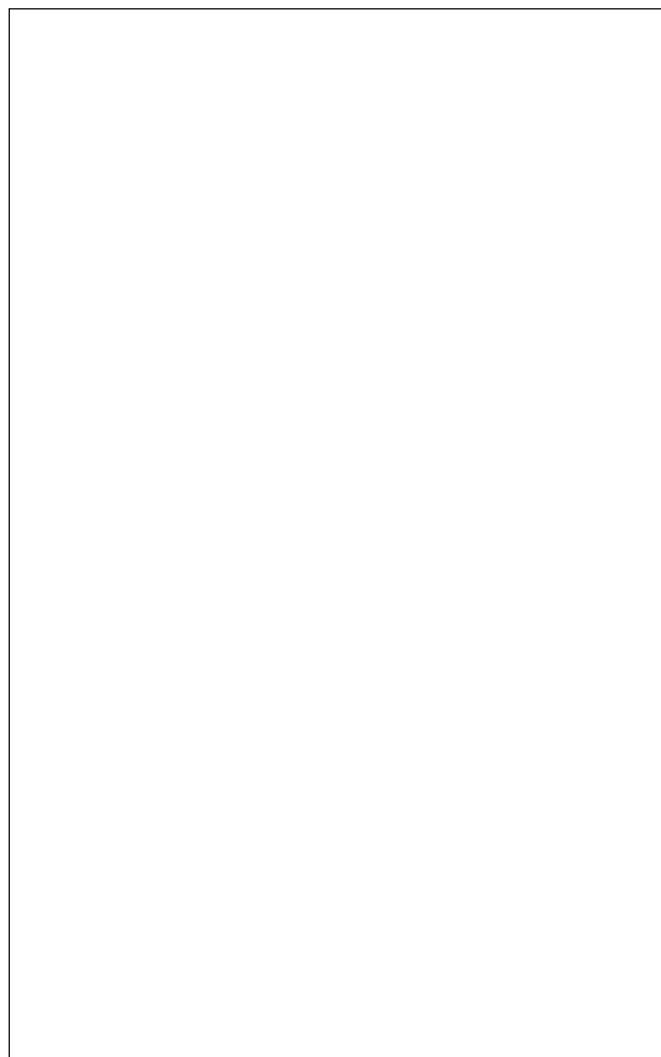
The use of computers is pervasive in today's world. Advances in technology have reduced the cost and improved the performance of computers to such a degree that they are now used in virtually all disciplines and fields of endeavor. Computer scientists are at the center of this transformation. The Institute of Technology recognizes the need for trained professionals in the computer field. Three degree programs provide the flexibility that allows students to position themselves in the field according to their own strengths and interests.

## The B.S. Degree in Computer and Information Science

The Bachelor of Science program in computer and information science provides a broad education in major areas of the field. The program, which closely follows the Association for Computing Machinery (ACM) recommendations, gives students the flexibility to concentrate studies according to their interests. It is designed to allow a well-prepared student, entering the SUNY Institute of Technology as a junior, to earn both the B.S. degree and an M.S. degree in computer and information science in three years. Students wishing to complete the M.S. degree in three years should seek advice from faculty members and become aware of faculty research interests as soon as possible.

## The B.S. Degree in Computer Information Systems

The Bachelor of Science program in computer information systems places an emphasis on business applications of computing. Students acquire basic skills in computer systems areas, including programming, database management, and other business-oriented areas. The program also requires that each student complete a core of courses offered by the School of Business and is designed to follow the curricular guidelines of the Data Processing Management Association. Many graduates who pursue advanced study enter graduate programs in management or business administration. However, with appropriate course selection, a student in computer/information systems may also be prepared to continue on into the M.S. program in computer and information science.



## The M.S. Degree in Computer and Information Science

The Master of Science program in computer and information science is designed to equip students with a broad understanding of the discipline and a specialization in one of the major areas: Programming Languages, Operating Systems and Computer Architecture, Theoretical Computer Science, Data and File Structures, and Systems Science. Depth of understanding in the student's program of study is acquired through completion of core courses and electives, appropriately chosen from the graduate catalog. A total of 33 graduate credit hours are required to complete the M.S. degree. The program requires completion of a thesis or project.

Graduate courses require a mathematics background which includes Calculus, Probability and Statistics, Discrete Mathematics, and Linear Algebra. An adequately prepared student may take up to two graduate courses while in undergraduate standing and, in some cases, count them toward the M.S. degree program. Please refer to the graduate catalog for general program information and information regarding specific course offerings and prerequisites in each area.

## B.S. Degree Requirements

To earn a B.S. degree in either computer and information science or computer information systems a student must successfully complete 124 credits. Requirements specific to each degree and general education requirements count toward the 124 credit requirement. Electives make up the remainder. In addition, all students are expected to become familiar with the UNIX operating system. This may be achieved through prior coursework, self-study, or enrollment in CSC 307, the UNIX Programming Environment.

### Specific Requirements for B.S. in Computer and Information Science

#### I. Computer and Information Science (34-36 credits)

##### Group A - Core Courses (16 credits)

- CSC 308 - Programming Foundations
- CSC 309 - Programming Methodology
- CSC 332 - Machine Structures
- CSC 340 - Data Structures

##### Group B - Required Electives (four courses)

Must be taken at SUNY Institute of Technology at Utica/Rome

- CSC 345 - Logic Design
- CSC 350 - Database Management Systems
- CSC 355 - Software Engineering
- CSC 357 - Laboratory for Software Engineering
- CSC 377 - Introduction to Theory of Computing
- CSC 415 - Structure and Interpretation of Programs
- CSC 420 - Numerical Computing
- CSC 421 - Computational Linear Algebra
- CSC 430 - Operating Systems
- CSC 431 - Principles of Programming Languages
- CSC 441 - Computer Systems Architecture
- CSC 445 - UNIX Network Programming
- CSC 446 - Local Area Network Architecture
- CSC 450 - Computer Graphics
- CSC 451 - Distributed Systems
- CSC 454 - System Simulation
- CSC 477 - Algorithms
- CSC 480 - Compiler Design
- CSC 484 - Logic Programming
- CSC 487 - Object-Oriented Systems
- CSC 488 - Data Engineering
- CSC 495 - Introduction to Artificial Intelligence
- CSC 5xx - Graduate Computer Science Courses

**Up to two graduate courses may be chosen to fulfill this requirement. (See graduate catalog for a description of course offerings.)**

##### Group C - Electives (four credits)

May include Group B courses or the following:

- CSC 307 - The UNIX Programming Environment
- CSC 342 - Intensive Fortran
- CSC 343 - Intensive C
- CSC 344 - Intensive APL
- CSC 347 - ADA Software Development
- CSC 348 - LISP Programming
- CSC 351 - Web Development and Internet Programming

- CSC 353 - Fourth Generation Systems and Prototyping
- CSC 354 - Office Automation
- CSC 360 - Decision Support Systems
- CSC 361 - Information Services Management
- CSC 407 - UNIX System Administration
- CSC 409 - Software Project Management
- CSC 465 - Techniques of Systems Analysis
- CSC 489 - Cooperative Work Study in Computer Science
- CSC 490 - Selected Topics in Computer Science
- CSC 491 - Independent Study

#### II. General Education Requirements (36 credits)

1. Written Communication (4 credits)
  - COM 350- Designing Online Information
  - COM 400 - Computer Software Documentation
2. Humanities (8 credits)
  - Courses chosen from Literature/Art/History/Music/Drama/Philosophy/Foreign Languages. Courses in technical writing or composition do not fulfill this requirement.
3. Social Science (8 credits)
  - Courses chosen from Economics/Geography/Political Science/Methods of Inquiry/Anthropology/Psychology/Sociology
4. Science (8 credits)
  - Courses chosen from Biology/Chemistry/Environmental Science/Physics
  - One course must contain a laboratory.
5. Mathematics (8 credits)
  - Must include one course in finite or discrete mathematics (MAT 313 or MAT 413), and at least one other course chosen from STA 300, MAT 312, MAT 340, MAT 321, MAT 325, and MAT 470. Finite or discrete mathematics should be completed by the end of the student's junior year.

#### III. Unrestricted Electives (52-54 credits)

## Specific Requirements for B.S. in Computer Information Systems

### I. Computer Information Systems (32 credits)

#### Group A - Core Courses (20 credits)

- CSC 302 - COBOL I
- CSC 308 - Programming Foundations
- CSC 309 - Programming Methodology
- CSC 340 - Data Structures
- CSC 350 - Database Management Systems

#### Group B - Electives (12 credits)

Must be taken at SUNY Institute of Technology at Utica/Rome

- CSC 305 - COBOL II
- CSC 307 - The UNIX Programming Environment
- CSC 332 - Machine Structures
- CSC 343 - Intensive C
- CSC 351 - Web Development and Internet Programming
- CSC 353 - Fourth Generation Systems & Prototyping
- CSC 354 - Office Automation
- CSC 355 - Software Engineering
- CSC 357 - Laboratory for Software Engineering
- CSC 360 - Decision Support Systems
- CSC 361 - Information Services Management
- CSC 407 - UNIX System Administration
- CSC 409 - Software Project Management
- CSC 430 - Operating Systems
- CSC 445 - UNIX Network Programming
- CSC 446 - Local Area Network Architecture
- CSC 451 - Distributed Systems
- CSC 460 - Business Systems Analysis I
- CSC 461 - Business Systems Analysis II
- CSC 465 - Techniques of Systems Analysis
- CSC 488 - Data Engineering
- CSC 495 - Introduction to Artificial Intelligence

### II. Business (19 credits)

#### Group A - Core Courses (11 credits)

- ACC 301 - Financial Accounting Theory
- MGT 305 - Management Theory
- MGT 307 - Organizational Behavior

#### Group B - Business Electives (8 credits)

- FIN 302 - Financial Management Principles
- MKT 301 - Marketing Management Principles
- ACC 305 - Managerial Accounting Theory
- MGS 411 - Introduction to Management Science

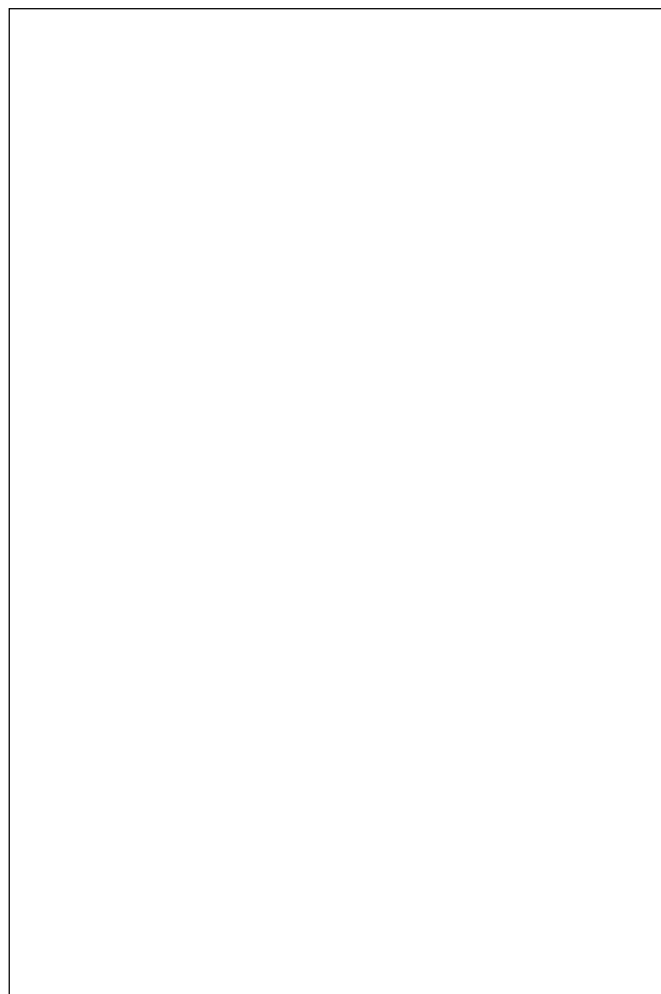
### III. Telecommunications (3 credits)

- TEL 300 - Introduction to Telecommunications

### IV. General Education (36 credits)

1. Written Communication (4 credits)
  - COM 350- Designing Online Information
  - COM 400 - Computer Software Documentation
2. Humanities (8 credits)
  - Courses chosen from Literature/Art/History/Music/Drama/Philosophy/Foreign Languages. Courses in technical writing or composition do not fulfill this requirement.
3. Social Science (8 credits)
  - Courses chosen from Economics/Geography/Political Science/Methods of Inquiry/Anthropology/Psychology/Sociology
4. Science (8 credits)
  - Courses chosen from Biology/Chemistry/Environmental Science/Physics
  - One course must contain a laboratory.
5. Mathematics (8 credits)
  - Must include one course in finite or discrete mathematics (MAT 313 or MAT 413), and at least one other course chosen from STA 300, MAT 312, MAT 340, MAT 321, MAT 325, and MAT 470. Finite or discrete mathematics should be completed by the end of the student's junior year.

### V. Unrestricted Electives (34 credits)



## Computer and Information Science Minor

See academic minor section on page 83.

## Computer Information Systems Minor

See academic minor section on page 84.

## Academic Computing Facilities

Academic programs at the Institute of Technology are supported by over 250 computing stations (personal computers and workstations) in open locations or general purpose laboratories, and many more in laboratories dedicated to particular functions. Computing labs can be found in both academic buildings (Donovan Hall and Kunsela Hall); all dormitory rooms are wired to provide private, high-speed, ethernet data connections for each bed, and a number of dial-up telephone lines provide off-campus access. Several labs in Kunsela Hall provide late night and weekend computer access.

Payment of the Technology Fee entitles students to unlimited access of computing facilities although nominal additional charges apply for the production of high-quality color overhead transparencies and for short-term checkout of laptop computers. At present there are no time quotas for student connection to time-shared systems. All enrolled students are automatically assigned accounts on time-shared computer systems and are granted initial disk storage quotas which may be increased upon approval of an application. The Institute's policies with respect to computer use are published in the Computer User's Guide available from Information Services.

The Institute has a fiber-optic backbone between buildings and a copper wiring plant within buildings. The backbone has recently been upgraded to a speed of 155 mb/sec (ATM) speed; segments run at either 10 mb/sec or 100 mb/sec.

### Internet

The Institute of Technology is assigned a Class B Internet address with the domain name **sunyit.edu**. In late 1996 the Institute's Internet connection was upgraded from a single T1 (1.5 mb/sec) to a dual T1, thus maintaining the Institute's status as one of the highest bandwidth connections in upstate New York. Internet services are extensively used throughout the curriculum, and student use is strongly encouraged. An extensive WWW site is maintained (<http://www.sunyit.edu>). The Institute's Library catalog is internet-accessible (<http://unicorn.sunyit.edu>) as is the college's BANNER WEB registration system (<http://www.sunyit.edu/register.html>). Real-time registration activities such as course add/drop, schedule inquiry, grade inquiry, and billing inquiry are all supported from WWW enabled computers, on or off-campus.

The Institute currently has reciprocal access agreements with many state-operated SUNY campuses. Through these agreements Utica/Rome students may request computer accounts at the host campus near their homes to permit them to connect their home computers to Utica/Rome time-sharing systems without incurring substantial long-distance phone charges. In return, Utica/Rome provides similar access to students from those campuses who live in the Mohawk Valley. The issuance of these accounts is subject to the computer use policies on the respective campuses and to whatever qualification restrictions are imposed by the host campus.

## College-Wide Time-Shared Systems

The Institute maintains a number of centrally administered time-shared systems that have a common, integrated NIS file service permitting transparent access to user-owned files from any of the constituent host machines. While upgrades are anticipated during the lifetime of this catalog, the configuration at the time of printing is as follows:

**Hewlett Packard 9000/735** - three systems known as *Demeter*, *Zeus*, and *Hera* respectively, each with 160 megabytes of memory, shared disk array, a DAT tape drive and CD-ROM running the *HP/UX 9.0* version of UNIX. This system provides Internet access, supports almost the entire product line from SAS, Inc. (including statistical analysis and operations research modules) and the Oracle DBMS system. These systems also manage electronic mail, news, and network printer queues throughout the campus.

**SUN SPARC 10** - known as *Phoenix* with 128 megabytes of memory, shared disk array running SUN's *Solaris 2.3* version of UNIX. This system hosts engineering technology software for the client machines in the SUN lab and server for X-window applications invoked from the client machines.

**SUN ULTRA ENTERPRISE 3000** - known as *Persephone* this system's main function is to host large library databases for a consortium consisting of Utica/Rome together with the Upstate Colleges of Technology (Alfred, Canton, Cobleskill, Delhi, and Morrisville). This system has dual Ultra-SPARC processors and a 29 gigabyte disk array and runs the Sun *Solaris* operating system.

## Personal Computing Labs

The Institute has over twenty computer laboratories on the campus; some are dedicated to a particular curriculum or purpose, others are general-purpose. PC labs primarily consist of Pentium and 486-based computers (some older machines are still employed in specialized settings where their use is appropriate) that are interconnected through file servers running the Novell, Windows/NT, or UNIX operating systems. The Institute has adopted a single integrated office applications suite as its standard package. The adoption is for a two-year period (the next review is scheduled for Spring, 1998). Microsoft Office 4.3, consisting of Word, Excel, PowerPoint, and Access, is the current standard. In addition, the Institute currently holds a site license for all Borland software products including the C++ and Pascal language compilers and for Berkeley Systems Design Inc.'s BSD/OS version of UNIX. SPSS (Statistical Package for the Social Sciences) is widely used throughout the campus. Substantial upgrades to computing labs are anticipated during the lifetime of this catalog. Lab environments include:

**Kunsela Hall Public Lab (Kunsela Hall C-003)** - consisting of over twenty-five PC's (currently Pentium 133s), two MacIntosh computers, high speed laser printers and a color printer. Available software includes Microsoft Office, Microsoft Publisher, the Borland language products, Lahey FORTRAN 77 and many specialized applications. This lab is open for extended night and weekend hours.

**DogNET Labs and DogNET Multimedia Lounge (Kunsela Hall C-012 and Kunsela Hall C-107 and C-122)** - provides public access to UNIX workstations (that are named after dogs, of course). Twenty-one Pentium-based computers in the DogNET Lab (Kunsela Hall C-012) running the FreeBSD operating system provide access to over 800 programs for Internet access, multimedia applications, language compilers, etc. Many of the systems are equipped with sound cards for applications like the mbone (Internet audio/video broadcast/conference system). The lab is supported by three file servers, including a Dual PentiumPro 200, with a total of more than



35GB of disk storage. Each server has 128 MB of main memory. In addition to providing disk storage (without quota) to students, the servers support the computer science departmental World Wide Web server (<http://www.cs.sunyit.edu>) and news service. The public DogNet Lab is one of three labs managed by computer science students under the supervision of computer science faculty. The DogNET Multimedia Lounge (Kunsela Hall C-122) contains Pentium-based computers and SUN workstations equipped with video cameras for conferencing and other multimedia applications. One of the SUN workstations is also used as an Oracle server. The Multimedia Lounge accommodates small groups of students and faculty working collaboratively on projects. Another SUN/Pentium DogNET lab (Kunsela Hall C-107) is used in computer science courses for experiments in operating systems, networking, and system administration.

**Terminal Lab (Kunsela C-013)** - currently equipped with fifteen high resolution workstations (Hewlett-Packard, SUN and personal computers) running Xterm software. This equipment is used in a number of Electrical Engineering Technology courses and for Internet access. This lab also houses some character-mode terminals. This lab is open for extended night and weekend hours.

**Windows/NT Lab (Kunsela Hall C-014)** - consists of twenty Pentium (currently P-90) computers each with 32Mb of memory and 1 GB local storage interconnected using 100Mbps ethernet technology. Servers for this lab consist of two dual PentiumPro 200 based systems, each having in excess of 9GB of storage. All systems use the latest version of Windows/NT Workstation and Windows/NT Server (currently 4.0). This lab is managed by faculty in the Department of Computer Science and by student assistants. It supports instruction and experimentation on client-server and distributed computing (networking, system administration and interoperability with other platforms), collaborative computing (WWW and FTP servers, videoconferencing). Programming environments supported include Powerstation FORTRAN 90, Lahey Personal FORTRAN 77 and FORTRAN 90, Borland and Microsoft's Visual C++, Visual Java++ and other Java versions, PROLOG and LISP. Currently supported applications include Microsoft Office Professional, Microsoft Publisher, and FrontPage. Access to the following applications is also provided: Mathematica, GPSS, IMSL libraries, Corel Draw, TeX. This lab is open for extended night and weekend hours.

**Multimedia Lab (Kunsela C-109)** - several PC compatible workstations with dedicated boards and multimedia attachments. The lab supports instruction and research in multimedia instruction design, multimedia databases, image and speech processing, and pattern recognition.

**CIM Lab (Donovan G-225 and G-225A)** - approximately twenty 486 and Pentium computers and an assortment of printers and plotters. Currently installed software includes Algor Supersap, Autobook, AutoCad, Hydrain, Microstation 5.0, and Microsoft Office. This lab supports courses in Civil Engineering Technology and Mechanical Engineering Technology.

**Advanced CAD Lab (Donovan 1159)** - ten Pentium-based computers, printers, and plotters used in support of courses in Civil Engineering Technology and Industrial Engineering Technology. Currently installed software includes Algor Supersap, Autobook, AutoCad, Hydrain, Microstation, SmartCam, TKSolver, and Microsoft Office.

**Technical Writing Lab (Donovan 1146)** - twenty-two 486 computers and associated laser printers used extensively in support of courses in report and technical writing. Currently installed software includes Microsoft Office, internet tools (telnet, ftp, and Netscape), Grammatik as well as several legacy word processors.

**Advanced Writing Lab (Donovan G161)** - twenty Pentium based computers together with laser printers and a color printer used in support of advanced coursework in technical communications. Currently installed software includes Microsoft Office, internet tools (telnet, ftp, and Netscape), HyperWriter, Internet Assistant, PaintShop Pro, Pagemaker, SPSS PC+, Storyboard Live and several legacy word processors.

**Donovan Hall Public Lab (Donovan 1149)** - thirteen 486-based computers and associated peripherals. Currently installed software includes Abdominal Pain, Borland C++, ChestPain, EKG, EKG2, internet tools (telnet, ftp, Netscape), HEART, Hypertension Management, Iliad, MDChallenge, Nursing Research CAI, SPSS PC+, statistics tutorials and Microsoft Office. Several Macintosh computers are also in this lab. Macintosh software includes Correct Grammar, EndNotes, Excel, Filemaker Pro, Grammatik, Heart lab, MacDraw II, MacWrite II, Microsoft Works, Write Now, and Microsoft Word.

**Business Lab (Donovan 1157)** - twenty-four 486-based computers and associated peripherals, this lab is often used for hands-on instruction in courses in the School of Business and the School of Nursing. Currently installed software includes Microsoft Office, Abdominal Pain, Chest Pain, EKG, EKG2, Finance for Nursing, internet tools (telnet, ftp, Netscape), HEART, Hypertension Management, Iliad, MD Challenge, Nursing Research, and legacy word processors.

**Telecommunications Lab (Donovan 1190)** - ten 486-based PCs, one P-100 file server, and a SUN SparcStation file server known as *Ruby*. This lab operates in a Novell Netware environment and provides access to COMNET III (a simulation package), NEUSTAR and WINMIND (network design packages). There are also a number of computer-based tutorial packages (data communications primer, SMDS/Frame Relay tutorial, Novell CNE tutorial, etc). The SUN SparcStation is used to run the ALLLINK Network Operations Management program and a network simulation program named BONeS (Block Oriented Network evaluation System).

**Telecommunications PC Lab (Donovan 1240)** - fifteen PCs on a Novell-based local area network supporting Northern Telecom's DMS-10 computer-based training program.

**Macintosh Lab (Donovan G-238)** - ten Macintosh IIxv computers an associated file server and peripherals. This lab is largely used in support of courses in the Department of Psychology. Currently installed software includes Eyelines, MacLaboratory, and Hypercard.

**Applied Mathematics Lab (Donovan 2143)** - seventeen Pentium and 486 class computers running the Linux (a variant of UNIX) operating system in a customized computing facility built to support modeling, simulation, and educational activities associated with the applied mathematics program. The unique characteristics and configuration of this lab make it an ideal environment for performing distributed computing tasks. Access is provided to a suite of tools that aid in visualization and exploration of many interesting and challenging topics. As a facility for applied mathematics students, the laboratory offers a high-quality, dedicated environment for mathematics education and research. The lab supports exploration in a variety of topics including: scientific computing, advanced visualization, virtual reality, signal processing, parallel processing, groundwater modeling, and computational geometry.

**Physics Lab (Donovan 2107)** - features ten 75MHz networked MacIntosh PowerPC computers with Netscape Navigator and Microsoft Office. This lab is primarily used by physics lab courses which use software for video analysis and scientific graphing. Access to CD-ROM drives and laser printing is also provided.

# Electrical Engineering Technology

In today's world, the great majority of all products, systems, and services include electrical or electronic aspects. Teams of trained people are needed to conceive, design, develop, and produce new answers to modern technical problems.

The roles of the team members may vary, but the electrical engineering technologist generally uses the hands-on, application-oriented approach. Although technologists have knowledge of theoretical issues, they tend to focus on using current, state-of-the-art and emerging technologies to solve practical design and application problems.



## The Program

Electrical engineering technology students can choose to pursue either a B.S. or B.Tech. degree. Both degrees contain a wide range of high technology courses, courses from related fields, and liberal arts coursework to provide a broad-based education. The B.Tech. degree is the more technical degree, allowing students to choose additional technical electives. The B.S. degree requires more arts and science electives and may be preferred by some employers. Students can tailor the program to meet their needs by selecting specific technical coursework to fill individual interests or career plans. The areas of concentration are:

- Communication Systems
- Control Systems
- Digital Systems
- Microprocessors

## B.S. Degree Requirements

To earn a Bachelor of Science (B.S.) degree in electrical engineering technology, a student must complete a minimum of 128 credit hours and fulfill the following requirements:

### 1. Arts and Sciences—60 credits

#### A. Liberal Arts—24 credits

	<i>Minimum Credits</i>
Oral Communication	3
Written Communication (including an upper division writing course)	6
Humanities* (Art/History/Music/Literature/ Philosophy/Foreign Language)	6
Behavioral Science (ANT/SOC/PSY)/ Social Science (ECO/POS/GOG/SSC)	6
Electives	3
<b>Total Credits</b>	<b>24</b>

*\*Written communication and technical writing courses do not fulfill this requirement.*

#### B. Mathematics and Science—24 credits

Natural (Basic) Science with Lab (Biology/Chemistry/ Physics/Environmental Science— must include one course in Physics with a laboratory)	8
Mathematics (including Calculus I/II, Differential Equations)	12
Electives	4
<b>Total Credits</b>	<b>24</b>

#### C. Computer Programming Language

Liberal Arts, Math and Science, C.S. Electives	9
<b>Total Credits</b>	<b>12</b>

### 2. Technical Courses—54 credits

ETC 331/ETC 316 Control Systems/ Communication Transmission Techniques (next higher level)	4
ETC 311/ETC 342 Advanced Digital Systems Design/Microprocessor and Embedded Systems Programming & Design (next higher level)	4
ETC 4XX Senior Level (400 series) Electrical Electives	12
ETC XXX Technical Electives (any level ETC)	34
<b>Total Credits</b>	<b>54</b>

### 3. Open Electives\*

Balance of 128

\*Co-Op, Practicum and Applications Project are included in this category.

<b>Total Credits</b>	<b>128</b>
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*EET students who have an EET associate's degree may not enroll for credit in ETC 301, 302, 304, 310, or equivalent.*

*A residency of 24 hours in the major is required to graduate.*

## B.Tech. Degree Requirements

To earn a Bachelor of Technology (B.Tech.) degree in electrical engineering technology, a student must complete a minimum of 124 credit hours and fulfill the following requirements:

1. <i>Arts and Sciences—48 credits</i>	
A. <i>Liberal Arts—24 credits</i>	
	<i>Minimum Credits</i>
Communications (written and oral, including an upper division writing course)	9
Humanities* (Art/History/Music/ Literature/Philosophy/Foreign Language)	6
Behavioral Science (ANT/SOC/PSY)/ Social Science (ECO/POS/GOG/SSC)	6
Electives	3
Total Credits	24
*Written communication and technical writing courses do not fulfill this requirement.	
B. <i>Mathematics and Science—24 credits</i>	
Natural (Basic) Science with Lab (Biology/Chemistry/ Physics/Environmental Science— must include one course in Physics with a laboratory)	8
Mathematics (including Calculus I/II)	12
Electives	4
Total Credits	24
C. <i>Computer Programming Language</i>	
	3
2. <i>Technical Courses—48 credits</i>	
ETC 331 Control Systems (next higher level)	4
ETC 316 Communication Transmission Techniques (next higher level)	4
ETC 311/ETC 342 Advanced Digital Systems Design/Microprocessor and Embedded Systems Programming & Design	4
ETC 4XX Senior Level (400 series) Electrical Electives	12
ETC XXX Restricted Technical Electives	24
Total Credits	48
3. <i>Open Electives*</i>	
	Balance of 124
*Co-Op, Practicum and Applications Project are included in this category.	
Total Credits	124

*EET students who have an EET associate's degree may not enroll for credit in ETC 301, 302, 304, 310, or equivalent.*

*A residency of 24 hours in the major is required to graduate.*

## Areas of Concentration \*

### Communications

ETC 316— Communication Transmission Techniques  
 ETC 391— Fiber Optics  
 ETC 416— Data Communications & Computer Network  
 Technology  
 ETC 419— Satellite Communication  
 ETC 421— Wireless Communication Systems  
 ETC 475— Data Compression and Multimedia Technology  
 ETC 483— Optical Communications  
 ETC 490— Special Topics: Communication Techniques  
 ETC 493— Digital Filters

### Control Systems

ETC 331— Control Systems  
 ETC 356— Programmable Controllers  
 ETC 433— Automatic Control Systems  
 ETC 434— Servomechanism Design  
 ETC 435— Digital Control and Robotics  
 ETC488— Computer Control of Instrumentation

### Digital Systems

ETC 311— Advanced Digital Systems Design  
 ETC 412— Digital Systems Design III  
 ETC 465— Microprocessor-Based Robotics Design

### Microprocessors

ETC 342— Microprocessor and Embedded Systems  
 Programming & Design  
 ETC 423— Microprocessor Interfacing  
 ETC 429— Microprocessor/Microprogramming & Computer  
 Architecture  
 ETC 444— Special Topics: Digital/Microprocessors  
 Recent Topics: RISC Processors, IBM PC  
 Assembly Programming  
 ETC 445— Microcontrollers  
 ETC 446— Programmable Logic Devices

### Miscellaneous Electives

ETC 300— Tools in Technology  
 ETC 360— Advanced Circuit Analysis  
 ETC 391— Fiber Optics  
 ETC 455— VLSI Design  
 ETC 470— Computer-Aided Circuit Design  
 ETC 473— Digital Image Processing & Vision  
 ETC 480— Electrical Technology Senior Project I  
 ETC 481— Electrical Technology Senior Project II  
 ETC 491— Independent Study  
 ETC 494— Co-Op

\* *Students are not required to complete a concentration.*

## Laboratories

The Electrical Engineering Technology Department has 12 laboratories dedicated to support of EET and CET laboratory courses, projects, and hands-on experience. Many of the labs are open many hours beyond scheduled lab periods so students can investigate more extensively concepts developed in their courses.

Communications, Controls, Digital and Microprocessor labs are equipped with a variety of equipment and instrumentation described below. Much of the instrumentation in these labs is Tektronix or Hewlett-Packard equipment, of the type that students will encounter in an industrial setting, including: meters, oscilloscopes, plotters, signal generators, frequency counters, spectrum analyzers, data analyzers, protocol analyzers, OTDR's, etc.

The department has established a showcase multi-purpose EET lab equipped with 12 GATEWAY P5-133MHz Pentium Multi-media computers with 17" monitors. These computers are used for general purpose report writing using Microsoft Office 95 and Microsoft Publisher and for support of EET & CET lab courses. Application software supporting a range of courses includes Electrical CAD software: TANGO Schematic Capture by ACCEL, SCHEMA Schematic Capture by OMATION, EASYEDIT and EASYPLOT PCB board software by PROTEL; Assemblers: such as TASM by BORLAND; general purpose tools: such as MATLAB by The MathWorks supporting Controls and Communications courses; and VHDL software supporting digital and VLSI design. The department continues to add applications software to provide easy access on these high performance computers for EET and CET coursework. The PC's are also equipped with GPIB cards for use in instrumentation clusters including IEEE-488 digitizers, plotters, voltmeters, analog and digital storage oscilloscopes, signal generators and printers. The multi purpose lab also includes a Tektronix chip tester.

Controls: The control systems laboratory is equipped with two EMMA II MicroProcessor Control systems for speed and position control of dc/stepper motors. Six stations of in-house designed DC and Stepper Motor trainers have been added to the controls lab. PC's and control systems software supports the control system lab. The laboratory also has two analog computers, A/D & D/A units. Siemens & Gould Modicon PLC's are also housed in this laboratory.

Communications: Labs are equipped with microwave, Global Positioning System, Doppler radar trainer systems, analog & digital modulation systems, wireless LAN, five user Novell 4.11 LAN, an FDDI LAN, HP protocol analyzers, spectrum analysers and fiber optic links for transmitting speech, data and video.

The Institute's networked Unix lab has MAGIC Software for VLSI, and SPICE and IRSIM simulators.

The vision lab is equipped with cameras, C-U-See-Me videoconferencing software, and NT-based server and various video compression adaptors and editors and full multimedia transmission capability over optical networks.

The fiber optics lab is equipped with optical time domain reflectometers, fusion splicers, optoscope power meters, optical spectral analyzers, waveform analyzers, Newport projects in fiber optics, light sources in addition to infrared viewers, cameras, coherent fiber optics, fiber optic telecommunication links and plastic and glass filters. This lab is also equipped with various splicing, connectorizing, cleaving and polishing kits and tool accessories necessary to provide students with hands-on experience.

Digital: The digital systems design laboratories are fully equipped with equipment which can handle systems based on the i8088, i8086, i80186, i80286, and the 32-bit i80386 CPU's. Some of the equipment available include Intel 310 systems, iMDX-441 Series IV Intel Development systems with the capabilities of direct interface with ICE-86A, ICE-386 (with IBM-AT), PROM-Programmers, Micro-controllers systems, and INTEL 386 development systems. Additionally, all PC's available on campus can be utilized for software development.

Microprocessor: Microprocessor laboratories supporting microprocessor courses include: EPROM & PLD programmers; 68HC11 Microcontroller Trainers; Motorola 68000 Educational Computer board trainers networked to a host computer; Tektronix 308 8-channel logic analyzers, and Tektronix 338 32-bit logic analyzers.

## Electrical Engineering Technology Employers

Utica/Rome EET graduates have been hired by hundreds of local and national companies and organizations across the spectrum of the field. Listed is a sampling of those companies.

Acu-Rite, Albany International, Bartell Machinery Systems Corp., Berkshire Community College, Boeing, Cabletron Systems, Coffman Engineers, Computer Related Technologies, DOW Jones & Co., Inc., Eastman Kodak Co., EMI Communications Corp., Encore Paper Co., Inc., Evans & Sutherland Computer Corp., Exide Electronics, General Electric, General Railway Signal, IBM, Integrated Sensors Inc., Kaman Sciences, Laser Precision, Leeds & Northrup, Lockheed Martin Corp., Lucent Technology, MCI, Mohawk Valley Community College, Motorola, NY Power Authority, NYNEX, Niagara Mohawk Power Corp., NORTEL Northern Telecom, Inc., PAR Microsystems, PAR Technology, Pall Trinity Micro, Partlow Corp., Performance Systems International Inc., REDCOM Labs, Remington Arms Corp., Rock Valley College, S/G Industries, Inc., SUNY Health Science Center, Smiths Industries Aerospace, Spargo Wire Co., Synectics Corp., Tektronix, Thomson Consumer Electronics, Time Warner, Toshiba, UNYSIS Corp., Valeo Engine Cooling Inc., Welch Allyn, Xerox Corp.

# Finance

The major in finance is designed for students interested in specializing in one of the fundamental subject areas of business management. Graduates can seek employment within organizations specializing in finance, such as banks, investment companies, brokerage houses, or in the finance departments of corporations.

Finance is one of the principal topic areas within business management. All students preparing in business should know the principles of finance, since money is a basic measure of business activity and capital funds are an essential element for all organizations. Students majoring in finance will go well beyond the principles and will study the topic of finance in-depth.

The finance major is narrow in perspective, in that most elective opportunities are in finance, but degree requirements still require the student to have a broad perspective on business management. The major is available either in the B.B. A., B.S. or B.P.S. degree, depending upon the student's preparation in the first two years of study. Because the curriculum is very specific, some students may find that they need to attend the college for more than the normal 64 upper division credits. These students may find it useful to pursue the general management major while concentrating their electives in finance and thereby finishing within the normal 64 upper division credits.

The degree requirements which follow are based upon four years of study so the students will have fulfilled many of these requirements through transfer credits.



## Degree Requirements

### *Arts and Sciences Requirements:*

Microeconomics	1 course
Macroeconomics	1 course
Written Communication	1 course
Technical Writing (COM 306 for B.S.)	1 course
Humanities* (Art/History/Music/Literature/ Philosophy/Foreign Language)	2 courses
College Mathematics	1 course
Statistics	1 course
Computer Science	1 course
Natural Science (Biology/Chemistry/ Environmental Science/Physics— must include one laboratory course)	2 courses
Anthropology/Psychology/Sociology	1 course
Arts and Sciences Electives	as needed (up to 40 for B.B.A. or B.P.S. and 64 for B.S.)

### *Business Core Requirements:*

Financial Accounting (ACC 301)	1 course
Managerial Accounting (ACC 305)	1 course
Corporate Finance (FIN 302)	1 course
Business Law (BUS 305)	1 course
Marketing Principles (MKT 301)	1 course
Management Principles (MGT 305)	1 course
Management Communications (MGT 340 for B.B.A. or B.P.S.)	1 course
Management Science (MGS 411)	1 course
Management Policy (BUS 485)	1 course

### *Finance Major Requirements:*

Intermediate Accounting (ACC 385)	1 course
Financial Institutions (FIN 341)	1 course
Financial Management Problems (FIN 411)	1 course
Fundamentals of Investments (FIN 332)	1 course
Financial Planning & Control (FIN 420)	1 course

### *Electives (as needed to fulfill 124 credits)*

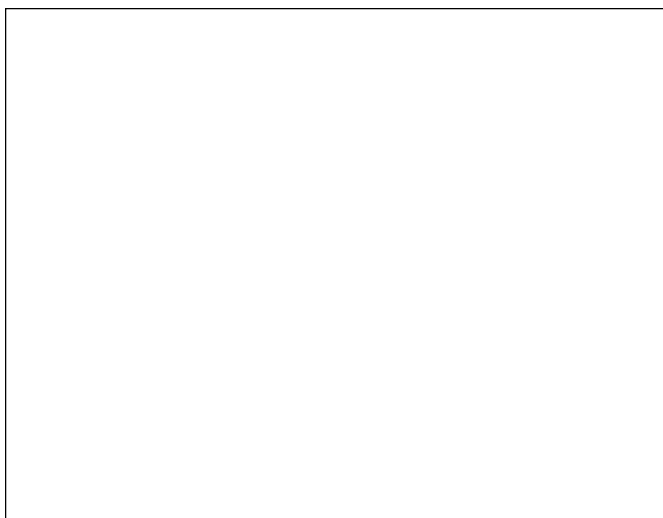
\* Written communication and technical writing courses do not fulfill this requirement.

# General Studies

The program leading to the Bachelor of Arts (B.A.) in general studies is designed to meet the needs of students who desire broader exposure and greater flexibility than is provided by the typical disciplinary specialization.

The hallmark of the general studies program is its flexibility. In conjunction with a primary advisor, students tailor a program to their specific needs and interests. The degree program permits students to pursue studies that transcend traditional disciplinary boundaries, either within the arts and sciences or across the curricula of the Institute's four schools.

Students completing a B.A. in general studies must have their proposed course of study approved by a faculty advisor. Students interested in this program should consult with a member of the faculty for assistance in creating their course of study.



## Degree Requirements for General Studies

### Course of Study

To earn a degree in General Studies, students must submit a proposed course of study identifying the student's areas of interest and proposed means of completing the degree requirements to a faculty advisor.

Satisfactory completion of 124 semester hours of college-level work distributed as follows:

General Education Requirements	36-48
Program Requirements	48
GEN 499 (General Studies Project)	4
General Electives	28-40

Satisfactory completion of a minimum of 60 semester hours of upper division coursework, of which at least 30 semester hours must be taken at the Institute of Technology.

Achievement of a minimum cumulative grade point average of 2.00 in courses taken at the Institute of Technology.

## General Studies Requirements

### I. General Education Requirements (12 courses, 36-48 credits)

Area	Courses	Credits
Anthropology/Sociology	1	3
*Mathematics/Computer Science/Statistics	2	6
Natural Sciences (1 Lab Course)	2	6
Economics	1	3
Political Science	1	3
Psychology	1	3
English Composition (including COM 306 or COM 308)	2	6
Humanities	2	6

### II. Program Requirements (12-16 courses, 48 credits)

The student must complete 48 credit hours spread across three of the following disciplinary categories. For each area chosen, the student must complete at least 12 credit hours in at least four different courses, three of which must be advanced level. At least two of the disciplinary categories must be offered by the School of Arts and Sciences.

The disciplinary categories are as follows:

#### School of Arts & Sciences

Anthropology/Sociology  
 Humanities (Eng, Fine Arts, History, STS, Philosophy)  
 Communication  
 Mathematics  
 Natural Sciences  
 Psychology  
 Social Sciences (Economics/History/Geography  
 Political Science/STS)

#### Other Schools

Students may choose one category from any program outside of arts and sciences that has sufficient courses for creating a cluster.

### III. GEN 499: General Studies Project (1 course, 4 credits)

The student must complete GEN 499, "General Studies Project" (4 credit hours). Students are required to submit a proposal for the project, approved by advisors in two of the three disciplinary areas. The independent project, which can take a variety of forms (i.e., research paper, computer or video program, etc.) will critically address core issues in two of the three disciplinary areas chosen. The course will usually be taken during the student's last semester.

### IV. General Electives (9-14 courses, 28-40 credits)

College-level courses in any discipline carrying Institute of Technology or transferable credit.

\* CSC 310 and CSC 311 do not fulfill this requirement.

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# Health Information Management

Health information managers are the professionals responsible for the management of health information systems. They are employed in the following settings: hospitals and nursing homes, federal and state hospitals, community health clinics, health maintenance organizations, and regulatory agencies such as state health departments and departments of mental health. Employment is also available in government and other health planning agencies, private medical clinics, health insurance companies, peer review organizations, and other local agencies involved in the maintenance of health care standards.

Two degrees are offered in the health information management program:

*Bachelor of Professional Studies (B.P.S.)*

*Bachelor of Science (B.S.)*

Both degrees require completion of 124 semester hours of which 60 are to be completed at the upper division level; a minimum of 30 semester hours is to be completed at the Institute of Technology.

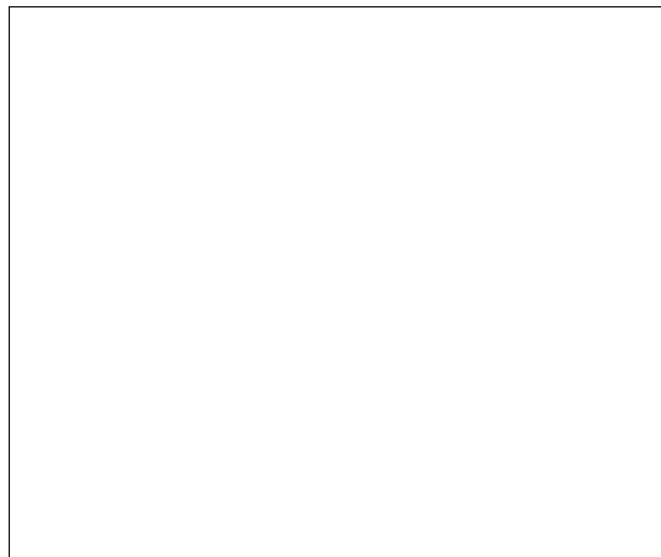
## The Program

The health information management program is designed to prepare graduates for the rapidly growing field of health information management. The professional courses which students study to become a health information manager cover such topics as health information science, health information terminology, computer applications in health information administration, and evaluation of health care systems.

Both the Bachelor of Science (B.S.) and the Bachelor of Professional Studies (B.P.S.) degrees in health information management are available at the SUNY Institute of Technology.

Graduates of two-year health information technology programs or management/computer science programs usually choose the B.P.S. option. Students from two-year liberal arts programs with strong emphasis on the natural sciences are accommodated in the B.S. option. The choice of the degree may be made after admission to the college and evaluation of prior transfer credit; each applicant is evaluated individually.

Graduates of accredited programs qualify for registration in the field of health information management by passing the test requirements of the American Health Information Management Association. The program is accredited by the Commission on Accreditation of Allied Health Educational Programs in collaboration with the Council on Accreditation of the American Health Information Management Association.



## Transfer Credit

Graduates of community college programs in health information technology enter this program with two full years of credit; they can anticipate completion of the bachelor's degree in four semesters of full-time study. Full credit is given for prior coursework in health information technology.

Graduates of other health-related fields or the natural sciences are evaluated individually and may receive a full two years of transfer credit.

Experienced accredited record technicians currently employed in the field are also eligible for enrollment. Accredited record technicians who have less than 56 semester hours of college credit are evaluated and advised individually.

Recommended prerequisites for the program include introductory courses in statistics and accounting, and a one-year laboratory sequence in human anatomy and physiology.

## Bachelor of Professional Studies— Degree Requirements

The curriculum for the Bachelor of Professional Studies degree program includes:

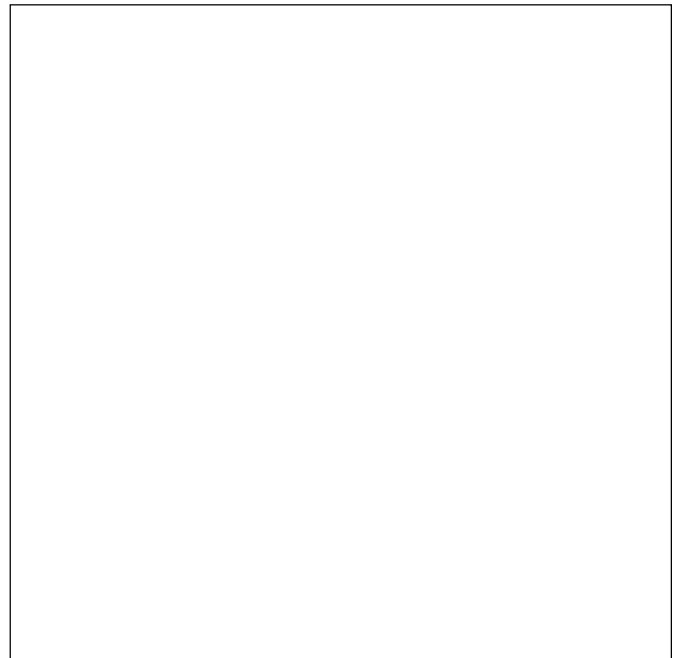
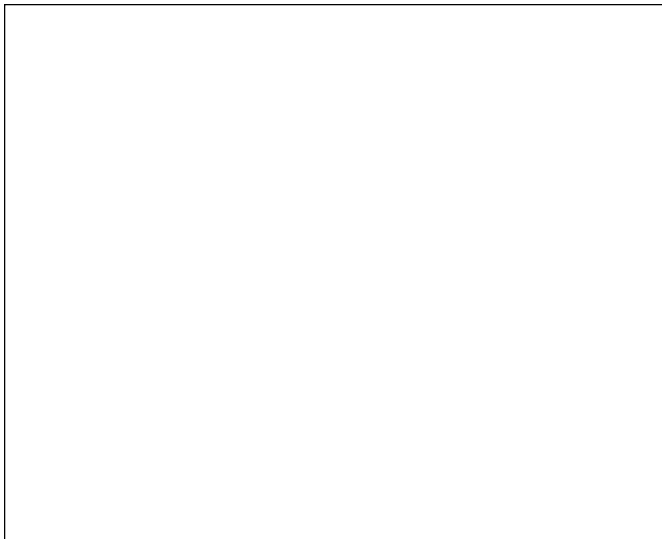
<i>Group I-Arts and Sciences (40 credit hours):</i>	<i>Credits</i>
Upper Division Writing	(3-4)
Humanities	(6-8)
Statistics	(3-4)
ANY/PSY/SOC/ECO/POS/GOG/SSC	(6-8)
Anatomy and Physiology	(8)
Arts and Sciences Electives	(14-16)

<i>Group II-Professional Requirements (78 credit hours):</i>	
HIM 300 The Health Information Field	(4)
HIM 305 Inpatient Coding and Classification	(4)
HIM 311 Clinical Concepts I	(3)
HIM 312 Clinical Concepts II	(3)
HIM 325 Health Care Management/ Medical Information Systems	(3)
HIM 340 Introduction to the Health Information Management Laboratory	(2)
HIM 392 Technical-Level Residency	(4)
HIM 400 Non-Hospital Health Information Management Systems	(3)
HIM 401 Health Care Evaluation Systems	(3)
HIM 410 Health Information Department Management	(4)
HIM 430 Outpatient Coding and Classification	(4)
HIM 493 Senior Seminar	(2)
HIM 494 Specialty Rotation	(1)
HIM 495 Management-Level Residency	(4)
HSM 309 Health Care and the Law	(4)
ACC 301 Financial Accounting Theory	(4)
HSM 435 Accounting Controls/ Not-for-Profit Organizations	(3)
MGT 318 Human Resources Management	(4)

*Group III- Professional Electives (19-21)*

Additional professional coursework in any area

Group IV-Unrestricted Electives (6-8)



## Bachelor of Science— Degree Requirements

The curriculum for the Bachelor of Science degree program includes:

<i>Group I-Arts and Sciences (62 credits):</i>	<i>Credits</i>
Upper Division Writing	(3-4)
Humanities	(6-8)
Statistics	(3-4)
ANY/PSY/SOC/ECO/POS/GOG/SSC	(6-8)
Anatomy and Physiology	(8)
Arts and Sciences Electives	(36-38)

<i>Group II-Professional Requirements (62 credits):</i>	
HIM 300 The Health Information Field	(4)
HIM 305 Inpatient Coding and Classification	(4)
HIM 311 Clinical Concepts I	(3)
HIM 312 Clinical Concepts II	(3)
HIM 325 Health Care Management/ Medical Information Systems	(3)
HIM 340 Introduction to the Health Information Management Laboratory	(2)
HIM 392 Technical-Level Residency	(4)
HIM 400 Non-Hospital Health Information Management Systems	(3)
HIM 401 Health Care Evaluation Systems	(3)
HIM 410 Health Information Department Management	(4)
HIM 430 Outpatient Coding and Classification	(4)
HIM 493 Senior Seminar	(2)
HIM 494 Specialty Rotation	(1)
HIM 495 Management-Level Residency	(4)
HSM 309 Health Care and the Law	(4)
ACC 301 Financial Accounting Theory	(4)
HSM 435 Accounting Controls/ Not-for-Profit Organizations	(3)
MGT 318 Human Resources Management	(4)
Professional Electives	(3)



## Residencies

Each student in the program completes three residencies. The first residency (4 credits) is completed between the junior and senior year. This is normally a summer course and students should be prepared to pay summer tuition. In this residency, the student spends four weeks full time in a hospital health information management department. It provides students with an opportunity to gain practical experience in the technical aspects of health information management.

The second residency (1 credit) is completed in 10 half days during the fall semester of the senior year. This residency exposes students to various non-hospital settings.

The third residency (4 credits) is taken for four weeks during the last semester of the senior year. It takes place in the health information management department of a health care or health-related organization. This residency focuses on the management role of the health information administrator.

Additional expenses may be incurred during the residencies for transportation, housing, health testing and proper work attire. Every effort is made to place students in organizations that are within reasonable commuting distance of the college or the student's hometown. The decision regarding proper placement of the student is made by the program faculty.

## Second Major in Health Services Management

Students in the health information management program have a unique opportunity to complete a second major in health services management. This is because the two programs have many courses in common. The following additional courses must be taken for the second major:

- ECO 405 Economics of Health Care
- HSM 300 Introduction to Quantitative Methods in Health Services Management
- HSM 411 Management for the Health Professions
- HSM 436 Accounting for Not-for-Profit Organizations Case Study
- One course from the following:
  - HSM 401/422/423/425/430/431

These courses may be used to meet some of the elective requirements in the health information management program.

## Suggested Schedule-

### Student New to the Health Information Management Field

#### Junior Year

<i>Fall Semester</i>	<i>Spring Semester</i>	<i>Summer</i>
HIM 300- 4	HIM 305- 4	HIM 392- 4
HIM 311- 3	HIM 312- 3	
HIM 325- 3	HIM 430- 4	
HIM 340- 2	ACC 301- 4	
COM 306- 4		
16	15	

#### Senior Year

<i>Fall Semester</i>	<i>Spring Semester</i>
HIM 400- 3	HIM 401- 3
HIM 494- 1	HIM 410- 4
HSM 309- 4	HIM 493- 2
HSM 435- 3	HIM 495- 4
MGT 318- 4	Electives 2-3
15	15-16

## Suggested Schedule-

### Student Transferring from a Health Information Management Technology Program

#### Junior Year

<i>Fall Semester</i>	<i>Spring Semester</i>
HIM 340- 2	HSM 435- 3
HIM 325- 3	MGT 318- 4
COM 306- 4	Other degree requirements- 8
ACC 301- 4	
Other degree requirements- 3	
16	15

#### Senior Year

<i>Fall Semester</i>	<i>Spring Semester</i>
HSM 309- 4	HIM 401- 3
Other degree requirements- 12	HIM 410- 4
	HIM 493- 2
	HIM 495- 4
	Other degree requirements- 3
16	16

*\*Note: Transfer students with associate degrees in health information technology may transfer the equivalent of the first technical-level residency and the specialty rotation. Graduates of the American Health Information Management Association training programs for health information management technicians may substitute another professional course for the first technical-level residency and the specialty rotation.*

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# Health Services Management

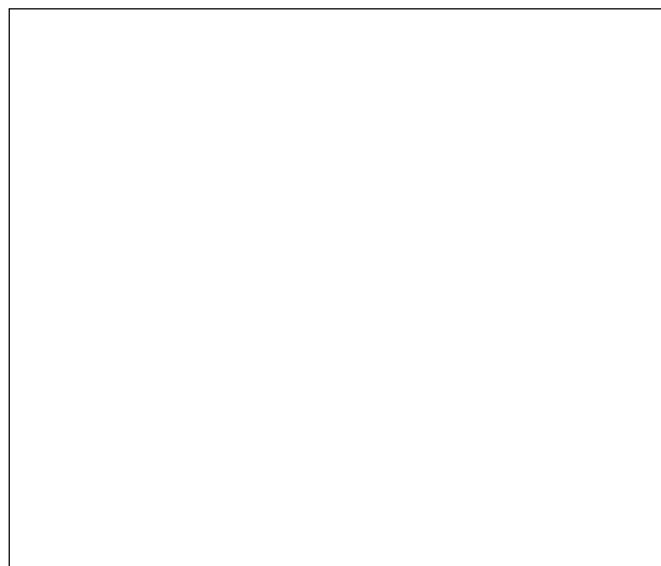
Significant changes are taking place in the health field due to advancing technology, an aging population, innovative approaches to the payment for care and a dynamic health care delivery system. Many of these changes are creating excellent opportunities for persons interested in a career in health services management. Graduates of the program have been employed in hospitals, nursing homes, clinics, government, private business and the insurance industry, while others have successfully pursued graduate studies.

The health services management program blends business management with health services management, preparing the student to manage programs or facilities in a health environment. Coursework is designed to acquaint the student with various aspects of the health care delivery system. Topics include: public health care delivery, health law, ambulatory care administration, nursing home administration, budgeting and reimbursement. The combination of business and health courses in the program have enabled students to successfully enter the health care field.

## Internship

Both degree programs afford students an opportunity to apply their classroom experience to the working environment through an internship. Students work under the direction of a qualified preceptor in one of the many types of organizations involved in health care in New York or other states. While in the internship, the student is exposed to the various operational components of the organization, and they may prepare special reports or studies on behalf of the organization. In many cases, this is the student's first health related job experience and it plays a vital role in establishing successful career paths for health services management graduates.

In order to qualify for an internship, a student must have an overall cumulative average of at least 2.00, no less than a "C" in all health services management core and elective courses, and no less than a 2.50 cumulative average in health services management core and elective courses.



## Degree Programs

The health services management program offers two degrees, the Bachelor of Professional Studies (B.P.S.) and the Bachelor of Science (B.S.). Both degrees require completion of 124 semester hours, of which 60 are to be completed at the upper division level. A minimum of 30 must be completed at the Institute of Technology.

The Bachelor of Professional Studies (B.P.S.) degree is designed primarily for students with the Associate of Applied Science (A.A.S.) degree, who combined arts and sciences courses with a professional program, such as business or nursing.

The Bachelor of Science (B.S.) degree program accommodates students with the Associate of Science (A.S.) or Associate of Arts (A.A.) degrees.

As with all programs, degree requirements include a strong base of general education, conveying a diverse educational experience that the student can use beyond their chosen area of professional preparation.

Regardless of the student's background, a program of study can be developed for either degree. In general, each student includes in his or her upper division program, a core consisting of the following courses.

## Bachelor of Science— Degree Requirements

<i>Arts and Sciences - 60 credits</i>	<i>Courses/Credits</i>
Natural Science (Biology/Chemistry/Environmental Science/Physics - at least one course must include a laboratory course)	2 courses
Mathematics/Statistics	1 course
Written Communication (upper division course)	1 course
Social Science (Economics/Geography/Political Science)	1 course
Humanities * (Art/History/Music/Literature/Philosophy/Foreign Language)	2 courses
Economics of Health Care	1 course
Arts/Sciences Electives	(Remainder of 60 credits)

### *HSM Core Courses - Total HSM credits - 56*

HSM 300 - Introduction to Quantitative Methods in HSM	1 course
HSM 301 - Health Care Delivery in the US	1 course
HSM 309 - Health Care and the Law	1 course
HSM 411 - Management for the Health Professions	1 course
ACC 301 - Financial Accounting Theory	1 course
HSM 435 - Accounting for Not-For-Profit Organizations (Prerequisite: ACC 301 or equivalent)	1 course
HSM 436 - Accounting for Not-For-Profit Organizations Case Study (prerequisite HSM 435 or currently in HSM 435)	1 credit
MGT 305 - Management Theory	1 course
MGT 318 - Human Resource Management	1 course

### *HSM Elective Courses*

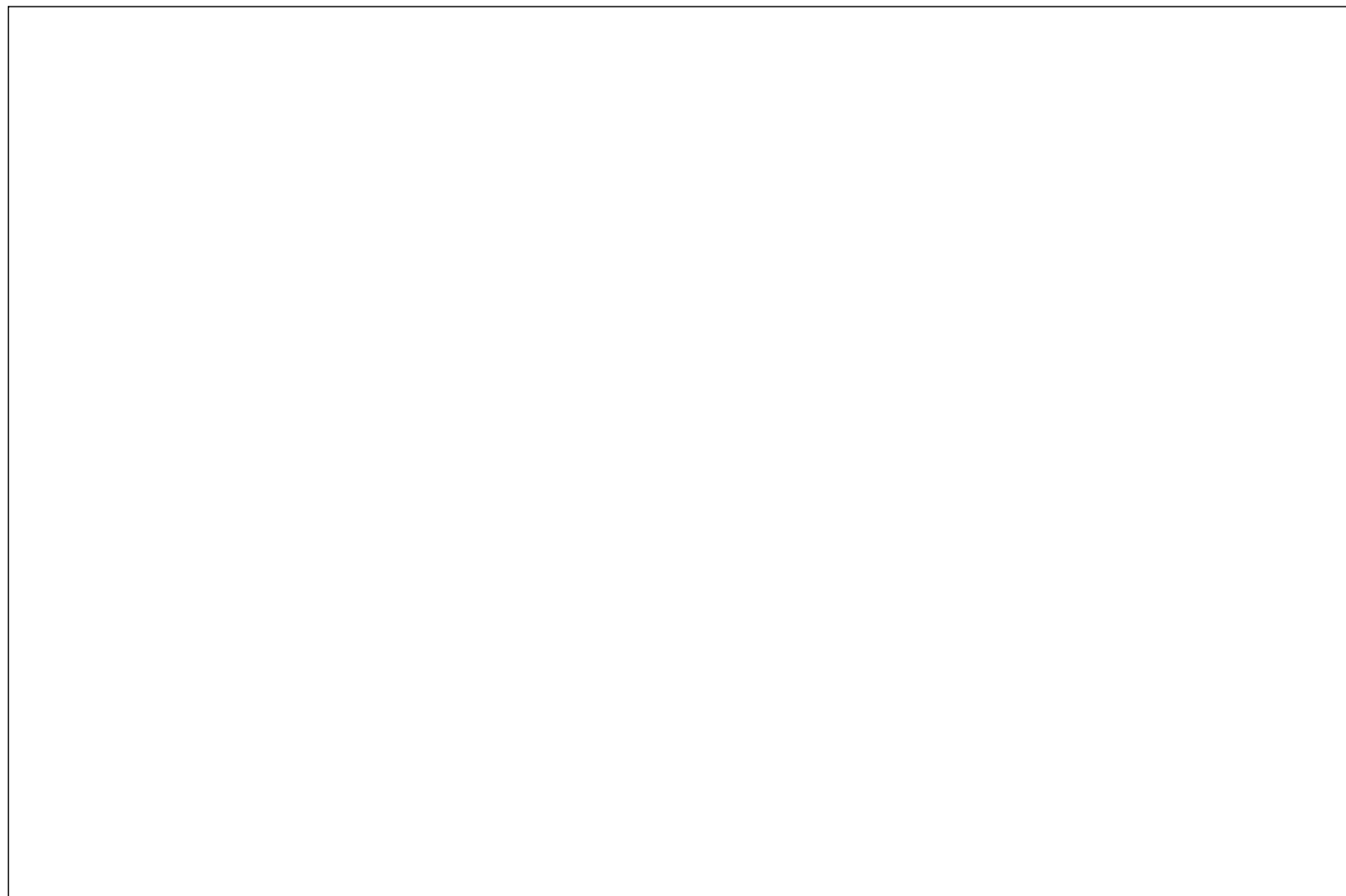
HSM 401 - Introduction to Epidemiology	1 course
HSM 422 - Nursing Home Administration (prerequisite HSM 301, HSM 411)	1 course
HSM 423 - Long-Term Care Policy & Regulations (prerequisite HSM 301 or permission of instructor)	1 course
HSM 425 - Marketing Strategies for Health Planning (prerequisite HSM)	1 course
HSM 430 - Ambulatory Care Administration (prerequisite HSM 301, HSM 411)	1 course
HSM 431 - Financial Management for Ambulatory Care Facilities (prerequisite ACC 301 or equivalent)	1 course
HSM 325 - Health Care Management/ Medical Information Systems	1 course
HIM 326 - Health Information Management Project	1 credit

### *Internship or Approved Coursework - 6-16 credits*

HSM 492 - Internship (prerequisite permission of instructor. Eligibility for an internship requires that the student has at least a "C" in all HSM core and elective courses and an overall grade point average of at least 2.50.	12 credits
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### *Open Elective Courses - 8 credits*

**Total 124 credits**



## Bachelor of Professional Studies— Degree Requirements

<i>Arts and Sciences - 40 credits</i>	<i>Courses/Credits</i>
Upper Division Writing	1 course
Math/Statistics	1 course
Economics of Health Care	1 course
Social Science (Economics/Geography/Political Science)	1 course
Humanities* (Art/History/Music/Literature/Philosophy)	2 courses
Laboratory Science	1 course
Natural Science	1 course
Arts/Science Electives	(Remainder of 40 credits)

<i>HSM Core Courses (28 credits)</i>	
HSM 300 - Introduction to Quantitative Methods in HSM	1 course
HSM 301 - Health Care Delivery in the US	1 course
HSM 309 - Health Care and the Law	1 course
HSM 411 - Management for the Health Profession (prerequisite, MGT 305 or equivalent)	1 course
ACC 301 - Financial Accounting Theory	1 course
HSM 435 - Accounting for Not-For-Profit Organizations (prerequisite ACC 301 or equivalent)	1 course
HSM 436 - Accounting for Not-For-Profit Organizations Case Study (prerequisite HSM 435 or currently registered in HSM 435)	1 credit
MGT 305 - Management Principles	1 course
MGT 318 - Human Resource Management	1 course
HSM Electives	(Remainder of 28 credits)

<i>HSM Elective Courses (16 credits)</i>	
HSM 401 - Introduction to Epidemiology	1 course
HSM 422 - Nursing Home Administration (prerequisite HSM 301, HSM 411)	1 course
HSM 423 - Long-Term Care Policy & Regulations (prerequisite HSM 301 or permission of instructor)	1 course
HSM 425 - Marketing Strategies for Health Planning (prerequisite HSM 301)	1 course
HSM 430 - Ambulatory Care Administration (prerequisite HSM 301, HSM 411)	1 course
HSM 431 - Financial Management for Ambulatory Care Facilities (prerequisite ACC 301 or equivalent)	1 course
HIM 325 - Health Care Management/Medical Information Systems	1 course
HIM 326 - Health Information Management Project	1 credit

*Internship or Approved Coursework - 12 credits*  
 HSM 492 - Internship (prerequisite permission of instructor)  
 Eligibility for an internship requires that the student has at least a "C" in all HSM core and elective courses and an overall grade point average of at least 2.50.

Total Internship Credits 12 credits

*Open Elective Courses - 28 Hours*

## Health Services Management Minor

See academic minor section on page 84.

# Industrial Engineering Technology

Graduates of the industrial engineering technology (IET) program have found positions in all aspects of industry and manufacturing. Typically students work in functional areas such as cost estimating, facilities planning, manufacturing process design, production control, or quality assurance. Many manufacturing plants are currently being modernized and IET graduates are well prepared to participate in this trend.

Industrial engineering technology students can choose to pursue either a B.S. or B.Tech. degree. Both degrees contain a wide range of high technology courses, courses from related fields, and liberal arts coursework to provide a broad-based education. The B.Tech. degree is the more technical degree, allowing students to choose additional technical electives. The B.S. degree requires more arts and sciences electives and may be preferred by some employers. Both degrees are designed to provide students with a broad-based education and the opportunity to create a specialized program by following one of the options or by selecting technical courses to fill an individual interest or career plan. The concentrations are:

**Manufacturing Engineering Technology**—This concentration covers manufacturing and industrial processes in industry. Coursework includes: process planning, cost estimating, machining processes, metal working processes, laser applications, safety and environment impact and design for manufacturing.

**Quality Assurance Technology**—In addition to manufacturing core coursework, this concentration offers intensive training in SPC, ISO9000, ISO14000, TQM, quality improvement, concurrent engineering, and reliability for design & production.

**Industrial Engineering Technology**—This concentration concentrates on the traditional industrial engineering technology courses. Coursework is offered in such areas as engineering economics, plant layout, operations research, simulation and optimization, manufacturing control, network scheduling, method study, industrial safety, and industrial administration.

**Computer-Aided Design/Computer-Aided Manufacturing/Robotics**—In this concentration, the use of microcomputers in manufacturing is explored. Coursework includes: integrated and flexible manufacturing systems, group technology, process control, computer-assisted numerical control programming and operation, computer-aided manufacturing, and robot & machine vision.

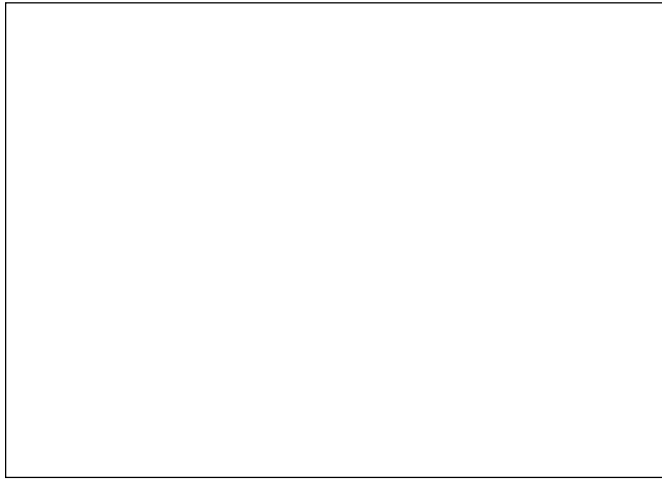
## B.S. Degree Requirements

To earn a Bachelor of Science (B.S.) degree in industrial engineering technology, a student must complete a minimum of 128 credit hours and fulfill the following requirements:

<i>I. Arts and Sciences—60 credits</i>	<i>Minimum Credits</i>
<i>A. Liberal Arts—34 credits</i>	
Oral Communication	3
Written Communication (including an upper division writing course)	6
Humanities* (Art/History/Music/Literature/ Philosophy/Foreign Language)	6
Anthropology/Sociology/Psychology/ Economics/Political Science/Geography/ Social Science	6
Liberal Arts Electives	3
Arts & Sciences Electives	10
Total Credits	34
<i>B. Mathematics and Science—26 credits</i>	
Physics with Lab	4
Basic Science with Lab	4
Mathematics (including Calculus I/II)	12
Math & Science Electives	4
Computer Programming Language	2
Total Credits	26
<i>II. Technical Courses—54 Credits</i>	
A total of 54 credits is required, of which a minimum of 32 credits must be taken in the department.	
The following courses are required:	
ITC 311—Manufacturing Operations	
ITC 327—Production and Operation Management	
ITC 358—Plant Layout and Material Handling	
ITC 362—Computer-Aided Design for IET	
ITC 373—Statistical Quality Control	
ITC 462—Computer-Aided Manufacturing	
ITC 475—Engineering Economics	
ITC 483—Quality Improvement	
Application Projects I & II	
Technical Electives	<u>Balance of 54</u>
<i>III. Open Electives</i>	
	<u>Balance of 128</u>
Total Credits	128

Students with a minimum of five years' work experience in a related job can waive one application project, i.e., take seminars only, with the prior approval of the student's advisor.

\* Written communication and technical writing courses do not fulfill this requirement.



## B.Tech. Degree Requirements

To earn a Bachelor of Technology (B.Tech.) degree in industrial engineering technology, a student must complete a minimum of 128 credit hours and fulfill the following requirements:

<b>I. Arts and Sciences—48 credits</b>	<i>Minimum Credits</i>
<b>A. Liberal Arts—24 credits</b>	
Written Communication (written and oral, including an upper division writing course)	9
Humanities* (Art/History/Music/Literature/Philosophy/Foreign Language)	6
Anthropology/Sociology/Psychology/Economics/Political Science/Geography/Social Science	6
Electives	3
<b>Total Credits</b>	<b>24</b>
<b>B. Mathematics and Science—24 credits</b>	
Physics with Lab	4
Basic Science with Lab	4
Mathematics (including Calculus I/II)	12
Math & Science Electives	4
<b>Total Credits</b>	<b>24</b>
<b>II. Computer Programming Language</b>	<b>3</b>
<b>III. Technical Courses—54 Credits</b>	
A total of 54 credits is required, of which a minimum of 32 credits must be taken in the department.	
The following courses are required:	
ITC 311—Manufacturing Operations	
ITC 327—Production and Operation Management	
ITC 358—Plant Layout and Material Handling	
ITC 362—Computer-Aided Design for IET	
ITC 373—Statistical Quality Control	
ITC 462—Computer-Aided Manufacturing	
ITC 475—Engineering Economics Application	
ITC 483—Quality Improvement	
Projects I & II	
Technical Electives	
<b>IV. Open Electives</b>	<b>Balance of 128</b>
<b>Total Credits</b>	<b>128</b>

Students with a minimum of five years' work experience in a related job can waive one application project, i.e., take seminars only, with the prior approval of the student's advisor.

\* Written communication and technical writing courses do not fulfill this requirement.

## Areas of Concentration

<b>Manufacturing Engineering Technology</b>	<i>Credits</i>
ITC411— Manufacturing Cost Estimation	4
ITC485— Concurrent Engineering and Design for Manufacture	4
ITC467— Industrial Safety & Environmental Impact	2
ITC366— Introduction to Robotics	2
ITC450— Environmental Engineering Technology	3

### Quality Engineering Technology

ITC390— ISO9000 and Total Quality Assurance	2
ITC391— ISO14000 - Auditing & Implementation	4
ITC484— Advanced Topics in Statistical Process Control	2
ITC485— Concurrent Engineering and Design for Manufacture	4
ITC486— Reliability for Design and Production	4

### Industrial Engineering Technology

ITC411— Manufacturing Cost Estimation	4
ITC485— Concurrent Engineering and Design for Manufacture	4
ITC370— Network Scheduling	3
ITC390— ISO9000 and Total Quality Assurance	2
ITC484— Advanced Topics in Statistical Process Control	2

### CAD/CAM/Robotics

ITC366— Introduction to Robotics	2
ITC430— Engineering Dynamics	4
ITC485— Concurrent Engineering and Design for Manufacturing	4
ITC486— Reliability for Design and Production	4

\* Students are not required to complete a concentration

## Industrial/Manufacturing Laboratories

The industrial laboratories are well equipped for courses in Robotics, Quality Control, Quality Improvement, Computer-Aided Design, Computer-Aided Manufacturing and Simulation. Equipment includes such items as industrial robots, and CNC machinery. CAM equipment includes vision, manufacturing simulation equipment, and computer-assisted NC software. Computers and industrial software are used in as many classes as possible.

## Manufacturing/Quality Assurance Technology Minor

See academic minor section on page 85.

# Mechanical Engineering Technology

Mechanical engineering technology graduates have pursued careers in many segments of industry. Most work in areas related to manufacturing such as process development, manufacturing equipment design, or quality control. Others work in areas such as computer-aided design, reliability analysis, technical sales, or product development.

Mechanical engineering technology students can choose to pursue either a B.S. or B.Tech. degree. Both degrees contain a wide range of high technology courses, courses from related fields, and liberal arts coursework to provide a broad-based education. The B.Tech. degree is the more technical degree allowing students to choose additional technical electives. The B.S. degree requires additional arts and sciences electives and may be preferred by some employers. Both degrees are designed to provide students with a broad-based education and the opportunity to create a specialized program by following one of the areas of concentration or by selecting specific technical courses to fill an individual interest or career plan. The areas of concentration are:

- Applied Mechanics
- Mechatronics
- Thermal Power
- Computer-Aided Design

The courses and areas of concentration are designed to expose students to topics of classical and current interest in mechanical engineering technology.



## B.S. Degree Requirements

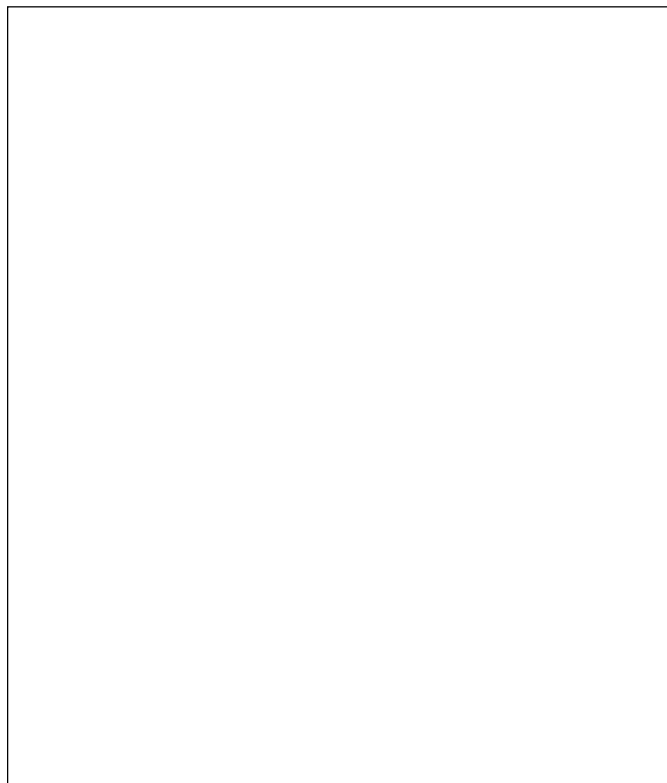
To earn a Bachelor of Science (B.S.) degree in mechanical engineering technology, a student must complete a minimum of 128 credit hours and fulfill the following requirements:

<i>I. Arts and Sciences—60 credits</i>		<i>Minimum Credits</i>
<i>A. Liberal Arts—24 credits</i>		
Oral Communication		3
Written Communication (including an upper division writing course)		6
Humanities* (Art/History/Music/Literature/ Philosophy/Foreign Language)		6
Behavioral/Social Science (Anthropology/Sociology/Psychology/ Economics/Political Science/Geography/ Social Science)		6
Electives		3
Total Credits		24
<i>B. Mathematics and Science—24 credits</i>		
Physics (with laboratory)***		4
Chemistry (with laboratory)		4
Physics elective***		4
Mathematics (including Calculus I/II and Differential Equations)		12
Total Credits		24
<i>C. Computer Programming Language</i>		
Liberal Arts, Math and Science, C.S. Electives		9
Total Credits		12
<i>II. Technical Courses—54 Credits</i>		
<i>A. Core Courses—16 Credits</i>		
Students must take at least 4 credits from each of the following groups of courses at SUNY Institute of Technology at Utica/Rome.		
<b>Group I</b>		
MTC 308—Mechanical Components		4
MTC 362—Experimental Stress Analysis		4
MTC 465—Advanced Machine Design		4
MTC 470—Flow and Fractures		4
<b>Group II</b>		
MTC 350—Solar Energy Technology		2
MTC 352—Thermodynamics		2
MTC 450—Solar Energy Concepts		4
MTC 451—Engineering Heat Transfer I		2
MTC 452—Engineering Heat Transfer II		2
MTC 461—Fluid Mechanics		4
<b>Group III**</b>		
MTC 363—Mechanisms Analysis		4
MTC 430—Engineering Dynamics		4
MTC 464—Vibration Analysis		4

\* Written communication and technical writing courses do not fulfill this requirement.

\*\* A dynamics course is required.

\*\*\* Students are encouraged to take Calculus-Based Physics



Group IV	
MTC 306—Design Layout Practices	2
MTC 318—Statics in Machinery	2
MTC 322—Strength of Materials	2
MTC 336—Material Science Applications	2
MTC 350—Solar Energy Technology	2
MTC 381—Fundamentals of High Vacuum	2
MTC 450—Solar Energy Concepts	4
MTC 455—Laser Technology	2
<b>B. Application Projects—4 Credits</b>	
Students must take the following course:	
MTC 320—Application Project I	2
Students must take one course from the following:	
MTC 310—Mechanical Technology Lab	2
MTC 321—Application Project II	2
MTC 421—Senior Research Project	2
MTC 422—Applied Project Thesis	2
MTC 491—Independent Study	2
<b>C. Mechanical Electives—30 credits</b>	
<b>D. Electrical Electives—4 credits</b>	
<b>III. Open Electives</b>	<b>Balance of 128</b>
Total Credits	128

## B.Tech. Degree Requirements

To earn a Bachelor of Technology (B.Tech.) degree in mechanical engineering technology, a student must complete a minimum of 128 credit hours and fulfill the following requirements:

<b>I. Arts and Sciences—48 credits</b>	<i>Minimum Credits</i>
<b>A. Liberal Arts—24 credits</b>	
Oral Communication	3
Written Communication (including an upper division writing course)	6
Humanities* (Art/History/Music/Literature/ Philosophy/Foreign Language)	6
Behavioral/Social Science (Anthropology/Sociology/Psychology/ Economics/Political Science/Geography/ Social Science)	6
Electives	3
Total Credits	24
<b>B. Mathematics and Science—24 credits</b>	
Physics (with laboratory)***	4
Chemistry (with laboratory)***	4
Physics elective	4
Mathematics (including Calculus I/II)	12
Total Credits	24
<b>C. Computer Programming Language</b>	3
<b>II. Technical Courses—54 Credits</b>	
<b>A. Core Courses—16 Credits</b>	
Students must take at least 4 credits from each of the following groups of courses at SUNY Institute of Technology.	
Group I	
MTC 308—Mechanical Components	4
MTC 362—Experimental Stress Analysis	4
MTC 465—Advanced Machine Design	4
MTC 470—Flow and Fractures	4
Group II	
MTC 350—Solar Energy Technology	2
MTC 352—Thermodynamics	2
MTC 450—Solar Energy Concepts	4
MTC 451—Engineering Heat Transfer I	2
MTC 452—Engineering Heat Transfer II	2
MTC 461—Fluid Mechanics	4
Group III**	
MTC 363—Mechanisms Analysis	4
MTC 430—Engineering Dynamics	4
MTC 464—Vibration Analysis	4
Group IV	
MTC 306—Design Layout Practices	2
MTC 318—Statics in Machinery	2
MTC 322—Strength of Materials	2
MTC 336—Material Science Applications	2
MTC 350—Solar Energy Technology	2
MTC 381—Fundamentals of High Vacuum	2
MTC 450—Solar Energy Concepts	4
MTC 455—Laser Technology	2

\* Written communication and technical writing courses do not fulfill this requirement.  
 \*\* A dynamics course is required.  
 \*\*\* Students are encouraged to take Calculus-Based Physics



**B. Application Projects—4 Credits**  
Students must take the following course:

MTC 320—Application Project I	2
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Students must take one course from the following:

MTC 310—Mechanical Technology Lab	2
MTC 321—Application Project II	2
MTC 421—Senior Research Project	2
MTC 422—Applied Project Thesis	2
MTC 491—Independent Study	2

**C. Mechanical Electives—30 credits**

**D. Electrical Electives—4 credits**

**III. Open Electives** Balance of 128

Total Credits 128

**Areas of Concentration \***

Students may specialize in one of the following areas. A total of 20 credits must be taken from the following courses:

<i>Applied Mechanics—20 credits</i>	<i>Credits</i>
MTC 322—Strength of Materials	2
MTC 336—Material Science Applications	2
MTC 363—Mechanisms Analysis	4
MTC 463—Dynamics of Machinery	4
MTC 464—Vibration Analysis	4
MTC 430—Engineering Dynamics	4
MTC 440—Engineering Dynamics II	4
MTC 470—Flow and Fractures	4
MTC 471—Space Technology	2
MTC 472—Robot Mechanisms	4

<i>Mechatronics—20 credits</i>	
MTC 381—Fundamentals of High Vacuum	2
MTC 382—Thin Film Technology	4
ETC 331—Control Systems	4
ETC 433—Automatic Control System	4
MTC 463—Dynamics of Machinery	4
ETC 356—Programmable Controllers	2
MTC 467—Computer-Aided Design	4

<i>Thermal Power—20 credits</i>	
MTC 350—Solar Energy Technology	2
MTC 451—Engineering Heat Transfer I	2
MTC 452—Engineering Heat Transfer II	2
MTC 352—Thermodynamics	2
MTC 450—Solar Energy Concepts	4
MTC 461—Fluid Mechanics	4
MTC 462—Turbo Machinery	4
MTC 471—Space Technology	4

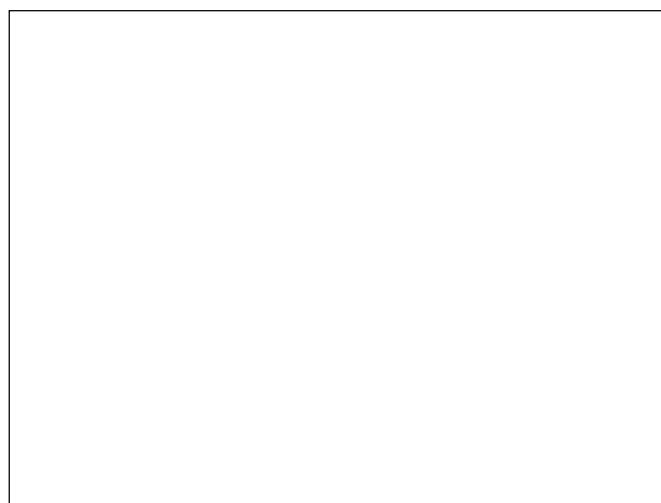
<i>Computer-Aided Design—20 credits</i>	
MTC 306—Design Layout Practices	2
MTC 308—Mechanical Components	4
MTC 322—Strength of Materials	2
MTC 362—Experimental Stress Analysis	4
MTC 460—Computer-Aided Engineering Technology	4
MTC 465—Advanced Machine Design	4
MTC 467—Computer-Aided Design	4
MTC 476—Finite Element Application	4
MTC 490—Robotics Design and Material	4
MTC 493—Computer Integrated Manufacturing	4

\* Students are not required to complete a concentration.

**Mechanical Laboratories**

There are twelve new mechanical engineering technology laboratories fully equipped with modern apparatus. These laboratories encompass all aspects of mechanical engineering technology. Some of the equipment used in these laboratories are: Vishay Stress Analysis systems, Instron multi-purpose testing machine, creep and fatigue testing machines, LDS vibration testing unit, bending moment and the deflection of beams apparatus, electric gyroscope, mechanism sets, conduction, convection and radiation heat transfer units, heat exchangers, heat pipes, heat pump, boiling heat transfer unit, solar energy systems, subsonic wind tunnel, impulse and reaction turbines.

These laboratories also include a sizeable number of PC based CAD/CAM/CAE setups. The CIM lab contains an IET-Flexible Manufacturing System (FMS) with INTERNET/NOVELL network.



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# Nursing

Improving the nation's health in the next decade requires increasing the variety of care delivery settings available to the general population. Professional nurses of tomorrow must be prepared today to meet the challenges posed by these enhanced access alternatives. The curricular emphases in baccalaureate nursing programs on health promotion and maintenance behaviors, coordinating cost-effective quality care, and community-based, community focused health care are particularly appropriate to achieving the future's agenda. It is estimated, however, that the next decade's demand for baccalaureate-prepared nurses will exceed their availability.

## Nursing Program

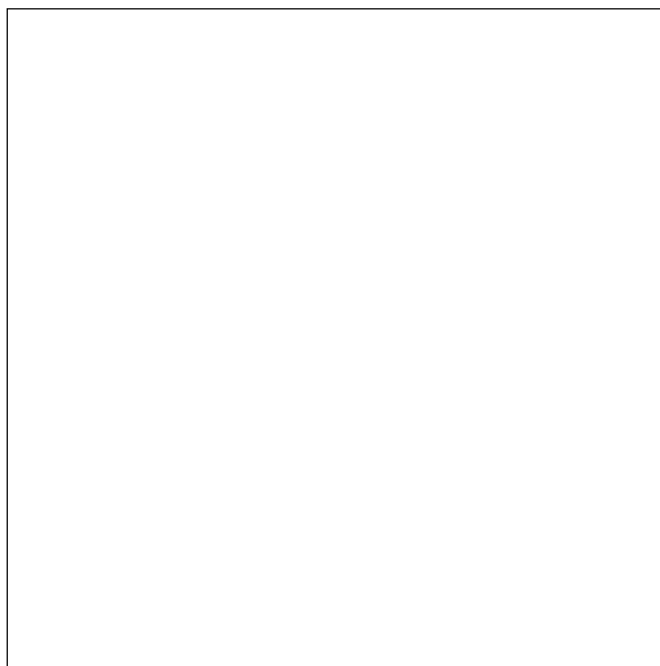
The School of Nursing at the Institute of Technology at Utica/Rome offers a curriculum leading to a Bachelor of Science degree with a major in nursing. The baccalaureate program is designed exclusively to serve licensed registered nurses from state-approved associate or diploma nursing programs who are prepared to focus on their professional and career development.

Students may attend the Utica/Rome program on a full-time or part-time basis. In addition to the Utica/Rome program, courses have been offered at outreach sites, for example, Albany, NY. Course offerings at the outreach locations have been scheduled within a select time frame and have been delivered by senior nursing faculty. Complete details regarding scheduling of nursing courses at outreach locations are available upon request from the School of Nursing.

The nursing program, in support of the mission of the Institute of Technology at Utica/Rome, offers direct articulation agreements with associate degree and diploma nursing programs. These articulation agreements provide potential students advanced advisement regarding transfer credits. The baccalaureate program is registered by the New York State Education Department and is accredited by the National League for Nursing.

The curriculum includes coursework in the theoretical bases of professional nursing practice, comprehensive health assessment, nursing leadership, community health nursing, and introduction to nursing research. It provides the student with the opportunity to practice in a variety of health care settings, emphasizing contemporary nursing practice.

As with all programs at the Institute of Technology, the nursing program includes a strong base in liberal arts. This provides students with the tools and knowledge to relate their experiences to their work and to life in general. It helps create a more diverse, complete education that continues to grow after graduation.



## Graduate Study

The Institute of Technology further displays its ongoing commitment to meeting the needs of the nursing profession by also offering a Master of Science (M.S.) in Nursing degree with a major in either nursing administration (33-credit hours) or adult nurse practitioner (39-credit hours). Both majors use an interdisciplinary approach to prepare students to be leaders in their respective fields. Graduates are able to advance the practice of nursing by applying the knowledge and skills they've learned. In addition, the graduate program provides a strong foundation for subsequent doctoral study.

## Faculty

The faculty with their broad and varied experiences and educational philosophies are outstanding proponents of baccalaureate education for registered nurses. The faculty are highly qualified to assist the adult learner and guide both the new registered nurse and those with extensive and/or varied experiences through the program. Faculty serve as academic advisors to all students.

## Clinical Application

Nursing students of the School of Nursing test nursing principles in real-life situations at a wide variety of health care settings, including hospitals, health care agencies, and community based programs. These clinical experiences are designed with working registered nurses in mind, allowing them to earn their degrees as conveniently as possible.

## Mission

The faculty of the School of Nursing are preparing nurses at the beginning and advanced levels of professional practice within a diverse, changing, and complex society. By expanding the student's world view of nursing as an art and science, the student is taught to embrace the concept of wellness and utilize the technological advances of health care within a context of caring.

In an academic environment, faculty nurture the development of the student's knowledge, skill, and disposition as a professional nurse in relation to humans, environment, health, nursing, and health care delivery. The students are viewed as adult learners and encouraged to develop independence and critical thinking as they participate in their own learning. As students advance as professionals, the faculty encourage them to be active partners in health care settings and in their communities and to be visionary in their role as professional health care providers.

Our nursing education focus is at the undergraduate and graduate levels. The undergraduate program builds on the technical skills and knowledge acquired from associate degree or equivalent education and provides a community based orientation. The graduate program builds upon the nurse's theoretical, research, and practice foundation. The faculty of the School of Nursing continue to enhance the professional development of students by supporting the nursing profession's value of caring as the basis for nursing practice. This foundation embraces the moral standards inherent in the Code of Ethics for Nurses and promotes quality nursing services generated by the Standards of Professional Nursing Practice and the New York State Education Law regarding the practice of nursing. The faculty prepare the students to provide meaningful nursing services to culturally diverse communities, families, and individuals.

## Statement of Purpose

The faculty of the School of Nursing are preparing nurses at beginning and advanced levels of professional nursing practice within a diverse, changing, and complex society.

## Program Goals

The goals of the program are to:

Prepare a graduate to integrate knowledge from nursing theories, the arts, and the natural, social, and behavioral sciences to support professional nursing practice;

Prepare a graduate capable of assisting culturally diverse families and communities to maximize wellness throughout the life span;

Prepare a graduate capable of utilizing critical thinking, collaboration, research, and decision making in the delivery of health care;

Prepare a graduate capable of commitment to professional and self growth and enhancement of professional standards; and

Enhance the foundation for continuing study in nursing.

## Curricular Goals For The First Professional Degree

Derived from the School of Nursing program goals are the curricular goals specific to baccalaureate education to prepare the graduate for beginning professional practice. These baccalaureate curricular goals for the first professional degree are to:

Synthesize theoretical and empirical knowledge from the arts, the natural, social, and behavioral sciences with nursing theory to develop knowledge, skill, and disposition essential for professional nursing practice;

Apply nursing knowledge, skill, and disposition to become active participants in the health care delivery system;

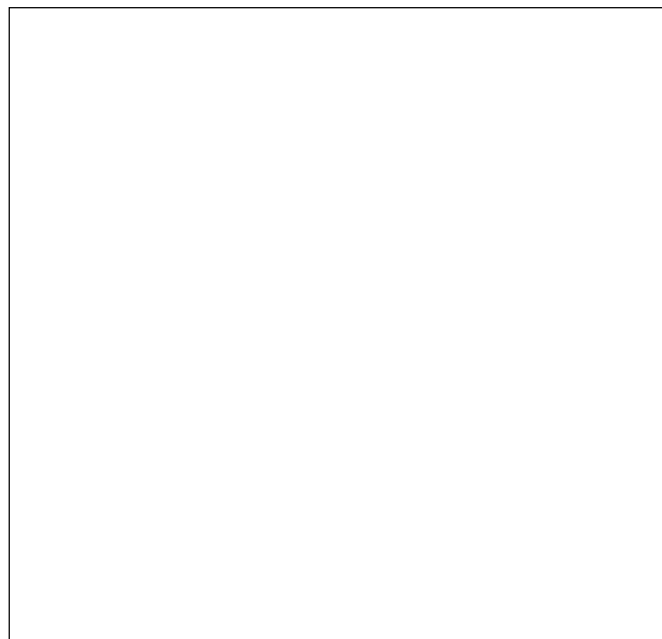
Synthesize theories of nursing centered on caring, teaching and learning, and wellness to meet the health care needs of our culturally diverse society;

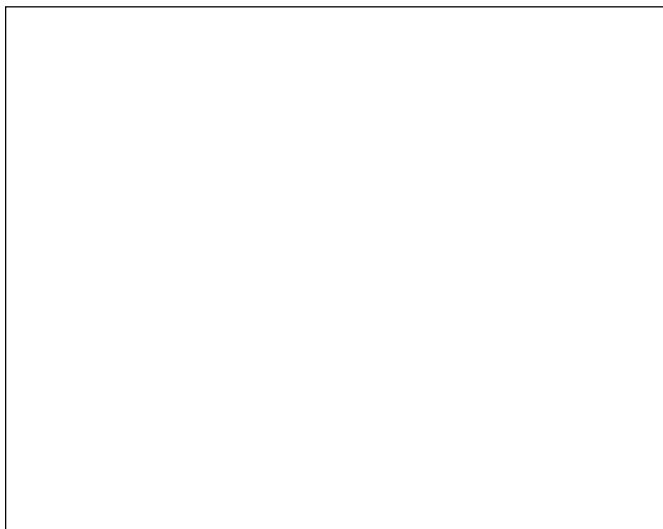
Synthesize the concepts of critical thinking, collaboration, research, decision making, and independent judgment in the delivery of health care to diverse environments of providers, consumers, and organizations; and

Embrace the professional responsibility and commitment for lifelong learning.

## Transfer of Semester Hours

1. Students must submit to the director of admissions official transcripts of any college courses they wish to have evaluated for transfer of semester hours.
2. Only those semester hours acceptable toward meeting the curriculum requirements of the nursing program will be accepted for transfer; transfer credits are determined on an individual basis. At the lower division level, a maximum of 30 semester hours in nursing and a maximum of 34 semester hours in arts and sciences can be transferred.
3. Only courses with a minimum grade of "C" are considered for transfer as upper division transfer semester hours.





## Academic Requirements

Before being admitted into the baccalaureate nursing courses at the Institute of Technology, a potential student must meet the following requirements:

1. Applicant must be a graduate of a state-approved associate degree or diploma nursing program.
2. From the lower division level, a maximum of 30 semester hours in nursing and a maximum of 34 semester hours in arts and sciences can be transferred to the applicable degree.
3. Upper division level courses to be considered for transfer as upper division credit (30 semester hours maximum) must be passed with a minimum grade of "C."
4. Each student is required to have a minimum of 26 lower division semester hours in arts and sciences courses, or equivalent, in English composition, anatomy, physiology, microbiology, introductory psychology, and introductory sociology.
5. Applicant who needs to validate lower division arts and sciences credits may do so through RCEs, NLN Achievement Tests, or CLEP tests. CLEP tests may be scheduled at the Institute of Technology by contacting the Counseling Office. Information concerning NLN and RCE exams can be obtained by contacting the School of Nursing.
6. Students are required to pass an upper division writing course within the first 32 semester hours after matriculation at the college. Any student may be exempt from the required course if they successfully complete the test-out procedure established at the Institute of Technology.

## Program Policies

1. Prerequisites for participation in the clinical nursing courses (NUR 324, NUR 444, NUR 474) include:
  - a. Licensure - A copy of the student's current New York State R.N. Registration Certificate must be on file in the School of Nursing.
  - b. Health Clearance - Written evidence of the satisfactory completion of the health requirements for the School of Nursing and health agencies must be on file in the School of Nursing.
  - c. CPR Certification - Written evidence of current satisfactory completion of CPR certification must be on file in the School of Nursing.
  - d. Matriculated status; fulfillment of English composition, anatomy, physiology, microbiology, introductory psychology, and introductory sociology requirements.
2. **Degree Requirements:** The degree applicant must meet the requirements of the B.S. degree with a major in nursing and the general education requirements as stated in this college catalog.
3. **Grading:** The student must maintain a 2.0 cumulative grade point average (GPA) to remain in good standing. The student must obtain a minimum grade of "C" in each nursing course. The student must pass both the theoretical and clinical components of a nursing course, or the course must be repeated in its entirety. A student may repeat a nursing course only once. If a minimum grade of "C" is not obtained a second time, the student will be required to withdraw from the nursing program.
4. **Withdrawal from Program:** The School of Nursing reserves the right to request the withdrawal of any student whose continuance in the program would be detrimental to the health and safety of self or others.
5. **Add/Drop Courses:** A student dropping corequisites of a nursing course will also be required to drop the applicable nursing course.
6. **Academic Overload:** A full-time student desiring to take more than 16 semester hours in either the fall or spring term must demonstrate the ability to carry an overload by achieving a 3.25 GPA while carrying 16 semester hours in the previous semester. Any overload must be approved in writing by the Dean of Nursing.
7. **Readmission:** Students seeking readmission to the School of Nursing will have their coursework evaluated by the Academic Standards Committee of the School of Nursing. Upper division nursing credits taken more than five years before readmission will be evaluated for applicability to the student's new program of study.

## R.N. Licensure

A current New York Registered Nurse license is required for registration for the clinical nursing courses NUR 324, NUR 444, and NUR 474.

## Health

All students must meet the health requirements of the nursing program and health agencies. Each student must be able to perform a full range of clinical activities. Satisfactory health clearance must be complete and on file in the School of Nursing prior to participating in each of the clinical courses (NUR 324, NUR 444, and NUR 474). Health forms will require students to be free from physical or mental impairments, including habituation or addiction to depressants, stimulants, narcotics, alcohol, or other behavior-altering substances which might interfere with the performance of their duties or would impose a potential risk to patients or personnel.

## Transportation, Uniforms and Equipment

All students must provide their own transportation for laboratories, field trips, and community health assignments. They must also provide their own uniforms and equipment required for laboratories and clinical assignments. Professional attire and roles will be specified for each clinical course by the clinical professor in collaboration with agency supervisors.

## Graduation Requirements

The candidate for the Bachelor of Science degree with a major in nursing must have met the following requirements:

1. Completion of a minimum of 124 semester hours (62 arts and sciences semester hours required for the B.S. degree).
2. Satisfaction of general education distribution requirements as well as the nursing curriculum requirements.
3. Maintenance of a cumulative average of no less than 2.0 for all courses attempted, and a minimum grade of "C" in each nursing course.

## Sigma Theta Tau International

Sigma Theta Tau International is the National Honor Society of Nursing. The School of Nursing's Iota Delta Chapter includes in its membership students, alumni, faculty, and community leaders in nursing. The purposes of this society are to recognize superior achievement and the development of leadership qualities, to foster high professional standards, to encourage creative work, and to strengthen commitment to the ideals and purposes of the profession. Eligibility is determined by scholastic achievement, evidence of professional potential, and/or marked achievement in the field of nursing.

## Degree Requirements

To earn a Bachelor of Science (B.S.) degree in nursing, a student must fulfill the following requirements:

### Program of Study

#### Required Nursing Courses

NUR 313	Theoretical Bases for Professional Nursing Practice	4
NUR 314	Comprehensive Health Assessment	4
NUR 324	Contemporary Nursing Practice	2
	Prerequisites: NUR 313, NUR 314, BIO 350, current NY RN license, current CPR certification, complete health clearance on file	
	Pre/corequisites: Cultural Anthropology, Developmental Psychology	
NUR 325	Epidemiology in Nursing	2
NUR 344	Ethical Issues in Nursing	2
NUR 444	Nursing Leadership	4
	Prerequisite: NUR 313, current NY RN license, current CPR certification, complete health clearance on file	
NUR 455	Community Health Organization	4
	Prerequisites: NUR 313, NUR 325	
NUR 474	Community Health Nursing	4
	Prerequisites: NUR 324, NUR 455, current NY RN license, current CPR certification, complete health clearance on file	
	Pre/corequisite: Sociology elective	
NUR 480	Special Topics in Nursing	2
NUR 493	Nursing Research Seminar	4
	(at the end of NUR 493, student must be within 8 credits of degree completion)	

#### Required Arts and Sciences Courses

Written Communication *†	3-4
Introductory Psychology *†	3-4
Introductory Sociology *†	3-4
Anatomy & Physiology *†	6-8
Microbiology *†	3-4
Advanced Physiology (BIO 350)	3-4
	(required as a prerequisite for NUR 324)
Mathematics/Statistics/Computer Science†	3-4
Developmental Psychology	3-4
	(required as a pre/corequisite for NUR 324)
Cultural Anthropology	3-4
	(required as a pre/corequisite for NUR 324)
Upper Division Writing Course	3-4
	(must pass within first 32 semester hours after matriculation at the college)
Sociology elective	3-4
	(required as a pre/corequisite for NUR 474)
Humanities elective **†	6-8
Arts and Sciences electives	as needed

A minimum of 28 upper division semester hours in arts and sciences must be taken to meet degree requirements.

\* These courses required prior to entry into the School of Nursing.

\*\* Written communication and technical writing courses do not fulfill this requirement.

† Satisfies general education requirements.

### Sample Nursing Curriculum Model for Full-Time Study

<b>Semester 1</b>	<b>Credits</b>	<b>Semester 2</b>	<b>Credits</b>
NUR 313	4	NUR 324‡	2
NUR 314‡	4	NUR 325	2
Advanced Physiology	4	NUR 344	2
Cultural Anthropology	4	NUR 480	2
		Developmental Psychology (Spring Semester Only)	4
		Upper Division Writing Course	4
<b>Semester 3</b>	<b>Credits</b>	<b>Semester 4</b>	<b>Credits</b>
NUR 444‡	4	NUR 474‡	4
NUR 455	4	NUR 493	4
Math/Statistics/Computer Science	4	Arts and Sciences Elective	4
Sociology Elective	4	Humanities	4

### Sample Nursing Curriculum Model for Part-Time Study

<b>Semester 1</b>	<b>Credits</b>	<b>Semester 2</b>	<b>Credits</b>
NUR 313	4	NUR 314‡	4
Advanced Physiology	4	Developmental Psychology (Spring Semester Only)	4
<b>Semester 3</b>	<b>Credits</b>	<b>Semester 4</b>	<b>Credits</b>
NUR 344	2	NUR 324‡	2
NUR 480	2	NUR 325	2
Cultural Anthropology	4	Upper Division Writing Course	4
<b>Semester 5</b>	<b>Credits</b>	<b>Semester 6</b>	<b>Credits</b>
NUR 444‡	4	NUR 455	4
Math/Statistics/Computer Science	4	Sociology Elective	4
<b>Semester 7</b>	<b>Credits</b>	<b>Semester 8</b>	<b>Credits</b>
NUR 474‡	4	NUR 493	4
Arts and Sciences Elective	4	Humanities	4

‡ These courses have a laboratory or clinical component that is scheduled on a 2:1 clock hour ratio for every credit hour of work. This schedule provides the student an opportunity to apply theoretical and clinical skills in a practice setting. All other didactic courses are scheduled on a 1:1 ratio.

## Facilities

The nursing program makes use of new and modern facilities, laboratories, and equipment, giving students the opportunity to learn from current research and developments.

Laboratory equipment features an extensive learning library of audio-visual tapes and a complete health assessment lab with examination tables, full-scale anatomical models, and diagnostic instruments. Students also make use of the latest equipment available in the hospitals and health care facilities where they apply classroom theory to practical situations.

All students have access to the School of Nursing's computer laboratory and the college's computer mainframe.

# Photonics

Just as the invention of the transistor led to a revolution in electronic technology, the recent discovery of lasers, low-loss optical fibers, and semiconductor optical devices has sparked rapid growth in the application of optical technology to a wide variety of products and services. Consumers now encounter laser printers, CD players, infrared remote controls, and supermarket scanners on an almost daily basis. Fiber-optic cables carry phone conversations, computer data, and an explosion of entertainment services, turning the “information superhighway” from rhetoric to reality. In laboratories throughout the world, researchers work with high-speed photonic switching devices which use light to control light, promising faster and more powerful computing and communications systems in the years to come.

These and similar technological advances all have one thing in common: they use light rather than electricity as their primary means of transferring energy and information from point to point. Just as electricity depends on the flow of charged particles known as electrons through wires and circuits, so light can be viewed as resulting from the flow of particles called “photons”—whether through semiconductors, fibers or free-space. In analogy to the field of electronics, then, a unique new field has been created which studies light, its interactions with matter, and the myriad applications of optical technology. This is the field of photonics.

## The Program

The Institute of Technology is one of the first in the country to offer a Bachelor of Science (B.S.) degree in photonics. Because the field is new and highly interdisciplinary, the photonics program seeks to provide a broad base of theoretical and lab-based instruction in electronics, optics, and applied physics. The curriculum builds on a strong foundation of math and science to offer hands-on experiences with lenses, lasers, modulators, fiber optics, holography, optical communications, image processing, spectroscopy, and optical system design.

Graduates of the photonics program qualify for a wide range of employment opportunities both with established firms and with high-technology start-up companies that constitute much of the rapidly-expanding photonics industry. Past graduates have been employed, for example, testing large mirrors for space-based imaging applications, designing hardware for laser-beam analysis equipment, refining product design for fiber-optic cable connectors, and characterizing radiometric detectors. Many students have also chosen to pursue graduate study in electrical engineering, optics, and electro-optics.

Companies that have hired Institute of Technology Photonics graduates include 3M, IBM, Corning, Hughes-Danbury, E-Systems, Photon, Inc., Intecom, Photonics Research, Vixel Corp., E-Tek Dynamics, Instruments SA, Sonalysts, Inc., Rocky Mountain Instruments, SpecTran Specialty Optics, Infrared Components Corp., Siemens, Fostec, and many others. Graduate schools that have accepted our graduates include University of Rochester, Syracuse University, Stevens Institute of Technology, CREOL/Univ. of Central Florida, Brooklyn Polytechnic, and University of Dayton.

## Transfer Preparation

Because the photonics program’s core courses have a strongly sequential prerequisite structure and rely heavily on advanced mathematics tools, students preparing to transfer into the program should plan to fulfill as many of their math and science prerequisites as possible prior to arriving at the Institute of Technology. In particular, transfer students should have completed at least two semesters of calculus and two semesters of calculus-based physics before their first semester at the Institute. This will insure the possibility of completing the B.S. Photonics degree within two years of full-time study.

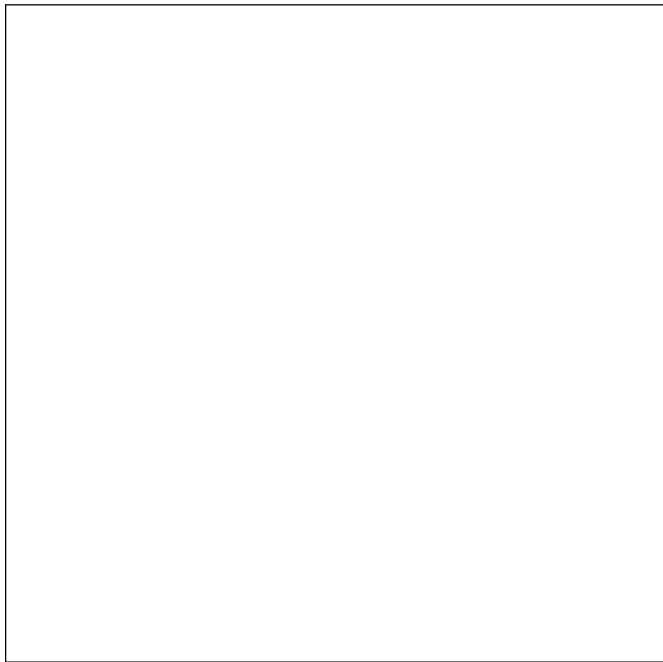
## Degree Requirements

To earn a Bachelor of Science (B.S.) degree in photonics, a student must complete a minimum of 128 credit hours and fulfill the following requirements:

<b>1. Arts and Sciences—62 credits</b>	
<b>A. Liberal Arts-18 credits</b>	<b>Minimum Credits</b>
Written Communication (including an upper division writing course)	6
Humanities* (Art/History/Music/Literature/Philosophy/ Foreign Language)	6
Behavioral/Social Science (Anthropology/Sociology/Psychology/ Economics/Political Science/Geography/ Social Science)	6
<b>Total Credits</b>	<b>18</b>
<hr/>	
<i>*Written communication and technical writing courses do not fulfill this requirement.</i>	
<b>B. Mathematics and Science—48 credits</b>	
Calculus I, II, III	12
Differential Equations	4
Linear Algebra	4
Series and Boundary-Value Problems	4
Calculus-Based Physics I & II	6
Chemistry/Materials Science	4
Geometrical Optics	3
Physical Optics	3
Electromagnetism	4
Quantum Mechanics	4
<b>Total Credits</b>	<b>48</b>
<b>2. Technical Coursework—45 credits</b>	
<i>Electronics Core</i>	
Foundations Electives†	8
Restricted Electives†	8
<i>Computer Science</i>	
Structured Programming Language†	3
<i>Photonics Core</i>	
Fiber Optics (w/lab)	4
Lightwave Propagation	3
Optoelectronic Properties of Solids	3
Laser Physics & Applications	4
Optoelectronic Devices (w/lab)	4
Senior Level Electives†	8
<b>Total Credits</b>	<b>45</b>
<b>3. Open Electives</b>	<b>Balance of 128</b>

**TOTAL CREDITS 128**

†See list of qualifying electives.



## Qualifying Elective Offerings

### Electronics Core—Foundations Credits

Select or transfer two courses from among:	
Electronics I (ETC 302)	4
Digital Systems (ETC 310)	4
Communication Transmission Techniques (ETC 316)	4

### Electronics Core—Restricted ETC Electives

Select 8 credits from among:	
Data and Computer Communication Technology (ETC 416)	4
VLSI Design Fundamentals (ETC 455)	4
Digital Image Processing and Vision (ETC 473) or Data Compression & Multimedia Technology (ETC 475)	4
Digital Filters (ETC 493)	4

### Computer Science

Select or transfer one course from among:	
Computer Systems and FORTRAN Programming (CSC 300)	4
Computer Systems and Pascal Programming (CSC 304)	4
Computer Systems and C/C++ Programming (CSC 317)	4

### Senior Level Photonics Electives

Complete 8 credits from among:	
Introduction to Fourier Optics (PHO 470)	3
Introduction to Optical Computing (PHO 472)	3
Practical Laser Technology (PHO 450)	2
Advanced Photonics Lab Techniques (PHO 451)	2
Introduction to Optical Design, Fabrication, and Testing (PHO 460)	4
Senior Project (PHO 480)	2-4
Optical Communications (PHO 483)	4
Independent Study (PHO 491)	2-4
Internship/Co-Op (PHO 494)	2-4

## Student Internships

Because of the strong research efforts and close ties with industry maintained by photonics faculty, the program is able to offer quality internship experiences to its students. These opportunities complement classroom instruction by offering hands-on experience in a “real world” environment. Past internship sponsors include Infrared Components Corporation, Terahertz Technologies, and the Rome Laboratory Photonics Center.

## Photonics Advisory Board

The photonics advisory board meets once each semester to review the program’s progress and development, insuring that the curriculum is continually updated to reflect the current needs of industry, government, and academic employers. Current members come from the Rome Lab Photonics Center, Kodak, Corning, AT&T Bell Labs, GE Corporate R&D Lab, LaserProbe, Inc., J.A. Optics, Adirondack Laser, Dove Electronics, and the Photonics Development Corporation, among others.

## Photonics Laboratories

The photonics program has three main laboratories available for student use: the fiber optics lab, the electro-optics/Fourier optics lab, and the photonic switching lab. Additional labs contain specialized equipment covering the areas of optical communications, image processing & computer vision, and holography. Students taking geometrical/physical optics and laser principles/systems also have access to the physics department’s laboratories supporting these courses. The main photonics labs contain the following equipment:

### Fiber Optics Lab

- Optical time-domain reflectometers
- Fusion splicers
- Connectorizing, cleaving, and polishing kits
- Coherent communication links

### Optoelectronic Devices Lab

- Electro-optic modulator system
- Acousto-optic modulator system
- Joint-transform Fourier correlator
- Scanning Fabry-Perot spectrum analyzer

### Photonic Switching Lab

- 10 watt CW argon:ion laser
- Q-switched, frequency-doubled YAG/YLF laser system
- CW Ti:Sapphire laser
- Mode-locked femtosecond Ti:Sapphire laser
- Femtosecond autocorrelator
- Diode array/spectrometer system
- Lock-in amplifier/chopper

### Smart Pixel Lab

- Self-Electro-Optic-Effect Device (SEED) characterization facility
- Custom-designed AT&T Bell Labs FET-SEED chips
- Diode laser driver/temperature controllers
- IR CCD cameras for alignment and device imaging
- PC w/IEEE-488 interface and LABVIEW software



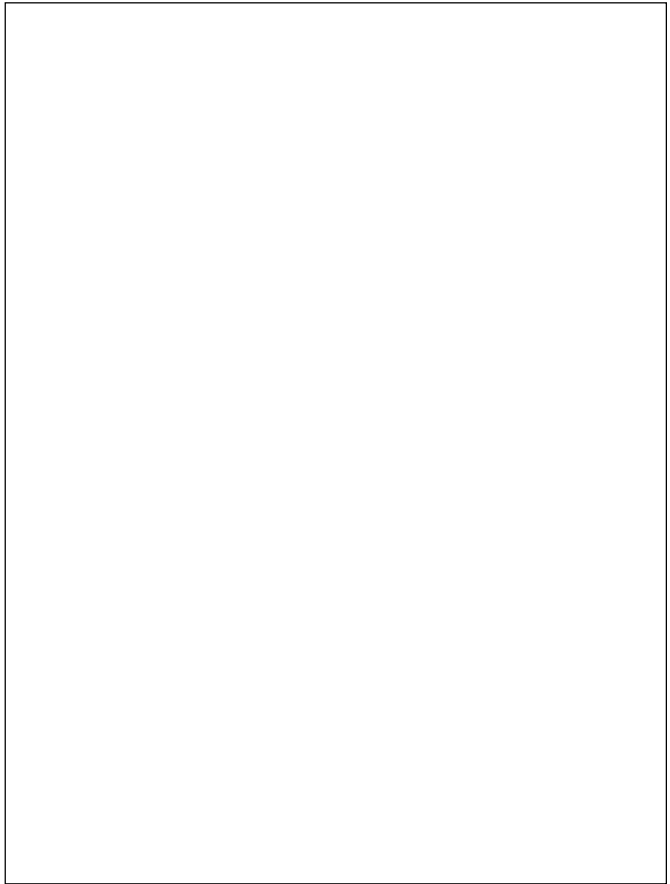
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# Pre-Law Option

The Institute of Technology believes that students obtain the best preparation for law school by enrolling in challenging academic programs that provide rigorous study. This belief is supported by the Law School Admissions Council (LSAC), which recommends that a specialized pre-law curriculum is neither advisable nor advantageous for students who wish to attend law school. The LSAC suggests that students pursue academic programs that lead to disciplined habits of study and that provide students with strong reasoning and communication skills. Because no one curriculum provides better preparation than any other, we encourage students to select a major based on their interests and aptitudes.

The Institute assists students who plan to attend law school through the pre-law advisory committee. Faculty and staff members from this committee work closely with students to counsel them on course selection and to assist in the law school application process. The Institute provides a resource library and other pertinent materials.

Students interested in attending law school after completing their baccalaureate degree studies should notify the Admissions Office at the time of their application so that specific information regarding preparation for law school at the Institute of Technology can be shared with them. Students are also encouraged to join the Pre-Law Club as soon as they begin studies at the Institute.



# Professional and Technical Communication

Professional and technical communication deals with all aspects of communicating technical, business, and scientific information to both professional and general audiences. To meet the need for qualified professionals in this area, the Institute of Technology offers a program that leads to a Bachelor of Science (B.S.) degree in professional and technical communication. The program stresses technical writing, editing, and oral communication skills. It provides practical, hands-on experience in such areas as Internet publishing, applied writing and speaking, editing, graphic arts, and document design.

Graduates from professional and technical communication have gone on to find employment in technical writing and editing, communication management, computer documentation, public relations, graphics, World Wide Web development, and document design. Students may also go on to graduate study in rhetoric and professional and technical communication.

## Writing Classrooms and Laboratories

The college uses a 24-workstation microcomputer writing classroom to support instruction in the writing program. The classroom is equipped with current microcomputers, a high-quality laser printer and has Web access.

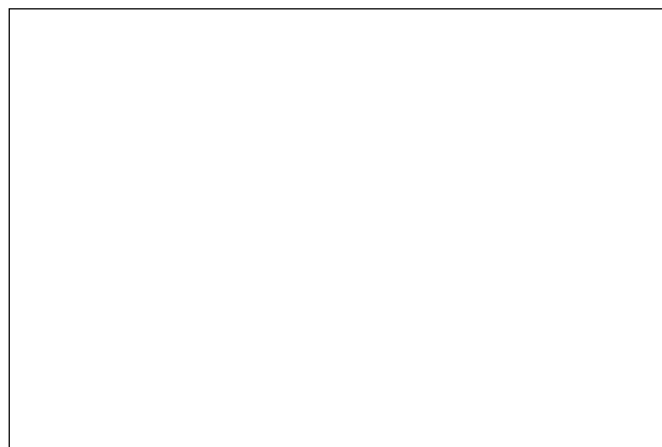
Additionally, to support advanced writing courses, the college has installed a 20-station multi-media classroom with Intel Pentium processors for teaching computer graphics and desktop publishing. The classroom has Web access, Pagemaker software, as well as drawing programs, on-line documentation and presentation software. The lab has black and white printers and color printers and a central file server.

## The Internship

The professional and technical communication internship affords students the opportunity to apply classroom knowledge to the practical work environment. An internship on students' records makes them stand out; it shows they have learned something and prepared themselves for work in the documentation field. An internship rounds out students' education.

Students work under the direction of lead writers or editors and while in the internship, students are exposed to the rigors of the career.

To qualify for an internship, seniors must have an overall cumulative average of at least a 2.0 and a 3.0 in the major.



## Degree Requirements

The general requirements for the B.S. degree in professional and technical communication ensure that students have a basic knowledge of mathematics, science, behavioral/social science, computer science, and liberal arts. The required professional and technical communication courses provide students with communication skills as well as theoretical background. The career and professional concentrations give students the expertise in a single field that an employer will expect. It also gives students a base of information to use in their communication classes. Throughout the communication courses, students will study various computer applications.

In COM 499, students build a portfolio of their work which is later reviewed by the faculty and advisory board members in mock job interviews. This portfolio can then be used in job interviews.

To earn a Bachelor of Science (B.S.) degree in professional and technical communication, a student must fulfill the following requirements (transfer credits usually fulfill half the degree requirements):

1. Satisfactory completion of at least 124 semester hours of college-level work distributed as follows:

A. General Education Requirements	30 credits
B. Program Requirements	52 credits
C. General Electives	<u>42 credits</u>
Total	124 credits
2. Satisfactory completion of at least 60 semester hours of upper division course work, at least 30 of which must be taken at the Institute of Technology.
3. Achievement of at least 2.00 cumulative quality point average in course work taken at the Institute of Technology.

### Group I - General Education Requirements (30 credits)

	Credits
A. Natural Science (Astronomy/Biology/Chemistry/Environmental Science/Physics - must include one laboratory course)	6
B. Written Communication	3
C. Social/Behavioral Sciences (Anthropology/Economics/Geography/Methods of Inquiry/Political Science/Science, Technology & Society/Psychology/Sociology)	6
D. Humanities* (Art/History/Music/Literature/Philosophy/Foreign Language)	9
E. Mathematics/Statistics/Computer Science	6

Group II - Program Requirements (52 credits)	Credits
Professional and Technical Communication	
Core Courses	26
COM 302 Advanced Oral Communication	
COM 306 Report Writing and Technical Communication	
COM 320 Principles of Design and Desktop Publishing	
COM 380 Communication Theory	
COM 406 Advanced Technical Communication	
COM 492 Internship in Technical Communication OR focused writing experience (COM 311, 341, 350, 353, 400)	
COM 499 Portfolio Review and Professional Development	

Note: A grade of C or higher is required in all of the core courses listed above.

*\*Written communication and technical writing courses do not fulfill this requirement.*

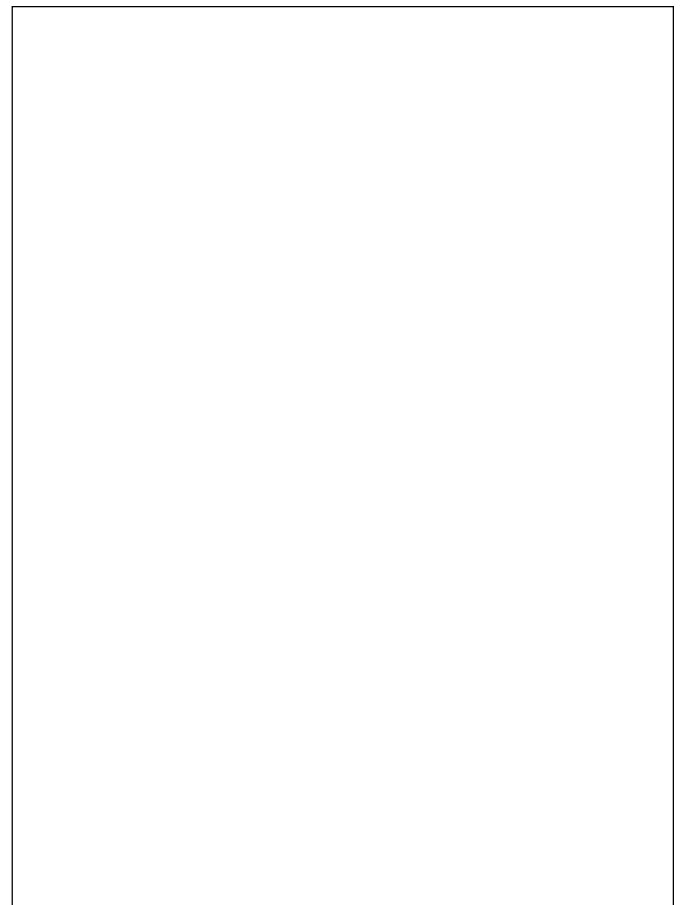
Career Concentrations	Credits
(1) Communication and Society	12
BUS 451 Business and Society	
COM 316 Media and Communication	
COM 410 Introduction to Communication Research Methods	
COM 411 Using the Internet for Research and Communication	
PHI 350 Technology and Ethics	
POS 435 American Politics and Communications Technology	
PSY 342 Social Psychology	
PSY 352 Industrial and Organizational Psychology	
PSY 390 Engineering Psychology and Human Performance	
PSY 425 Cognitive Psychology	
PSY 445 Group Dynamics and Interpersonal Psychology	
SOC 466 Worker Social Psychology	
(2) Professional Writing and Editing	
COM 310 Technical Editing	
COM 311 Public Relations Writing	
COM 341 Video and Communication	
COM 353 Newswriting	
COM 411 Using the Internet for Research and Communication	
COM 420 Principles of Information Design and Internet Publishing	
COM 491 Independent Study	
(3) Technical and Computer Documentation	
This option prepares specialists in technical and com- puter documentation.	
COM 350 Designing Online Information	
COM 360 Usability Testing	
COM 400 Computer Software Documentation	
COM 410 Introduction to Communication Research Methods	
COM 411 Using the Internet for Research and Communication	
COM 420 Principles of Information Design and Internet Publishing	
COM 491 Independent Study	

Professional Concentration	Credits
At least four courses from one of the following areas chosen in consultation with an advisor.	14
Accounting	
Business/Public Management	
Computer and Information Science	
Computer Information Systems	
Computer Technology	
Electrical Engineering Technology	
Health Information Management	
Health Services Management	
Industrial Engineering Technology	
Mechanical Engineering Technology	
Natural Science or Mathematics	
Nursing	
Photonics	
Psychology	
Sociology	
Telecommunications	

Group III - General Electives (42 credits)  
College-level courses in any discipline which carry Insti-  
tute of Technology or transferable credit. See (2) and (3)  
under Degree Requirements.

## Professional and Technical Communication Minor

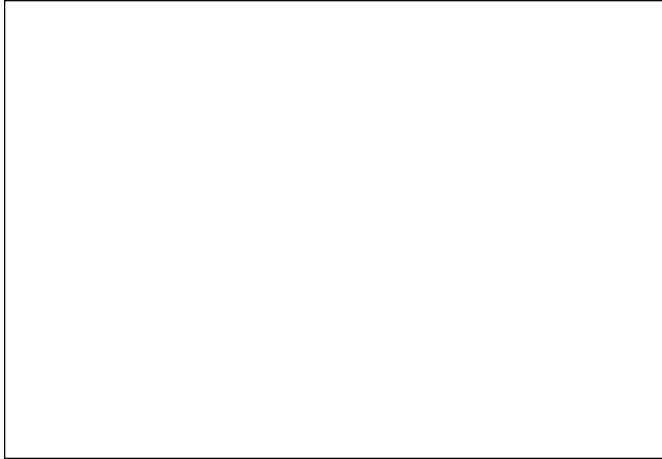
See academic minor section on page 85.



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# Psychology

The program in psychology leads to a Bachelor of Arts (B.A.) degree. Psychology is the scientific study of individual and group behavior. The psychology program stresses theoretical understanding of the principles of psychology, as well as practical applications to the solution of human problems. Graduates in psychology find employment in the areas of mental health, human services, social work, mental retardation, counseling, personnel administration, and business. They also go on to graduate study in psychology or allied fields.



## Psi Chi Honor Society

Psi Chi, the National Honor Society in Psychology, recognizes outstanding academic achievement and promotes active student involvement in the field of psychology. The Institute of Technology chapter of Psi Chi received its charter in 1984. A program in psychology must meet high standards in academic requirements and faculty qualifications in order to qualify for a Psi Chi charter. Students with outstanding academic records and demonstrated commitment to psychology are eligible for membership. The chapter sponsors a lecture series open to the Institute and the community.

## Psychology Laboratory

Since psychology is an empirical discipline, the psychology program has a laboratory to support its research courses. The psychology laboratory has ten experimental stations, each equipped with a desk-top computer to conduct experiments. The program also provides a laboratory with an observation room for clinical and social interaction courses. These laboratory facilities substantially enhance the quality of the psychology program and the scientific education of students enrolled in it.



## Degree Requirements

To earn a Bachelor of Arts (B.A.) degree in psychology, a student must fulfill the following requirements:

- Satisfactory completion of at least 124 semester hours of college-level work distributed as follows:
 

A. General Education Requirements	30-40 credits
B. Program Requirements	38-40 credits
C. General Electives	<u>44-56 credits</u>
Total	124 credits
- Satisfactory completion of at least 60 semester hours of upper division college work at least 30 of which must be taken at the Institute of Technology.
- No more than 30 semester hours in professional courses outside the arts and sciences.
- Achievement of at least 2.00 cumulative quality point average in coursework taken at the Institute of Technology.
- A grade of "C" or higher required in all core courses (PSY 305, 310, 385, 493) and statistics for degree in psychology.

### Group I—General Education Requirements (33-44 credits)

- |   | Credits |
|---|---------|
| A. Natural Science (Astronomy/Biology/Chemistry/Environmental Science/Physics—must include one laboratory course) | 6-8     |
| B. Written Communication (upper division course)  | 3-4     |
| C. Economics/Geography/Political Science/Methods of Inquiry; Science, Technology & Society                        | 6-8     |
| D. Anthropology/Sociology   | 3-4     |
| E. Humanities* (Art/History/Music/Literature/Philosophy/Foreign Language)   | 9-12    |
| F. Mathematics/Statistics/Computer Science (must include STA 300 or equivalent)                                   | 6-8     |

### Group II—Program Requirements (40 credits)

- |  |   |
|--|---|
| A. Foundations of Psychology                       | 4 |
| B. Intermediate Courses                            | 8 |
| Chosen from the following (or equivalent):         |   |
| PSY 315 Lifespan Developmental Psychology          |   |
| PSY 322 Abnormal Psychology                        |   |
| PSY 325 Psychology of Gender                       |   |
| PSY 331 Psychology of Personality                  |   |
| PSY 342 Social Psychology                          |   |
| PSY 352 Industrial and Organizational Psychology   |   |
| PSY 360 Perception                                 |   |
| PSY 362 Learning and Motivation                    |   |
| PSY 364 Psychology of Aging                        |   |
| PSY 373 Dying Death & Bereavement                  |   |
| PSY 377 Health Psychology                          |   |
| PSY 390 Engineering Psychology & Human Performance |   |

- |  |    |
|--|----|
| C. Advanced Courses                                    | 12 |
| Chosen from the following:                             |    |
| PSY 415 Psychology of Aggression & Non-Violence        |    |
| PSY 425 Cognitive Psychology                           |    |
| PSY 444 Applied Social Psychology                      |    |
| PSY 445 Group Dynamics and Interpersonal Communication |    |
| PSY 460 Neuropsychology                                |    |
| PSY 470 Psychological Testing                          |    |
| PSY 477 Principles of Psychological Counseling         |    |

- |  |    |
|--|----|
| D. Core Courses  | 16 |
| Psychology majors must complete the following core courses.              |    |
| Courses are ordinarily taken in successive semesters in the order shown: |    |
| PSY 305 History and Systems of Psychology                                |    |
| PSY 310 Research Methods in Psychology                                   |    |
| PSY 385 Evaluation Research  |    |
| PSY 493 Senior Seminar in Psychology                                     |    |

### Group III—General Electives (40-51 credits)

College-level courses in any discipline which carry Institute of Technology or transferable credit. See (2) and (3) under Degree Requirements for the psychology program.

\* *Written communication and technical writing courses do not fulfill this requirement.*

## Psychology Minor

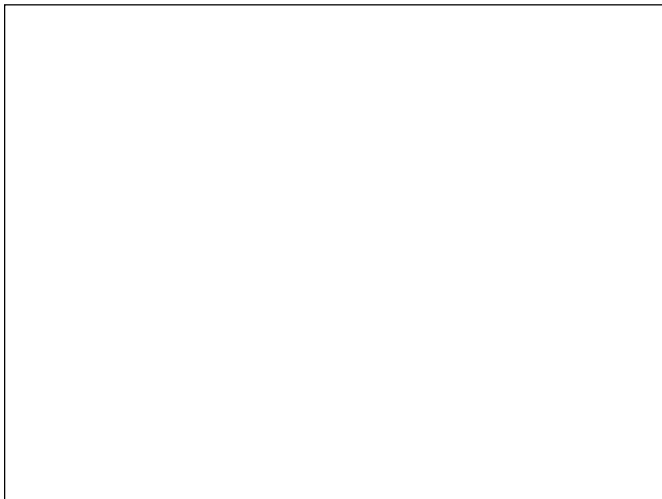
See academic minor section on page 85.

# Sociology

The college offers a curriculum in sociology and anthropology which leads to a Bachelor of Arts (B.A.) degree in sociology for majors and serves the general education needs of other students and services the needs of other programs. Courses explore the general social forces and cultural forms which shape human events as well as the application of social and cultural perspectives in two specialization areas primarily: criminology and social service. Course offerings reflect these emphases.

After introductory work (Tier I courses, often completed before enrolling at the Institute of Technology), survey courses in various areas (Tier II) lead to more advanced courses (Tier III). In addition to work in one or more specialization areas, students can usually supplement their work with Tier II courses in areas where we do not have a concentration, or with courses in other arts and sciences or professional disciplines.

Primary candidates for the major are: 1) students holding Associate of Applied Science (A.A.S.) degrees in a field like human services, industrial relations or criminal justice, who wish to broaden their theoretical perspective and increase career mobility; 2) students holding Associate of Arts (A.A.) degrees who wish to have a background in applied sociology or anthropology before entering graduate school or seeking employment, especially in the criminal justice or social service area; 3) students currently working who desire a broader-based education than that available in a professional program, and 4) students seeking dual majors combining professional study with a degree in social science.



## Degree Requirements

1. Satisfactory completion of at least 124 semester hours of college-level work.
2. Satisfactory completion of at least 60 semester hours of upper-division college work, at least 30 of which must be taken at the Institute of Technology.
3. No more than 30 semester hours of professional courses outside the arts and sciences.
4. Achievement of at least 2.00 cumulative grade point average in all coursework taken at the Institute of Technology.

### *Group I—General Education Requirements— (minimum 30 credits)*

	<i>Credits</i>
A. Natural Science (Astronomy/Biology/Chemistry/ Environmental Science/Physics— must include one laboratory course)	6
B. Written Communication (upper division course)	3
C. Methods of Inquiry (SSC 362) and one course from ECO/GOG/POS/STS	6
D. Humanities* (Art/History/Music/Literature/ Philosophy/Foreign Language)	9
E. Mathematics/Statistics/Computer Science (must include STA 300 or equivalent)	6
F. An introductory psychology course	3

### *Group II—Specific Sociology Degree Requirements*

1. Completion of at least nine courses in sociology or anthropology, at least seven of which must be completed at the Institute of Technology.
2. Completion of SOC 310, History of Sociological Theory; ANT 321, Distinction; SOC 493, Senior Seminar in Methods of Applied Sociology, and at least three additional 400-level courses in Sociology or Anthropology.
3. Completion of a Tier I course is a prerequisite to enrollment in a Tier II course, and completion of an appropriate Tier II course is often a prerequisite for enrollment in Tier III courses.

#### *Tier I*

- SOC 300— Social Problems
- ANT 301— General Anthropology
- Or any introductory sociology or anthropology course

#### *Tier II*

- A. *Courses which are requirements for later courses:*
  - ANT 320— Social Policy (for Social Services)
  - ANT 321— Distinction: Race, Class & Gender
  - SOC 314— Sociology of Deviance (for Criminology)
  - SOC 351— Sociology of Crime (for Criminology)
  - SOC 310— History of Sociological Theory (for Senior Seminar)



**B. Other courses:**

- ANT 322— Displaced Peoples
- ANT 332— Pre-Columbian Urban Centers
- ANT 371— People and Systems
- ANT 382— Cultures, Health and Healing
- ANT 391— Topics in Anthropology
- SOC 322— Sociology of the Family
- SOC 350— Chemical Dependencies and Human Behavior
- SOC 360— Sociology of Work
- SOC 381— Social Gerontology
- SOC 391— Topics in Sociology

**Tier III**

**A. Criminology courses:**

- SOC 450— Sociology of Corrections
- SOC 452— White Collar Crime
- SOC 455— Sociology of Law and the Courts

**B. Social Services courses:**

- SOC 411— Sociology of Community
- SOC 424— Social Welfare Policy
- SOC 446— The Individual and Society

**C. Other courses:**

- ANT 460— Ethnography
- ANT 491— Independent Study
- SOC 465— Sociology of Occupations and Professions
- SOC 466— Worker Social Psychology
- SOC 491— Independent Study
- SOC 493— Senior Seminar in Methods of Applied Sociology
- SOC 495— Practicum in Sociology

## Sample Programs

The following sample programs are offered as a guide to prospective students. They assume the completion of 60 credits of lower-division work, not more than 30 of which have been in professional as opposed to arts and sciences courses. They also assume that the Tier I requirement (sociology or anthropology) has already been met.

### Sample Program One: Social Service/Policy

- Fall, first year:* social policy, history of sociological theory, distinction, and COM 308.
- Spring, first year:* social welfare policy, chemical dependency, principles of psychological counseling, methods of inquiry
- Fall, second year:* cultures, health and healing, individual and society, political science elective, statistics
- Spring, second year:* senior seminar in methods of applied sociology, community, science requirement, humanities elective

### Sample Program Two: Criminology

- Fall, first year:* sociology of crime, history of sociological theory, distinction, COM 308
- Spring, first year:* sociology of law and the courts, sociology of deviance, methods of inquiry, state and local government
- Fall, second year:* chemical dependency, principles of counseling, statistics, white collar crime
- Spring, second year:* senior seminar in methods of applied sociology, sociology of corrections, social policy, humanities elective

### Sample Program Three: Applications

- Fall, first year:* sociology of work, history of sociological theory, COM 308 and distinction
- Spring, first year:* occupations & professions, issues in business and society, social policy, methods of inquiry
- Fall, second year:* white collar crime, chemical dependency, industrial & organizational psychology, statistics
- Spring, second year:* worker social psychology, senior seminar in methods of applied sociology, social policy, humanities elective

## Sociology Minor

See academic minor section on page 86.

\* Written communication and technical writing courses do not fulfill this requirement.

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# Telecommunications

Telecommunications includes a broad range of advanced voice, data, and multi-media technologies which in turn require professionals to design, operate, and maintain public and private networks in a very competitive environment. The global telecommunications industry is currently valued at more than \$1 trillion per year. There is a constant demand for well-trained practitioners of telecommunications; it is a field rich in career opportunities. Several types of professional careers are available. These include telecommunications network operations, telecommunications systems management, public policy, consulting, research and development, vendor marketing and sales, and technical support.

## The Program

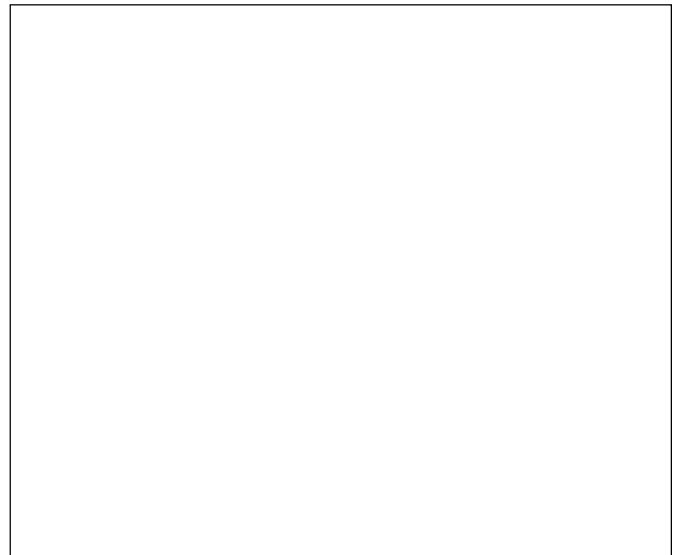
The bachelor of science degree in telecommunications develops a working knowledge of the history and methodology of the field, as well as an awareness of current issues and policies along with an understanding of the technology and the applications of telecommunications as found in this fast paced industry.

The telecommunications program at SUNY Utica/Rome is truly interdisciplinary in nature. Through courses covering the many aspects of this dynamic field, students will focus on the relationship of today's emerging technologies and the needs of a society driven by information. Students will examine the many areas of telecommunications: products and services, vendor selection, voice/data/video integration, network design, network architectures and system management, corporate telecommunications policies, global trade issues, and the Internet.

## Placement

Graduates of the college's telecommunications program have obtained rewarding careers in the field. In the latest survey taken, including the first class through 1996, over 95% of the graduates were currently employed full-time in the field.

Some of the companies that have employed SUNY Institute of Technology telecommunications graduates are General Electric, NYNEX, AT&T, Citizens Telecom, Northern Telecom, UPS, CISCO Systems, IBM, U.S. Department of the Treasury, Rochester Telephone Co./Frontier Information Technologies, MCI, Texaco Corp., GTE, Sprint, Synoptics, New Bridge Corp., Racal-Data, Cigna, SUNY, Westinghouse Communications, Fleet Services, EDS, Advantis, Performance Systems, Inc., Goldman, Sachs & Co., Compaq Computers, Microsoft and many other organizations.



## Student Internships

The telecommunications department strongly encourages its majors to apply their knowledge and skills in the field by participating in the summer internship program. Completed between the junior and senior year, the internship is designed to accomplish three objectives: students can apply and hone their skills and knowledge in a "real world" environment; they can develop and refine their awareness of the career opportunities available; and they can build on various experiences in telecommunications that give them an added edge in the job market after graduation. To date, the internship program has been overwhelmingly successful with approximately 50% of the eligible students participating each summer. Internship sponsors have included NYNEX, AT&T, MCI, GE, United Parcel Service, IBM, SUNY, Frontier Corp., Nortel, Fleet Services, and many other organizations.

## Student Organizations

- Telecommunications Club
- International Communications Association (ICA)
- Institute for Electrical/Electronic Engineers (IEEE)
- Society of Woman Engineers (SWE)



## B.S. Degree Requirements

To earn a Bachelor of Science (B.S.) degree in telecommunications, a student must complete a minimum of 124 credit hours and fulfill the following requirements:

<b>I. Liberal Arts and Sciences-60 credits</b>	<i>Min. Credits</i>	
<b>A. English/Humanities</b>		
Technical Writing (COM 306)		3
Oral Communication (COM 300)		3
Humanities (HIS/PHI)		6
Behavioral Sciences (ANT/PSY/SOC)		3
Economics (ECO 310)		3
Liberal Arts Electives		12
<b>B. Mathematics and Science</b>		
Physics I and Physics II (PHY 313/314)		8
Calculus (MAT 312 or MAT 321 )		3
Statistics (STA 300 or STA 325)		3
Math/Science Electives		3
<b>C. Computer Science</b>		
UNIX Programming Environment (CSC 307)		2
Introduction to C-Programming (CSC 317)		3
Computer Science Electives (CSC 311, CSC 351)		8
<b>II. Professional Coursework-46 Credits</b>		
<b>A. Telecommunications Core Courses-11 credits</b>		
TEL 300—Introduction to Telecommunications		3
TEL 301—Basic Voice Communications		4
TEL 305—Basic Data Communications		4
<b>B. Telecommunications Technical Electives-12 credits from the following:</b>		
TEL 307—ATM and Broadband Networks		12
TEL 310—Telecommunications Transmission Technology		
TEL 315—Voice Network Design		
TEL 316—Data Network Design		
TEL 340—Network Standards & Protocols		
TEL 400—Wireless Telecommunications		
TEL 410—Telecommunications of Still and Moving Images		
TEL 416—Digital Telephone Switching Systems		
TEL 430—Local Area Networks		
TEL 450—Integrated Network Systems Management		
TEL 494—Telecommunications Internship/Co-Op		
<b>C. Telecommunications Management/Policy-8 credits from the following</b>		
TEL 330—International Telecommunications		8
TEL 420—Telecommunications System Analysis and Project Management		
<b>D. TEL 491—Independent Study</b>		
<b>E. Business/Public Management - 11 credits</b>		
Financial Management Principles (FIN 302)		4
Accounting (ACC 301)		4
Business Elective Coursework (e.g., ACC, BUS, MKT, MGT)		3
<b>F. Electrical Engineering Technology - 4 credits</b>		
Fiber Optics (ETC 391, 4 cr.)		4
or		
Photonics (PHO 300, 2 cr.) and Satellite Communications (ETC 419, 2 cr.)		
<b>III. OPEN ELECTIVES</b> -Balance of 124 credits		18
<i>Total credits</i>		124

## Telecommunications Institute

The major purpose of the Telecommunications Institute, situated within the department, is to develop and extend research and training in the industry. The Institute was established through the joint efforts of the college and industry.

The Telecommunications Institute focuses on providing both training and information to professionals in the field of telecommunications. Seminars deal with a wide variety of topics in telecommunications, including equipment, voice/data networks, system management, and cabling/wiring technology. These sessions may incorporate teleconferencing and other distance learning techniques, as well as equipment demonstrations. The Institute also draws on the college's extensive telecommunications laboratories and its integrated voice and data network to enhance its educational pursuits outside the classroom.

## Telecommunications Advisory Board

The advisory board, comprising 30 to 35 industry executives that include users, vendors, consultants, academicians, and policy makers, meets on a regular basis to shape the program's continued growth and development. These members give their time and effort to keep the college's program on the leading edge of this fast-paced industry.

Current members of the advisory board come from many influential companies and organizations such as CIGNA, CONCERT, COMPAQ, NORTEL, Lucent Technologies, International Communications Association, GTE Government Services, Fleet Services, New York State Telephone Association, MCI Telecommunications Corporation, Electronic Data Systems, NYNEX, Advantis, Frontier Corporation, Time Warner, Rome Laboratory, Compaq Computers, and Travelers Group.

## Telecommunications Laboratories

The telecommunications department maintains three “hands-on” labs for student and faculty experimentation. These include a digital telephone switching and transmission lab, a data communications lab, and a LAN lab that is used expressly for educational purposes. An extensive listing of laboratory equipment follows:

- The Northern Telecom Meridian-1 digital PBX system. The SL-1 is configured using an assortment of terminal equipment commonly found in the field.
- A TIE Data/Star Hybrid PBX installed in the Telecommunications Laboratory for student use.
- A Teletraffic Generator, and a Class 5 Digital Central Office Switch donated by Redcom Laboratories for student use.
- A network diagnostic controller and a wide assortment of data communications equipment donated by Racal Data, including T-1 multiplexers
- Advanced Data Network Design software package used in the data network design course.
- Modular Interactive Network Designer.
- Fiber Optic Line multiplexers and channel banks donated by NEC America.
- A DMS-10 Single Bay Digital Central Office fully configured to recreate field specifications, donated by Northern Telecom.
- DMS Urban Digital Loop Carrier System donated by Northern Telecom.
- Centramax Turret Trading System donated by Marine Midland Bank N.A., Wall Street Trading Office.
- Digital Access and Cross Connect (DACS) system donated by MCI Telecommunications.
- Protocol analyzer and line monitor and ISDN Analyzer donated by Progressive Computers, Inc.
- DSX-1 Panel used in conjunction with the DACS switch donated by ADC communications.
- Modular Norstar Digital Key System donated by Witel Communications.
- A Wiring and Cabling Showcase donated by ANIXTER Communications.
- Network Resource Planning Design Software Program donated by Racal Data, Inc.
- Digital Channel Service Units and Analog Patch Bay donated by NYNEX Information Solutions Group and SUNY Central.
- AT&T Definity G3 donated by Lucent Technologies.

In addition, students taking electrical courses in fiber optics and satellite communications have access to the engineering technology lab facilities.

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# Academic Minors

A student at the Institute of Technology has the opportunity to enrich his or her education by obtaining an academic minor in an area of study different from the area of the academic major. The Institute of Technology offers minors in accounting; anthropology; computer and information science; computer information systems; economics; health services management; manufacturing/quality assurance technology; mathematics; physics; professional and technical communication; psychology; science, technology & society; and sociology, to complement major programs of study in business, the technologies, and other disciplines. These minors enable a student to pursue in-depth education in a second discipline that supports and enhances the primary field of study.

## Accounting Minor

The accounting program offers a minor for students in majors other than accounting. The accounting minor fits into the curricula of the institution by providing students with the opportunity to acquire knowledge in an important professional discipline that can complement their major. The minor adds value to a degree because all organizations maintain accounting systems and require that their employees understand the financial implications of tactical and strategic decisions. In an increasingly competitive job market, accounting knowledge can play a consequential role in satisfying the needs of employers.

### Program Description

**Minimum Total Credit Hours: 18\***

\* A student must earn at least a C in every accounting course applied to the minor and at least 10 credits must be taken at the SUNY Institute of Technology.

**NOTE:** "Petition For An Academic Minor" forms are available at the School of Business office. Any changes to the following course requirements must be approved through an Academic Petition Form.

### Course Requirements

ACC 301 Financial Accounting Theory  
ACC 385 Intermediate Accounting I  
ACC 310 Income Tax I  
ACC 305 Managerial Accounting Problems OR  
ACC 370 Cost Accounting

### At Least 1 Elective From List:

ACC 311 Income Tax II  
ACC 320 Fund Accounting  
ACC 386 Intermediate Accounting II  
ACC 430 Accounting Controls, Not-For-Profit Organizations  
ACC 471 Advanced Management Accounting  
ACC 491 Independent Study

### Prerequisite Education

No prerequisites are required for a minor in accounting.

## Anthropology Minor

The sociology-anthropology program offers a minor in anthropology. The minor is of value to students who wish to integrate interests in a wide range of humanist concerns with the cross-cultural perspective and analytic framework provided by anthropology.

Total credit hours required for minor: 17

A student desiring a minor in anthropology must register with the program and take a minimum of 17 credits of anthropology courses, at least 8 of which must be taken at the Institute of Technology. The first course should be ANT 301 or an introductory anthropology course. To promote coherence, additional courses must be selected in consultation with an anthropology advisor.

ANT 301 - General Anthropology or Equivalent

### Additional Courses:

ANT 320 - Social Policy  
ANT 321 - Distinction: Race, Class and Gender  
ANT 331 - Displaced Peoples: Diasporic Communities in the Modern World  
ANT 371 - People and Systems: Cultural Perspectives on Information Practice  
ANT 382 - Cultures, Health and Healing  
ANT 391 - Selected Topics in Anthropology  
ANT 460 - Ethnography  
ANT 491 - Independent Study (Variable 1-4)

## Computer and Information Science Minor

The minor in computer and information science would be valuable for students in all technical disciplines and also for students in social sciences. The importance of computer information systems is increasing in all organizations and businesses. Changing hardware and software continue to permeate research laboratories and offices throughout the world. In an increasingly competitive job market, a general understanding of computer science can play a significant role in satisfying conditions for employment.

Total credit hours required for minor: 20

- A. Required Core Courses (12 Credits)  
CSC 308 - Programming Foundations  
MAT 313 - Finite Mathematics for Computer Science  
CSC 340 - Data Structures
- B. Advanced Courses (at least 8 Credits)  
CSC 345 - Logic Design  
CSC 350 - Database Management Systems  
CSC 355 - Software Engineering  
CSC 357 - Laboratory for Software Engineering  
CSC 377 - Introduction to Theory of Computing  
CSC 415 - Structure and Interpretation of Programs  
CSC 420 - Numerical Computing  
CSC 421 - Computational Linear Algebra  
CSC 430 - Operating Systems  
CSC 431 - Principles of Programming Languages  
CSC 441 - Computer Systems Architecture  
CSC 445 - UNIX Network Programming  
CSC 446 - Local Area Network Architecture  
CSC 450 - Computer Graphics  
CSC 454 - System Simulation  
CSC 477 - Algorithms  
CSC 480 - Compiler Design  
CSC 485 - Logic Programming  
CSC 487 - Object-Oriented Systems  
CSC 488 - Data Engineering  
CSC 495 - Introduction to Artificial Intelligence

Specific selections of courses must be worked out with the computer science faculty. No more than eight credits may be applied to both the CS and CIS minors. At least 12 credits must be taken in residence at the SUNY Institute of Technology. A maximum of two courses, taken at other institutions, may be applied to the minor.

## Computer Information Systems Minor

The minor in computer information systems would be valuable for students in all technical disciplines and also for students in management, social sciences and mathematics. The importance of computer information systems is increasing in all organizations and businesses. Changing hardware and software continue to permeate research laboratories and offices throughout the world. In an increasingly competitive job market, a general understanding of computer information systems can play a significant role in satisfying conditions for employment.

Total credit hours required for minor: 20

- A. Required Courses (12 Credits)
- CSC 308 - Programming Foundations
  - MAT 313 - Finite Mathematics for Computer Science
  - CSC 340 - Data Structures
- B. Advanced Courses (at least 8 Credits)
- CSC 350 - Database Management Systems
  - CSC 351 - Web Development and Internet Programming
  - CSC 353 - Fourth Generation Systems & Prototyping
  - CSC 354 - Office Automation
  - CSC 355 - Software Engineering
  - CSC 357 - Laboratory for Software Engineering
  - CSC 360 - Decision Support Systems
  - CSC 361 - Information Services Management
  - CSC 407 - UNIX System Administration
  - CSC 409 - Software Project Management
  - CSC 430 - Operating Systems
  - CSC 460 - Business Systems Analysis I
  - CSC 461 - Business Systems Analysis II
  - CSC 465 - Techniques of Systems Analysis
  - CSC 488 - Data Engineering

Specific selections of courses must be worked out with the computer science faculty. No more than eight credits may be applied to both the CS and CIS minors. At least 12 credits must be taken in residence at the SUNY Institute of Technology. A maximum of two courses, taken at other institutions, may be applied to the minor.

## Economics Minor

The minor in economics provides valuable preparation for students pursuing careers in most fields, ranging from accounting, finance, and marketing to law, telecommunications, and many positions in government.

Total credit hours required for minor: minimum of 17

- A. Required Courses:
- ECO 310 - Theory of Price
  - ECO 312 - Theory of National Income and Employment
- B. Electives (three courses):
- ECO 330 - Economics of Aging
  - ECO 420 - Public Finance
  - ECO 425 - Economics of the Environment
  - ECO 440 - Labor Economics
  - ECO 450 - Money and Banking
  - ECO 460 - International Economics

It is expected that the student may transfer some of these courses from other institutions, and in some cases, transferred courses may carry 3 credits instead of 4. However, at least 8 credits making up the requirements for the minor must be taken at the Institute of Technology.

## Health Services Management Minor

The health services management program offers a minor for students in other disciplines. The minor is intended to provide the student with substantial background to this complex and increasingly significant field. Depending on the student's major, the minor in health services management may be of benefit in seeking work or enabling them to address health care issues in their current or future employment.

<i>Course Requirements</i>	<i>Credits</i>
HSM 300 - Introduction to Quantitative Methods in HSM	3
HSM 301 - Health Care Delivery in the U.S.	3
HSM 309 - Health Care in the Law	4
ECO 405 - Economics of Health Care	3
HSM 411 - Management for the Health Professions (Prerequisite: MGT 305 or equivalent)	3
HSM 435 - Accounting for Not-for-Profit Organizations (Prerequisite: ACC 301 or equivalent)	3
HSM 436 - Accounting for Not-for-Profit Organizations Case Study (Prerequisite: Enrolled in or previously taken HSM 435)	1

*Total Credits Required* 20

## Manufacturing/Quality Assurance Technology Minor

For American industry to remain competitive in a global economy, increasing attention needs to be given to issues of quality control. The purpose of the minor is to round out the student's background by providing exposure to the latest techniques in manufacturing and quality assurance technology. When combined with majors such as mechanical or electrical engineering technology, telecommunications, computer science or business, the minor in manufacturing/quality assurance technology should enhance the student's prospect for employment.

Total credit hours required for minor: 20

- A. Required Courses (8 Credits)
- ITC 411 - Manufacturing Cost Estimation
  - ITC 373 - Statistical Quality Control
- B. Advanced Courses (at least 12 Credits)
- ITC 390 - ISO9000 and Total Quality Assurance
  - ITC 391 - ISO14000 Auditing and Implementation
  - ITC 483 - Quality Improvement
  - ITC 484 - Advanced Topics in Statistical Process Control
  - ITC 485 - Concurrent Engineering and Design for Manufacturing
  - ITC 486 - Reliability for Design and Production

Specific selections of courses must be worked out with the industrial engineering technology faculty. At least 12 credits must be taken in residence at the SUNY Institute of Technology. A maximum of two courses taken at other institutions may be applied to the minor.

## Mathematics Minor

The minor in mathematics is valuable for students who wish to pursue studies in mathematics, computer science, physics or engineering or who wish to be more competitive in the job market.

Total credit hours required for minor: 20

A.	Required Courses	Credits
	MAT 321 - Calculus I (Differential Calculus)	4
	MAT 322 - Calculus II (Integral Calculus)	4
B.	One Course from the following:	4
	MAT 325 - Applied Statistical Analysis	
	MAT 330 - Differential Equations	
	MAT 340 - Matrix Methods	
C.	Two Courses from the following:	8
	CSC 420 - Numerical Computing	
	MAT 323 - Calculus III (Multivariate Calculus)	
	MAT 335 - Mathematical Modeling	
	MAT 370 - Applied Probability	
	MAT 401 - Series and Boundary Value Problems	
	MAT 413 - Discrete Mathematics for Computer Science	
	MAT 420 - Complex Variables and their Application	
	MAT 423 - Vector and Tensor Calculus	
	MAT 425 - Real Analysis	
	MAT 435 - Industrial Mathematics	
	MAT 440 - Linear Algebra	
	MAT 450 - Partial Differential Equations	
	MAT 465 - Scientific Computing	

A "C" grade or higher is required for each course of the minor.

Specific selections of courses must be worked out with the mathematics faculty. The equivalent of up to three of the above courses that contribute to the minor can be used as transfer credit.

## Physics Minor

The minor in physics would be useful for students who wish to pursue studies in physics or engineering, or who wish to be more competitive in the job market.

Total credit hours required for minor: 20

A.	Required courses:	Credits
	PHY 303 - Calculus Based Physics I	4
	PHY 304 - Calculus Based Physics II	4
B.	Three courses from the following options:	12
	1. PHY 326 - Physical Optics	
	<i>or</i>	
	PHY 380 - Laser Principles and Systems	
	Only one course from Option #1 can contribute to the minor.	
	2. PHY 401 - Electromagnetism	
	3. PHY 420 - Intermediate Mechanics	
	4. PHY 415 - Introductory Quantum Mechanics	
	5. PHY 491 - Independent Study	
	6. A physics course approved by the Science Department	

A "C" grade or higher is required for each course of the minor.

The equivalent of up to three courses that contribute to the minor can be applied as transfer credit.

## Professional and Technical Communication Minor

The professional and technical communication program offers a minor in professional and technical communication. The minor is valuable to students pursuing studies in various disciplines, such as mathematics, engineering, computer science, business, or psychology, who wish to enhance their communication skills and make themselves more marketable. Professional and technical communication is a skill that is integral to all types of professional occupations.

Total credit hours required for minor: 17.

Students wishing to earn a minor in professional and technical communication must complete:

- A. Required courses (8 credits)
  - COM 306 or COM 350 or COM 400
  - COM 320
- B. Electives (9-12 credits)
  - With guidance from a faculty advisor, students pick any three courses with a COM prefix.

## Psychology Minor

The psychology program offers a minor for students in other disciplines. An understanding of psychology underlies all human activities. Consequently courses dealing, for instance, with human motivation, individual differences, childhood and aging, prejudice, stress, cognition, human/machine interaction, and learning would add depth to any major. A psychology minor might be especially useful to students planning careers in business, human services, criminology, and health sciences.

The course requirements for the minor are a minimum of 18 credits, eight of which have to be completed at SUNY Institute of Technology. An introductory course in psychology does not count toward the 18 credits. Students are required to take History and Systems of Psychology (PSY 305) and two courses from group A and two courses from group B.

### Group A

Learning & Motivation - PSY 362  
 Abnormal Psychology - PSY 322  
 Psychology of Personality - PSY 331  
 Life-Span Developmental - PSY 315  
 Perception - PSY 360  
 Death, Dying & Bereavement - PSY 373  
 Psychology of Gender - PSY 325  
 Educational Psychology - PSY 365  
 Engineering Psychology  
 & Human Performance - PSY 390

### Group B

Group Dynamics - PSY 445  
 Psychological Testing - PSY 470  
 Cognitive Psychology - PSY 425  
 Principles of Counseling - PSY 477  
 Applied Social Psychology - PSY 444  
 Aggression & Nonviolence - PSY 415  
 Neuropsychology - PSY 460  
 Advanced Health Psychology - PSY 555



## Science, Technology, and Society Minor

Rapid developments in science and technology have stimulated a variety of concerns about the impacts of science and technology, as well as interest in the dissemination of science and technology. As a result, developments in science and technology have created a need for people who possess the skills to serve as liaisons among the different communities affected by these concerns. Such individuals would possess an understanding of the relationships among science, technology, and society that would enable them to serve as liaisons between 1) different communities of professionals (e.g., technologists and politicians); and 2) experts and various groups among the lay public. Students who possess such skills can be competitive for jobs in government agencies, businesses, private consulting companies, and labor unions. The STS minor should be of interest to majors in computer science, business, nursing, and the engineering technologies, and might also be of interest to majors in arts and sciences.

Total credit hours required for minor: 17

### A. General Requirements

- the STS minor requires completion of at least 17 credit hours in the STS program, at least 8 of which must be taken at the Institute of Technology.
- a strong background in general science or technology courses and additional more specialized coursework. A basic understanding of science and technology is essential to enable students to understand basic explanations of science and technology incorporated into many of the texts used in the STS courses.

For many of the students who minor in STS, their major will encompass scientific or technological competence.

Students who are not majoring in a natural science or a technological discipline will be required to take at least 6 **additional credit hours** in a natural science or technological discipline beyond the general education requirement. They can count these two courses as electives to satisfy the requirements of the STS minor, provided they also take at least 1 course from the list of electives (e.g., to satisfy the Institute's general education requirements or as part of their program of study in their major).

### B. Specific Requirements

Required courses:

- STS 300 - Introduction to Science, Technology, and Society
- STS 350 - Science and Technology Transfer and Assessment
- STS 360 - Science, Technology, and Politics
- STS 490 may be substituted for STS 350 or STS 360
- Electives - Choose two more courses in consultation with an STS faculty member.  
Among the offerings are:  
ANT 371 - People and Systems  
BUS 451 - Issues in Business and Society  
SOC 360 - Sociology of Work  
PHI 350 - Technology and Ethics  
HIS 306, 307 - History of Science  
NUR 344 - Ethical Issues in Nursing  
CSC 310 - Computers and Society  
POS 435 - American Politics and Communication Technology  
TEL 325 - Telecommunications and Social Issues  
TEL 490 - Telecommunications Policy/Issues  
ENV 300 - Ecology  
and other courses approved by the STS advisor

## Sociology Minor

The sociology-anthropology program offers a minor in sociology. The minor is of value to students who wish to integrate interests in business, nursing, the technologies, or computer science with the broad conceptual and analytical framework provided by sociology.

### A. General Requirements

A student desiring a minor in sociology must register with the program and take a minimum of 17 credits of sociology/anthropology courses, at least 8 of which must be taken at the Institute of Technology.

### B. Specific Requirements

1. ANT 301, SOC 300, or an introductory anthropology or sociology course.
2. At least one of the following Tier II courses: ANT 320, SOC 314, SOC 351, or SOC 360.

### C. Additional courses

To promote coherence, these must be selected in consultation with a sociology/anthropology advisor.

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# Continuing Education

## Summer Sessions

The Institute of Technology offers a comprehensive schedule of summer programs each year. Registration dates and program schedules may be obtained by contacting the Registrar or the Admissions Office.

## Management Assistance Center

The Management Assistance Center provides assistance to area businesses and economic assistance to area communities via the following programs:

- The **Small Business Development Center**, with a complement of certified full-time counselors provides one-to-one counseling on small business start-ups, problem solving and management assistance. Continuous educational programs and seminars are offered targeted to the needs and interests of businesses.

- The **Small Business Institute** utilizes select seniors and graduate students, under mentorship of faculty and staff, to assist small businesses, non-profit organizations and government agencies in business and public management disciplines.

- The **Development Center for Business** engages full-time specialists in developing and expanding exporting capabilities of state business firms and to act as catalysts to effect technology transfer.

- The **Advanced Management Program** is a two-year comprehensive executive development program for middle- and upper-level executives. The program is composed of six courses in key areas of decision-making:

Managerial Accounting	Marketing
Managerial Economics	Management Policy
Financial Management	Organizational Behavior

Upon successful completion of the sequence of courses, the participant receives the Certificate of Advanced Management. Admission to the program is by nomination from the candidate's employer. Applicants must have substantial experience in the management of profit or non-profit organizations. Anyone planning professional development programs who is interested in using the services or facilities of the college should contact the Management Assistance Center to discuss the details.

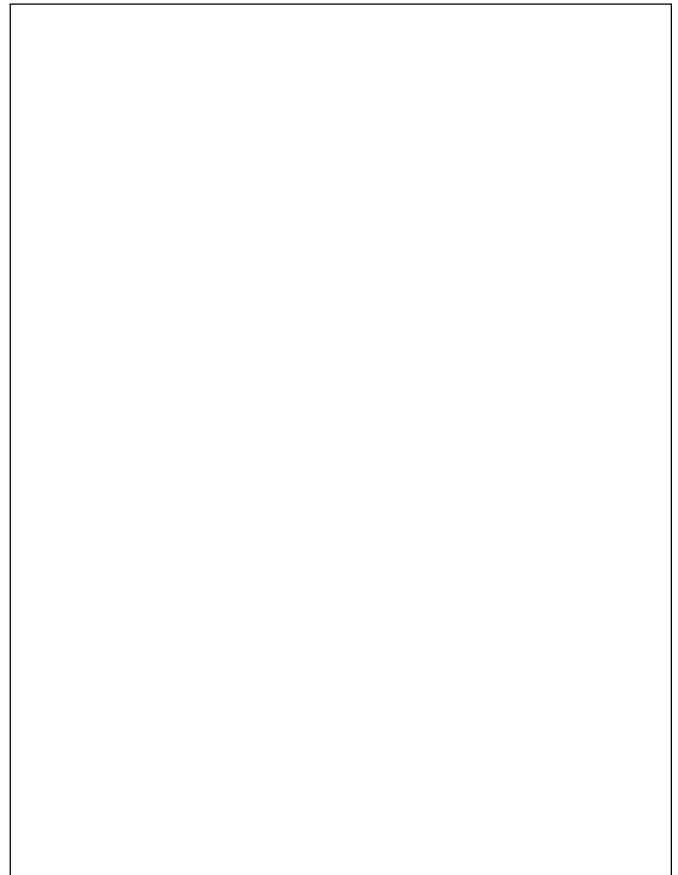
The **Management Assistance Center**, through the use of college resources, faculty and students, encourages solicitations, competitive or sole source for business and public management contract tasks.

## Public Employees' Professional Development Programs

Public Employees Professional Development Programs are provided specifically for managers, supervisors and technical personnel in the public sector. Many programs are funded by New York State for employees in specific work units or levels of government.

## The Point/Insurance Reduction Program

The Point/Insurance Reduction program is offered regularly in cooperation with the National Traffic Safety Institute. Drivers participating in this six-hour course may reduce their motor vehicle liability insurance premiums by 10%, or subtract three points from their license record. This accident prevention program is approved by the New York State Department of Motor Vehicles and Department of Insurance.



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# Student Services

The faculty and staff of the Institute of Technology are committed to providing a full range of advising, counseling, tutorial, and other services to support the academic progress of students. On-campus health care, housing, career services, recreation/sports programs, and student activities programs are also provided by student services offices.

## Transitions Program

(new student orientation, advisement and registration)

New students are encouraged to attend the Transitions Program offered at the start of every term. Activities include:

- Orientation to college services, social life, residence hall life, athletics and recreation programs, and tours of the campus.
- Academic advisement and registration.
- Placement testing.

During the Transitions Program, students have the opportunity to begin making positive connections with peers, faculty and staff.

## The Learning Center

The resources of the Learning Center are available free of charge and can provide services to all students regardless of their academic ability or preparedness for college coursework. The center has computers for student use with software available for tutorial review in mathematics, physics, biology, telecommunications, economics, reading skill, and a variety of other subjects. Tutors are available in writing, reading, mathematics, physics, statistics, computer science, accounting, economics, and electrical engineering technology. The staff at the Learning Center can also help students improve study skills and test-taking skills.

## Collegiate Science and Technology Entry Program (CSTEP)

CSTEP is an academic support program designed to encourage students from under-represented minority groups to enter careers in scientific, technical, and professional fields. Students in CSTEP can participate in tutoring, career counseling, internships, and group activities which support their academic progress. CSTEP services are provided with support from the New York State Education Department and are contingent upon annual grant funding.

## Educational Opportunity Program (EOP)

EOP provides financial, advising, and academic support for eligible students. The program coordinates resources from the Learning Center and the Counseling

Center to help students complete their degree requirements. An applicant must be a New York State resident with a New York State high school diploma/equivalent.

## Health Center

The Health Center is staffed by registered nurses, a nurse-practitioner, and support personnel. The Health Center is open daily Monday through Friday. There are regularly scheduled hours for physician visits. A gynecological clinic is also available by appointment. Hours of service are posted each semester.

The Health Center provides evaluation and treatment of health-related problems. The nurse-practitioner and the physicians treat medical problems and they assist students with referrals to area specialists. Students are encouraged to make appointments but can be seen on a walk-in basis when necessary.

The Health Center provides individual health counseling and offers innovative, prevention-oriented workshops on diet, exercise and other health-related topics throughout the year.

## Health Requirements

1. In accordance with College and SUNY Board of Trustees regulations, a full-time student must submit a health history and physician's examination to the Health Center prior to attendance at the college. Part-time students who fulfill these requirements may also use the services of the Health Center.

A student will not be permitted to register for a second term until these requirements have been met. In addition, the student may only receive emergency and first-aid care from the Health Center until the requirements have been met.

2. The college has a mandatory health insurance program. Therefore, all full-time students must carry some type of health insurance. The college offers an economical health insurance plan for students who need basic insurance coverage or wish to purchase additional coverage.

Full-time students are billed for health insurance each semester. The student must complete a health insurance waiver card documenting alternate coverage each semester if he or she does not wish to participate in the college plan. Information concerning health insurance is mailed directly to the student.

3. The State University requires international students entering the country for study or research, or any United States student studying abroad in a SUNY-sponsored program, to carry a SUNY health insurance policy. Information regarding insurance is mailed to these students upon their admission to the college. Additional information is available in the Health Center.



## Measles, Mumps, and Rubella

New York State Law 2165 requires that all students registering for six or more credits (graduate and undergraduate) show proof of immunity to measles, mumps, and rubella. Persons born prior to January 1, 1957, are exempt from this requirement. Students must provide the following:

- Measles: Two dates of immunization on or after the first birthday;  
or date and results of positive measles titer;
- Mumps: Date of immunization on or after the first birthday;  
or date and results of positive mumps titer;
- Rubella: Date of immunization on or after the first birthday;  
or date and results of positive rubella titer.

Students should direct requests for forms or additional information to the Health Center, phone 315/792-7172, Fax 315/792-7371.

## Counseling Services

Students can visit the Counseling Center to discuss personal, vocational and educational concerns. Office hours are Monday through Friday from 8:30 a.m. to 4:30 p.m. (hours are subject to change). The Counseling Center provides the following services:

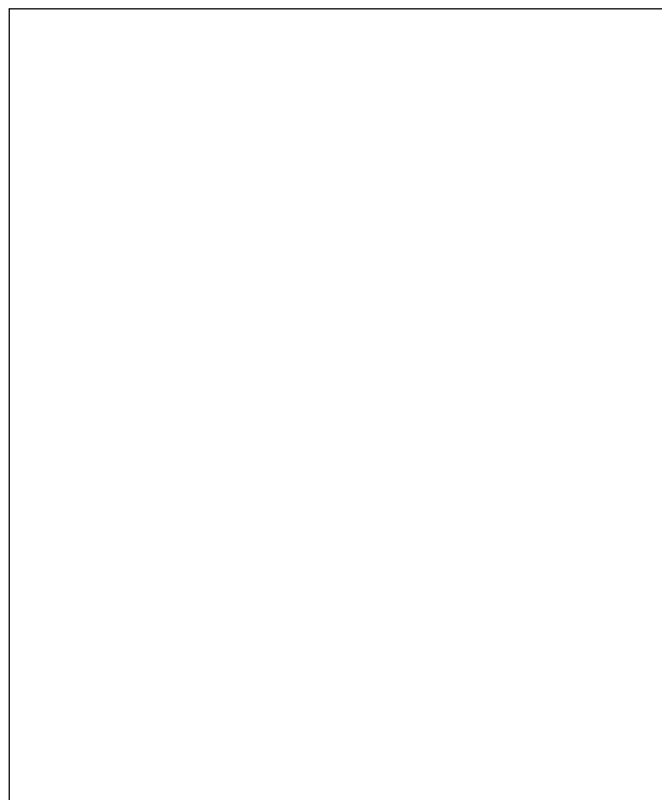
- Personal counseling: individual counseling regarding personal/emotional concerns, relationship problems, conflict resolution, assertiveness, and managing stress.
- Educational counseling: individual counseling and workshops on setting goals and determining priorities, time management, overcoming procrastination, and motivation.
- Vocational counseling and testing: individual testing and counseling to assist the student to clarify vocational directions, and a career information library.
- Graduate school library: graduate school catalogs are maintained and information is available regarding graduate school admissions procedures.

## Services for International Students

The International Student Services Office serves as the point of entry for new international students coming to the Institute of Technology. It provides advisement and assistance to meet the requirements of the United States Immigration Services. The office is located in the Counseling Center.

The college provides special sections of ENG 306: Report and Technical Writing to assist international students who have difficulty with the written English language. The Learning Center provides support for students who experience difficulty adjusting to American education or who have difficulties in individual courses .

The International Student Association offers an excellent opportunity for international students to socialize with other newcomers to the country. The Association sponsors trips and social events for its members and their guests. The Association's annual banquet features dishes from most of the countries represented at the Institute of Technology.



## Services for Students with Disabilities

The Institute of Technology's small size and friendly atmosphere allow for accommodation of the special needs of the disabled student. A student with a disability should discuss individual needs with the Admissions Office and the Coordinator of Disabled Student Services in the Counseling Center prior to registration so that special arrangements can be made, where appropriate.

The Counseling Center coordinates the following services: counseling/orientation for new students, advance registration for mobility-impaired students, assistance in securing housing, and arrangements for transportation and parking.

The Coordinator of Disabled Student Services serves as liaison with the New York State Vocational Rehabilitation Service, the New York State Commission for the Blind and Visually Handicapped, and other agencies serving or sponsoring the student.

Students with disabilities seeking accessible suites in the residence halls should address inquiries to the Residential Life and Housing Office at 315/792-7810, and also the Counseling Center at 315/792-7160.

## Earning College Credit by Examination

The Counseling Center is an open test center for the College Level Examination Program (CLEP).

- College Level Examination Program: 34 examinations are offered monthly (except December and February) to persons who wish to earn college credit by demonstrating that they possess knowledge equivalent to that acquired in college courses. The Institute of Technology awards appropriate college credit for each examination.
- Regents External Degree Program: The Regents External Degree Program accredits college-level education that a person has earned from all sources and awards credit toward degree completion.

Individuals interested in learning more about these services should write the Counseling Center, SUNY Institute of Technology at Utica/Rome, P.O. Box 3050, Utica NY 13504-3050, or phone 315/792-7160.

## Residential Life and Housing

Campus housing at the Institute of Technology offers the many benefits of townhouse apartment living with convenience and safety. The Adirondack Residence Halls were opened in 1991 and the Mohawk Residence Halls were opened in 1996. Housing for 580 students is provided in these modern and attractive apartments. Students can request single or double room housing. Each apartment is equipped with a furnished living room, bathroom, and microwave/refrigerator unit. Each bedroom is equipped with private telephone service, an internet/WWW connection, and a TV cable connection. There are also convenient laundry centers and a commons lounge/TV room for the resident students.

Residents must purchase a 10-meal, 14-meal, or 19-meal a week contract from the Food Service. For more information concerning fees and services, call the Residential Life and Housing Office at 315/792-7810.

The college staff puts a high priority on safety and security. The residence halls are protected by central smoke and fire detectors and the exterior doors are secured with SUNYCard-activated electronic door locks. The campus Public Safety Office monitors the residence hall area 24 hours a day with regular patrols and closed-circuit television.

## Off-Campus Housing

Students are invited to contact the Residential Life and Housing Office to receive information about off-campus housing opportunities. A resource file of Utica-area rooms, apartments, and houses for rent is maintained.

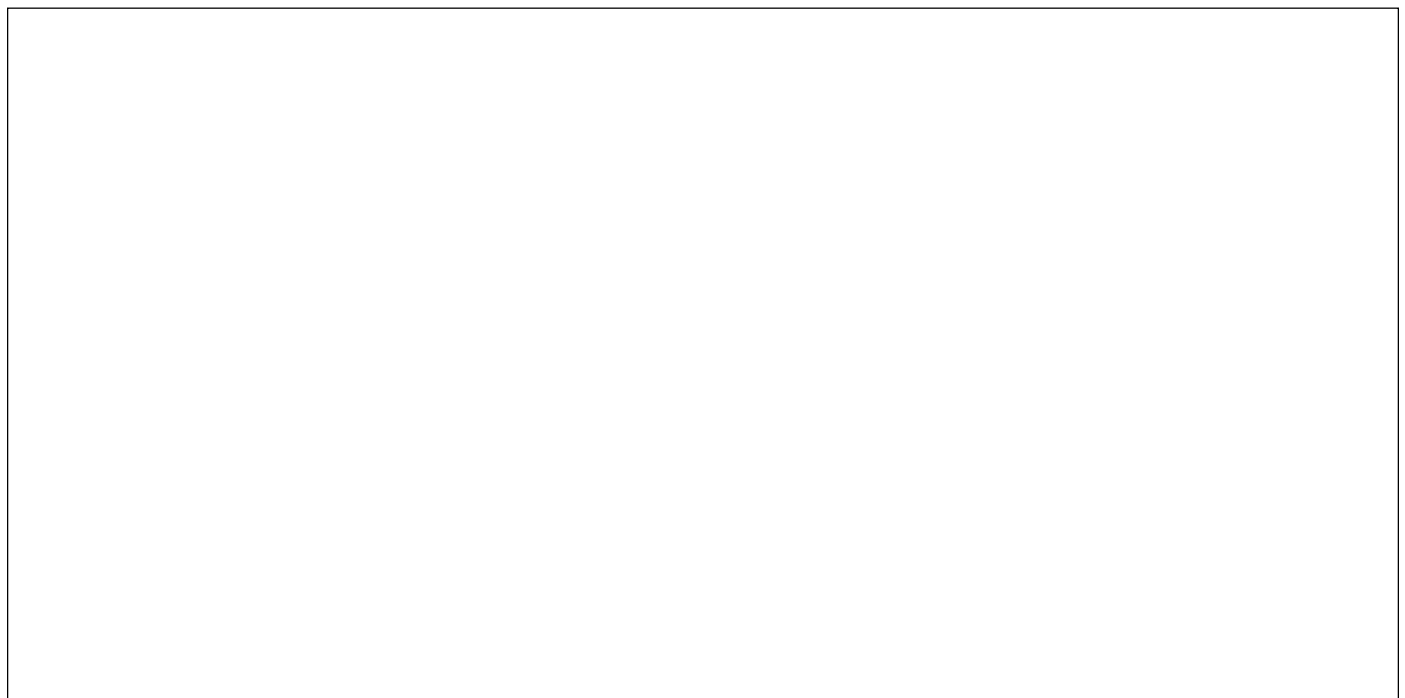
## Food Service

Campus food service is provided in four locations. Resident students participate in a mandatory board plan and dine cafeteria style in the Campus Center dining hall. The dining service meal plans provide unlimited seconds and feature a varied, nutritious menu; special holiday meals; and monthly theme dinners.

The Cafe Kunsela is a full-service snack bar, open for breakfast and lunch. It features pastry, bagels, eggs, and beverages for breakfast; and hot entrees, soups, sandwiches, salads, and desserts for lunch.

The 'Cats' Den in the Campus Center is open evenings, offering sandwiches, snacks, and beverages. It features a wide-screen TV, games, and frequent live entertainment.

A snack bar in Donovan Hall offers a soup and sandwich menu each evening when classes are in session.



## Student Organizations and Boards

There are 40 academic and social clubs and student organizations, three student-run publications, four governing boards, a student senate and a campus radio station (WCOT) providing students with a choice of extracurricular activities to make life outside of class enjoyable and productive.

## Performing Arts/Cultural Interests

The SUNY Tech Programming Board sponsors musical and theatrical performances throughout the academic year. Students may purchase discount tickets to performances presented by internationally acclaimed artists in the Broadway Theatre League at the Stanley Performing Arts Center and the Great Artists Series of the Munson-Williams-Proctor Institute.

The Gannett Art Gallery, located next to the library in Kunsela Hall, hosts several art exhibitions a year, including the college's annual regional show.

The Institute's Cultural and Performing Arts Council funds fine arts, music and theater programs on campus throughout each academic year.

Culturally diverse programs are also available through programming by the SUNY Tech Programming Board and special interest groups (International Students Association, Black Student Union, Club FABU, and Latino Student Association). Black History Month, Hispanic Heritage Month, and other cultural programs provide the opportunity to celebrate the unique contributions of our culturally diverse world.

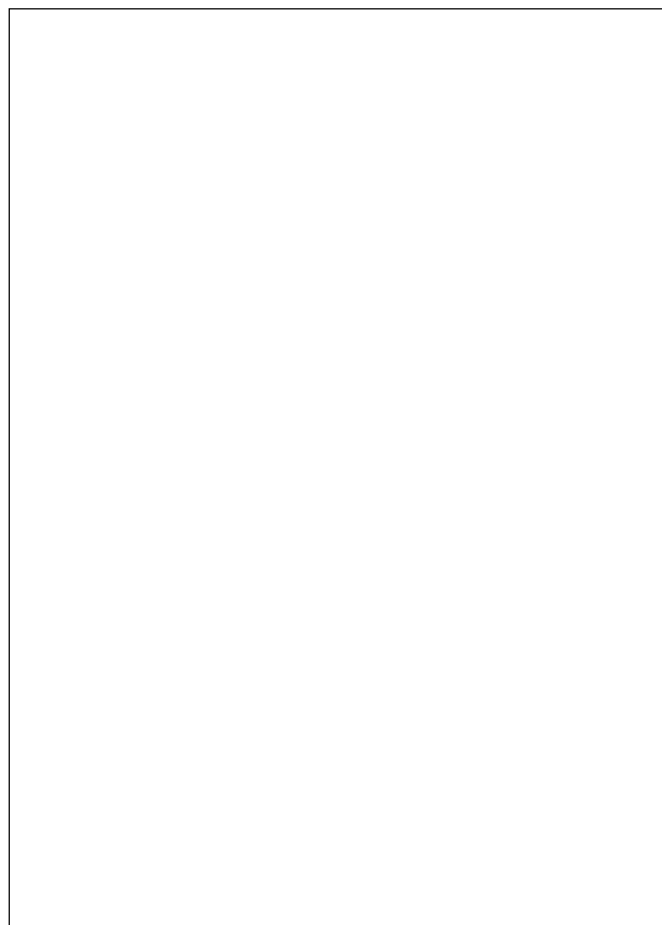
In addition, academic divisions sponsor lecture series, symposia on current research, demonstrations, and dramatic readings which are open to students and the college community.

Students may also participate in performance ensembles in theatre, instrumental jazz and choir.

## Career Services

Through the Career Services Office, students are offered a wide range of career planning and employment resources and a variety of workshops on resume writing, interviewing, and graduate schools. Students can access the Resume Expert computer software and a number of other high-tech job search resources.

Each year the Career Services Office sponsors a career fair where students can meet and interview with potential employers. The office coordinates internship opportunities and works with corporate, industrial, governmental, and social service employers to maintain a current employment directory for students.



## Athletics and Recreation

Students are encouraged to pursue a healthy personal schedule marked by good nutrition and regular exercise. The Campus Center is equipped with a fitness center, weight room, racquetball courts, an indoor running track, gymnasium, and a six-lane swimming pool. Students can also enjoy the beautiful outdoor setting of the campus by hiking the Roemer Fitness Trail. The recreation staff provides an appealing schedule of intramural contests and games for students of all abilities. Intramural sports include volleyball, tennis, water polo, basketball, and softball.

The college is a member of the National Collegiate Athletic Association (NCAA), the Eastern Collegiate Athletic Conference (ECAC), and the SUNY Athletic Conference (SUNYAC). Intercollegiate athletic sports teams include men's and women's basketball and soccer, tennis, volleyball and softball for women, and lacrosse, tennis, golf and baseball for men.

## Club Sports

Students interested in competing less formally have the opportunity to participate in a variety of club sports. The ski club, hockey club, and mountain biking/running club are examples of teams that the Institute of Technology sponsors for competition with other club teams in the region.

## **Student Activities and Student Government**

The Utica/Rome Student Association (URSA) is the elected student government organization for the student body. Through student activity fees, URSA provides funding for three student publications, a student-run FM radio/TV cable station, and major campus programming and special events. Student organizations at SUNY Tech provide students with leadership opportunities and with outlets for creative expression and campus involvement.

Professional, academic, and special interest clubs are open to all students. The Black Student Union, the Latino/a Student Association, and the International Student Association provide peer support and multi-cultural activities for the campus. Academic honor societies, sororities, and fraternities are also an important component of campus life at SUNY Tech.

## **Wellness Program**

The Institute recognizes the importance of healthful choices and has established a Wellness Committee. The committee is chaired by the Director of Student Activities and is composed of a membership that is representative of the various campus constituencies. The committee schedules and promotes programs on numerous health-related topics for the campus community via the monthly Wellness Calendar.

Students interested in membership on the Wellness Committee should contact the Student Activities Office at 315/792-7530. Students, faculty and staff members interested in advertising their programs in the Wellness Calendar can do so by calling the Student Activities Office at 315/792-7530.

## **Campus Center**

The Campus Center contains a 400-seat dining area, bookstore, the 'Cats' Den snack bar, game and meeting rooms, a complete and up-to-date athletic complex, and student offices. Student services (Vice President for Student Affairs, student activities, counseling/EOP, health center, CSTEP, and athletics and recreation) are also located in this building.

Students may avail themselves of the six-lane swimming pool, fitness room, two racquetball courts, a weight room, an indoor running track, basketball and volleyball courts, saunas, and outside basketball/volleyball and tennis courts. Outdoor soccer and softball fields, a cross-country track, and a nature fitness trail are available on campus.

For hours of operation of the Campus Center, see the Student Handbook. (Hours are subject to change.)

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# General Information

## College Physical Plant

The Institute of Technology currently occupies three academic buildings and two residential complexes on its 800-acre campus in Marcy.

Kunsela Hall is the largest of these buildings. A modern, well-lighted, air-conditioned building, it houses a library/resource center, standard and special-purpose classrooms, the computer center, a 240-seat auditorium, and selected faculty and administrative offices.

The James H. Donovan Hall is the newest academic building, opening its doors to students for the first time in the fall of 1988. This building houses laboratories, special purpose and general classrooms, small lecture halls, career services, a learning center, as well as faculty and staff offices.

Beyond these two buildings, and across a pedestrian bridge which traverses a wooded ravine, lies the Campus Center. This building, which opened early in 1988, houses a 400-seat main dining area, a snack bar named the 'Cats' Den, the college Bookstore, a gymnasium with a capacity of 2,000 spectators, game and meeting rooms, student offices, and a modern athletic complex that includes a fitness center, weight room, six-lane swimming pool, racquetball courts, saunas, outdoor basketball, volleyball and tennis courts. Student services, including counseling and the health center, are also located in this building.

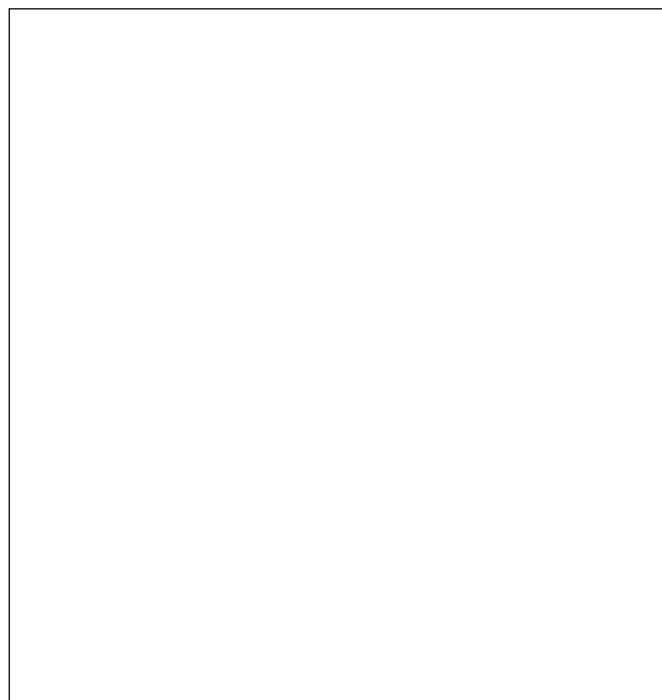
Outdoor playing fields include soccer, softball, intramural and practice fields. A 1.1 mile nature/hiking exercise trail weaves its way through a wooded hillside and around two man-made ponds.

The Adirondack residence halls are located at the northwest side of the campus, just a few steps across a second pedestrian bridge. They consist of 25 two-story townhouse style buildings, connected to form the borders of two triangular commons. Each building contains four suites and each suite has accommodations for four students, with a mix of one- and two-person bedrooms. To assist students in their studies, each bedroom is linked to a state-of-the art computer network that enables students to be in contact with the entire campus and the World Wide Web from their bedroom.

The Mohawk Residence Halls consist of 12 two-story townhouses on the northeast side of the campus on Flanagan Road. They provide the same amenities as the Adirondack Halls, however, each suite accommodates four students in single bedrooms.

## Library

Occupying the right wing of Kunsela Hall, the library actively supports the academic programs through its services and collections. The current collections include 180,000 volumes, 225,000 microforms, 6,000 media programs, 45,000 federal documents, and subscriptions to 1,200 journal titles with backfiles of some 4,500 journal titles.



The selective federal document depository houses United States documents which consist of over 850 series titles or approximately 5,000 documents each year. Our library is also one of 20 libraries designated as a full state depository library.

The collections are accessed through the unicorn online catalog. Dedicated terminals are located throughout the library. The online catalog is also accessed via the campus telecommunication network. Off-campus use is provided through a dial-up telephone number 315/792-7221. Unicorn also provides automated circulation services and now reports the current and back-file holdings of all the library's journals.

With the library open seven days each week during the semester, reference assistance is provided 9:00 a.m. to 11:00 p.m., Monday through Thursday; 9:00 a.m. to 5:00 p.m. on Friday, and 11:00 a.m. to 6:00 p.m. on Saturday. The library is open on Sunday from 1:00 p.m. to 11:00 p.m. without reference services. Additional hours are provided during finals. The reference staff is eager to assist students in their use of the collection.

The library is committed to regional, state, and national resource sharing, therefore, allowing our students access to the resources of over 6,500 other libraries throughout the world. We have been a participating OCLC library since 1974.

Students may utilize the CD-Rom databases as well as requesting traditional computer-based information searching available through Dialog and BRS which offer over 600 technical, medical, and management files. CD-Rom services include the index tools ABI-INFORM, Business Periodicals Index, Applied Science & Technology Index, CINHALL, ERIC, and the text database Disclosure.

Other services provided are interlibrary loan, facsimile transmission, and copying facilities for both paper and microform formats.

## Instructional Resources Center

The instructional resources center provides all non-entertainment audiovisual and television services to the college. Studio facilities combined with trained staff enable on-campus production of both visual and audio programs in a wide variety of formats and uses. Television as an educational aid is an active component.

The instructional resources center also provides access to computer graphics and printing, multi-media, and videotape editing to students.

## Academic Computing Facilities

Academic programs at the Institute of Technology are supported by over 250 computing stations (personal computers and workstations) in open locations or general purpose laboratories, and many more in laboratories dedicated to particular functions. Computing labs can be found in both academic buildings (Donovan Hall and Kunsela Hall); all dormitory rooms are wired to provide private, high-speed, ethernet data connections for each bed, and a number of dial-up telephone lines provide off-campus access. Several labs in Kunsela Hall provide late night and weekend computer access.

Payment of the Technology Fee entitles students to unlimited access of computing facilities although nominal additional charges apply for the production of high-quality color overhead transparencies and for short-term checkout of laptop computers. At present there are no time quotas for student connection to time-shared systems. All enrolled students are automatically assigned accounts on time-shared computer systems and are granted initial disk storage quotas which may be increased upon approval of an application. The Institute's policies with respect to computer use are published in the Computer User's Guide available from Information Services.

The Institute has a fiber-optic backbone between buildings and a copper wiring plant within buildings. The backbone has recently been upgraded to a speed of 155 mb/sec (ATM) speed; segments run at either 10 mb/sec or 100 mb/sec.

## Internet

The Institute of Technology is assigned a Class B Internet address with the domain name **sunyit.edu**. In late 1996 the Institute's Internet connection was upgraded from a single T1 (1.5 mb/sec) to a dual T1, thus maintaining the Institute's status as one of the highest bandwidth connections in upstate New York. Internet services are extensively used throughout the curriculum, and student use is strongly encouraged. An extensive WWW site is maintained (<http://www.sunyit.edu>). The Institute's Library catalog is internet-accessible (<http://unicorn.sunyit.edu>) as is the college's BANNER WEB registration system (<http://www.sunyit.edu/register.html>). Real-time registration activities such as course add/drop, schedule inquiry, grade inquiry, and billing inquiry are all supported from WWW enabled computers, on or off-campus.

The Institute currently has reciprocal access agreements with many state-operated SUNY campuses. Through these agreements Utica/Rome students may request computer accounts at the host campus near their homes to permit them to connect their home computers to Utica/Rome time-sharing systems without incurring substantial long-distance phone charges. In return, Utica/Rome provides similar access to students from those campuses who live in the Mohawk Valley. The issuance of these accounts is subject to the computer use policies on the respective campuses and to whatever qualification restrictions are imposed by the host campus.

## College-Wide Time-Shared Systems

The Institute maintains a number of centrally administered time-shared systems that have a common, integrated NIS file service permitting transparent access to user-owned files from any of the constituent host machines. While upgrades are anticipated during the lifetime of this catalog, the configuration at the time of printing is as follows:

**Hewlett Packard 9000/735** - three systems known as *Demeter*, *Zeus*, and *Hera* respectively, each with 160 megabytes of memory, shared disk array, a DAT tape drive and CD-ROM running the *HP/UX 9.0* version of UNIX. This system provides Internet access, supports almost the entire product line from SAS, Inc. (including statistical analysis and operations research modules) and the Oracle DBMS system. These systems also manage electronic mail, news, and network printer queues throughout the campus.

**SUN SPARC 10** - known as *Phoenix* with 128 megabytes of memory, shared disk array running SUN's *Solaris 2.3* version of UNIX. This system hosts engineering technology software for the client machines in the SUN lab and server for X-window applications invoked from the client machines.

**SUN ULTRA ENTERPRISE 3000** - known as *Persephone* this system's main function is to host large library databases for a consortium consisting of Utica/Rome together with the Upstate Colleges of Technology (Alfred, Canton, Cobleskill, Delhi, and Morrisville). This system has dual Ultra-SPARC processors and a 29 gigabyte disk array and runs the Sun *Solaris* operating system.

## Personal Computing Labs

The Institute has over twenty computer laboratories on the campus; some are dedicated to a particular curriculum or purpose, others are general-purpose. PC labs primarily consist of Pentium and 486-based computers (some older machines are still employed in specialized settings where their use is appropriate) that are interconnected through file servers running the Novell, Windows/NT, or UNIX operating systems. The Institute has adopted a single integrated office applications suite as its standard package. The adoption is for a two-year period (the next review is scheduled for Spring, 1998). Microsoft Office 4.3, consisting of Word, Excel, PowerPoint, and Access, is the current standard. In addition, the Institute currently holds a site license for all Borland software products including the C++ and Pascal language compilers and for Berkeley Systems Design Inc.'s BSD/OS version of UNIX. SPSS (Statistical Package for the Social Sciences) is widely used throughout the campus. Substantial upgrades to computing labs are anticipated during the lifetime of this catalog. Lab environments include:

**Kunsela Hall Public Lab (Kunsela Hall C-003)** - consisting of over twenty-five PC's (currently Pentium 133s), two MacIntosh computers, high speed laser printers and a color printer. Available software includes Microsoft Office, Microsoft Publisher, the Borland language products, Lahey FORTRAN 77 and many specialized applications. This lab is open for extended night and weekend hours.

**DogNET Labs and DogNET Multimedia Lounge (Kunsela Hall C-012 and Kunsela Hall C-107 and C-122)** - provides public access to UNIX workstations (that are named after dogs, of course). Twenty-one Pentium-based computers in the DogNET Lab (Kunsela Hall C-012) running the FreeBSD operating system provide access to over 800 programs for Internet access, multimedia applications, language compilers, etc. Many of the systems are equipped with sound cards for applications like the mbone (Internet audio/video broadcast/conference system). The lab is supported by three file servers, including a Dual PentiumPro 200, with a total of more than

35GB of disk storage. Each server has 128 MB of main memory. In addition to providing disk storage (without quota) to students, the servers support the computer science departmental World Wide Web server (<http://www.cs.sunyit.edu>) and news service. The public DogNet Lab is one of three labs managed by computer science students under the supervision of computer science faculty. The DogNET Multimedia Lounge (Kunsela Hall C-122) contains Pentium-based computers and SUN workstations equipped with video cameras for conferencing and other multimedia applications. One of the SUN workstations is also used as an Oracle server. The Multimedia Lounge accommodates small groups of students and faculty working collaboratively on projects. Another SUN/Pentium DogNET lab (Kunsela Hall C-107) is used in computer science courses for experiments in operating systems, networking, and system administration.

**Terminal Lab (Kunsela C-013)** - currently equipped with fifteen high resolution workstations (Hewlett-Packard, SUN and personal computers) running Xterm software. This equipment is used in a number of Electrical Engineering Technology courses and for Internet access. This lab also houses some character-mode terminals. This lab is open for extended night and weekend hours.

**Windows/NT Lab (Kunsela Hall C-014)** - consists of twenty Pentium (currently P-90) computers each with 32Mb of memory and 1 GB local storage interconnected using 100Mbps ethernet technology. Servers for this lab consist of two dual PentiumPro 200 based systems, each having in excess of 9GB of storage. All systems use the latest version of Windows/NT Workstation and Windows/NT Server (currently 4.0). This lab is managed by faculty in the Department of Computer Science and by student assistants. It supports instruction and experimentation on client-server and distributed computing (networking, system administration and interoperability with other platforms), collaborative computing (WWW and FTP servers, videoconferencing). Programming environments supported include Powerstation FORTRAN 90, Lahey Personal FORTRAN 77 and FORTRAN 90, Borland and Microsoft's Visual C++, Visual Java++ and other Java versions, PROLOG and LISP. Currently supported applications include Microsoft Office Professional, Microsoft Publisher, and FrontPage. Access to the following applications is also provided: Mathematica, GPSS, IMSL libraries, Corel Draw, TeX. This lab is open for extended night and weekend hours.

**Multimedia Lab (Kunsela C-109)** - several PC compatible workstations with dedicated boards and multimedia attachments. The lab supports instruction and research in multimedia instruction design, multimedia databases, image and speech processing, and pattern recognition.

**CIM Lab (Donovan G-225 and G-225A)** - approximately twenty 486 and Pentium computers and an assortment of printers and plotters. Currently installed software includes Algor Supersap, Autobook, AutoCad, Hydrain, Microstation 5.0, and Microsoft Office. This lab supports courses in Civil Engineering Technology and Mechanical Engineering Technology.

**Advanced CAD Lab (Donovan 1159)** - ten Pentium-based computers, printers, and plotters used in support of courses in Civil Engineering Technology and Industrial Engineering Technology. Currently installed software includes Algor Supersap, Autobook, AutoCad, Hydrain, Microstation, SmartCam, TKSolver, and Microsoft Office.

**Technical Writing Lab (Donovan 1146)** - twenty-two 486 computers and associated laser printers used extensively in support of courses in report and technical writing. Currently installed software includes Microsoft Office, internet tools (telnet, ftp, and Netscape), Grammatik as well as several legacy word processors.

**Advanced Writing Lab (Donovan G161)** - twenty Pentium-based computers together with laser printers and a color printer used in support of advanced coursework in technical communications. Currently installed software includes Microsoft Office, internet tools (telnet, ftp, and Netscape), HyperWriter, Internet Assistant, PaintShop Pro, Pagemaker, SPSS PC+, Storyboard Live and several legacy word processors.

**Donovan Hall Public Lab (Donovan 1149)** - thirteen 486-based computers and associated peripherals. Currently installed software includes Abdominal Pain, Borland C++, ChestPain, EKG, EKG2, internet tools (telnet, ftp, Netscape), HEART, Hypertension Management, Iliad, MDChallenge, Nursing Research CAI, SPSS PC+, statistics tutorials and Microsoft Office. Several Macintosh computers are also in this lab. Macintosh software includes Correct Grammar, EndNotes, Excel, Filemaker Pro, Grammatik, Heart lab, MacDraw II, MacWrite II, Microsoft Works, Write Now, and Microsoft Word.

**Business Lab (Donovan 1157)** - twenty-four 486-based computers and associated peripherals, this lab is often used for hands-on instruction in courses in the School of Business and the School of Nursing. Currently installed software includes Microsoft Office, Abdominal Pain, Chest Pain, EKG, EKG2, Finance for Nursing, internet tools (telnet, ftp, Netscape), HEART, Hypertension Management, Iliad, MD Challenge, Nursing Research, and legacy word processors.

**Telecommunications Lab (Donovan 1190)** - ten 486-based PCs, one P-100 file server, and a SUN SparcStation file server known as *Ruby*. This lab operates in a Novell Netware environment and provides access to COMNET III (a simulation package), NEUSTAR and WINMIND (network design packages). There are also a number of computer-based tutorial packages (data communications primer, SMDS/Frame Relay tutorial, Novell CNE tutorial, etc). The SUN SparcStation is used to run the ALLLINK Network Operations Management program and a network simulation program named BONeS (Block Oriented Network evaluation System).

**Telecommunications PC Lab (Donovan 1240)** - fifteen PCs on a Novell-based local area network supporting Northern Telecom's DMS-10 computer-based training program.

**Macintosh Lab (Donovan G-238)** - ten Macintosh IIxv computers an associated file server and peripherals. This lab is largely used in support of courses in the Department of Psychology. Currently installed software includes Eyelines, MacLaboratory, and Hypercard.

**Applied Mathematics Lab (Donovan 2143)** - seventeen Pentium and 486 class computers running the Linux (a variant of UNIX) operating system in a customized computing facility built to support modeling, simulation, and educational activities associated with the applied mathematics program. The unique characteristics and configuration of this lab make it an ideal environment for performing distributed computing tasks. Access is provided to a suite of tools that aid in visualization and exploration of many interesting and challenging topics. As a facility for applied mathematics students, the laboratory offers a high-quality, dedicated environment for mathematics education and research. The lab supports exploration in a variety of topics including: scientific computing, advanced visualization, virtual reality, signal processing, parallel processing, groundwater modeling, and computational geometry.

**Physics Lab (Donovan 2107)** - features ten 75MHz networked MacIntosh PowerPC computers with Netscape Navigator and Microsoft Office. This lab is primarily used by physics lab courses which use software for video analysis and scientific graphing. Access to CD-ROM drives and laser printing is also provided.

## Automobiles

Convenient parking facilities adjacent to the college's buildings are provided for college students and personnel.

College students and personnel are required to register with the public safety office all motor vehicles using college-controlled parking facilities. Vehicles parked in college parking areas must have a current parking decal properly displayed. Parking fees shall be charged for motor vehicles parked within designated lots. The college, however, assumes no liability for the property or safety of those using the facilities.

## College Identification Card

The campus identification card at the Institute is known as the "SUNYCard." This card provides access to certain campus buildings and services. SUNYCard may be obtained at the Instructional Resources office, room A012 in Kunsela Hall. Lost or damaged SUNYCards may be obtained for a replacement fee by contacting the Public Safety office at 792-7105, or in person at room A022 in Kunsela Hall. (See SUNYCard policies in the Student Handbook for more information about regulations governing the use of the SUNYCard).

## Public Safety

The Department of Public Safety is a team of professionals working with the campus community. Its goal is to provide a safe environment in which the educational mission of the college can be fully realized.

The Department of Public Safety is primarily service-oriented, and is tailored to meet the specialized needs of a campus community. The work of the department includes crime prevention and control, criminal investigations, traffic and parking supervision, building security, emergency first-aid treatment, the maintenance of public order, and other related activities.

The officers of the department are responsible for the enforcement of all state and local laws, as well as the rules and regulations of the SUNY Institute of Technology. The officers are Peace Officers, and obtain their powers from the Criminal Procedure Law, Section 2.10, Sub. 14. The department's ability to function as an independent law enforcement agency enables it to provide a sensitive, measured approach to all situations requiring Peace Officer assistance, while still maintaining the autonomy of the college.

## College Association at Utica/Rome, Inc.

The College Association at Utica/Rome is a not-for-profit corporation which contracts with the State University to provide additional services on the campus. Its general purposes are to establish, operate, manage, promote, and cultivate educational activities and relationships between and among students and faculty. It also aids students, faculty, and administration at the college in furthering their educational goals, work, living and co-curricular activities. Any surplus income must be used to advance and promote educational and benevolent pur-

poses of the corporation and the college. The association's membership is composed of representatives of the student association, faculty, staff, and senior officers of the college. The policies of the association are established by the board of directors elected by the membership.

The association provides administrative and accounting services for many organizations, including student activities. It also operates the college store, vending and food services.

## Institute Foundation

The Institute of Technology Foundation at Utica/Rome, Inc., is a not-for-profit organization formed for the specific purpose of soliciting, receiving, managing, and disbursing funds and financial assets to promote the best interests of students and educational programs at the Institute of Technology. The funds may be spent for purposes approved within the policies and priorities established by the board of trustees of the foundation. Restricted assets are dispensed in accordance with the wishes of the donor. Unrestricted assets are applied to emergency student loans, scholarships, assistantships, supplemental employment opportunities, faculty development grants, and to such other purposes as may be directed by the board of trustees.

## Governance

The college governance system incorporates administrative, academic, student affairs, and planning and budget committees structured to develop policy. It provides direct input for faculty and student organizations to the general policy making process. Additional information on the governance system is contained in faculty and student handbooks and is available from the offices of student life, and college relations and development.

## Public Release of Information on Students

The college relations and development office routinely prepares news releases identifying students who have been accepted to the college, students named to the President's and Deans' lists, students who participate in regularly scheduled activities, and those who will graduate. In addition, feature stories are developed from time to time regarding special activities and noteworthy events.

Students' biographical data forms are filed with the college relations office to ensure that appropriate information is sent to the correct hometown newspapers. **Students not wishing** to have their names appear in news releases must confirm that their biographical data form so indicates and is properly filed with the college relations office.

"Directory information" is designated as the student's name, parents' names, address, telephone number, date and place of birth, major field of study, participation in officially recognized activities and sports, the weight and height of members of athletic teams, dates of attendance, degrees and awards received, the name of the most recent previous educational institution attended, e-mail address, and photograph. Students who wish to restrict the release of directory information should follow procedures outlined in the "Student Handbook."



## Student Rights and Responsibilities

Students at SUNY Institute of Technology are expected to conduct themselves in a manner which will not infringe on the freedom of others in the college community, or bring discredit to themselves, the college, or to other students. Specific regulations and conduct procedures are outlined in the “Student Handbook.” Students who violate specified standards of good conduct may be subject to discipline in accordance with appropriate due process.

## Student Records

The college policy on access to and release of student records conforms to Public Law, Family Educational and Privacy Act of 1974 (refer to the “Student Handbook”).

## Affirmative Action/ Equal Opportunity Policy

Consistent with the policy of the State University of New York, the Institute of Technology does not discriminate on the basis of race, sex, color, creed, age, national origin, disability, marital status, status as a disabled veteran, veteran of the Vietnam Era, recruitment of students, recruitment and employment of faculty and staff, or the operation of any of its programs and activities as specified by federal and state laws and regulations.

Additionally, discrimination on the basis of sexual orientation and the provision of any services or benefits by state agencies and in any matter relating to employment is prohibited by the Governor’s Executive Order No. 28. The Policies of the State University of New York Board of Trustees also requires that personal preferences of individuals which are unrelated to performance, such as sexual orientation, shall provide no basis for judgment of such individuals.

The Director of Human Resources is designated coordinator in the college’s continuing compliance with relevant federal and state laws and regulations with respect to non-discrimination. The Director of Human Resources may be consulted during regular business hours in Kunsela Hall, or by calling (315) 792-7191. Questions concerning Section 504 of the Rehabilitation Act of 1973, as amended, should be directed to the 504 Coordinator in the student activities office in the Campus Center, or by calling (315) 792-7530.

## Servicemembers Opportunity Colleges

The Institute of Technology has been designated as an institutional member of Servicemembers Opportunity Colleges (SOC), a group of over 400 colleges and universities providing voluntary postsecondary education to members of the military throughout the world. As a SOC member, the Institute of Technology recognizes the unique nature of the military lifestyle and has committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements, and crediting learning from appropriate military training and experiences. SOC has been developed jointly by educational representatives of each of the Armed Services, the Office of

the Secretary of Defense, and a consortium of 13 leading national higher education associations. It is sponsored by the American Association of State Colleges and Universities (AASCU) and the American Association of Community and Junior Colleges (AACJC).

## Academic Programs—HEGIS Code

The Higher Education General Information System (HEGIS) Taxonomy is a nationally accepted classification scheme for assuring consistency in the curriculum content of courses leading to a degree within a given HEGIS discipline category. Thus, the concept of “information science” is the same for the person studying for a degree in computer and information science, classification number 0701, whether the degree is pursued at the Institute of Technology or at another institution. Enrollment in other than the following registered, or otherwise approved, programs may jeopardize eligibility for certain student aid awards.

HEGIS Classification	Degree
0502 Accounting	B.S. Bachelor of Science (For Associate Degree Graduates in Arts or Sciences, A.A. or A.S.)
0502 Accountancy	M.S. Master of Science
0504 Finance	B.S. Bachelor of Science B.B.A. Bachelor of Business Administration (For Associate Degree Graduates in Arts or Sciences, A.A. or A.S.) B.P.S. Bachelor of Professional Studies (For Associate Degree Graduates in Applied Science, A.A.S. Graduates)
0506 Business and Public Management	B.S. Bachelor of Science B.B.A. Bachelor of Business Administration (For Associate Degree Graduates in Arts or Sciences, A.A. or A.S.) B.P.S. Bachelor of Professional Studies (For Associate Degree Graduates in Applied Science or Occupational Studies, A.A.S. or A.O.S.) with concentrations in: 1. Marketing 2. Management 3. Other related Business Management disciplines
0506 Business Management	M.S. Master of Science
0601 Professional and Technical Communication	B.S. Bachelor of Science
0701 Computer and Information Science	B.S. Bachelor of Science (For A.S. and A.A.S. Graduates)
0701 Computer and Information Science	M.S. Master of Science (For Graduates of Baccalaureate Degree Programs in Computer Science or related disciplines.)

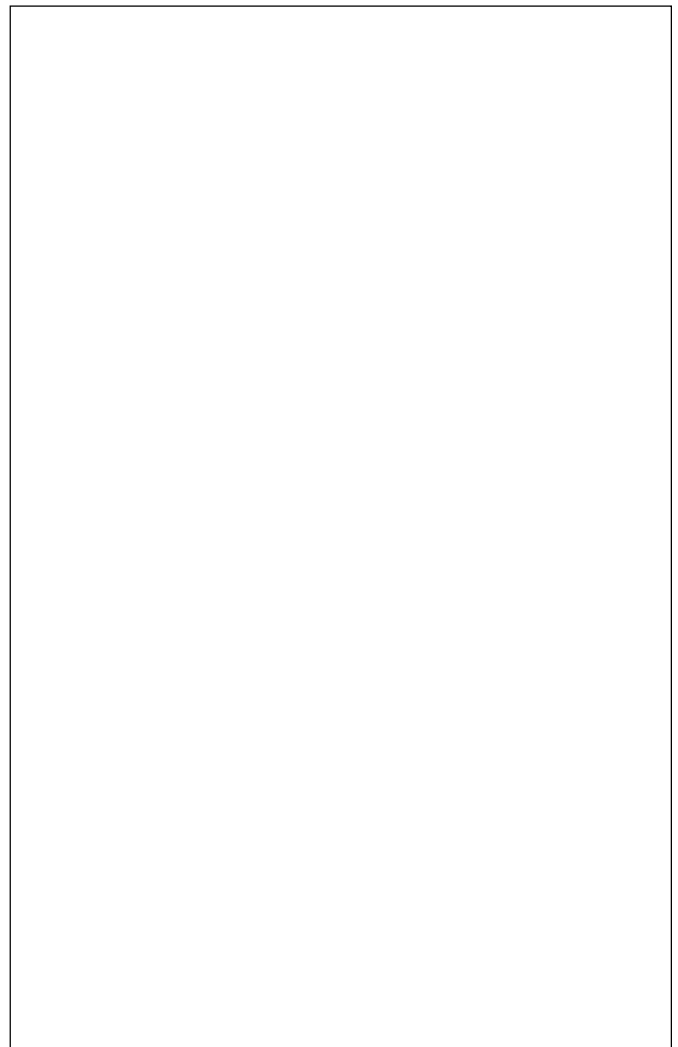
0702	Computer Information Systems	B.S. Bachelor of Science (For A.A.S. Graduates)
0799	Telecommunications	B.S. Bachelor of Science (For Associate Degree Graduates in Arts or Sciences; A.A. or A.S., and A.A.S. Degree Graduates) with concentrations in: 1. Electrical Engineering Technology 2. Computer Science 3. Business/Management
0799	Telecommunications	M.S. Master of Science
0925	Computer Engineering Technology	B.S. Bachelor of Science (For A.S. and A.A.S. Graduates) with concentrations in: 1. Computer Technology 2. Electrical Engineering Technology 3. Computer Science 4. Mathematics/Science
0925	Electrical Engineering Technology	B.S. Bachelor of Science B.Tech. Bachelor of Technology (For A.S. and A.A.S. Graduates or equivalent)
0925	Industrial Engineering Technology	B.S. Bachelor of Science B.Tech. Bachelor of Technology (For A.S. and A.A.S. Graduates or equivalent)
0925	Mechanical Engineering Technology	B.S. Bachelor of Science B.Tech. Bachelor of Technology (For A.S. and A.A.S. Graduates or equivalent)
0925	Civil Technology	B.S. Bachelor of Science
0925	Photonics	B.S. Bachelor of Science (For A.S. and A.A.S. Graduates)
0925	Advanced Technology	M.S. Master of Science
1202	Health Services Management	B.S. Bachelor of Science (For A.A. and A.S. Graduates) B.P.S. Bachelor of Professional Studies (For A.S. and A.A.S. Graduates)
1203.10	Nursing	B.S. Bachelor of Science (For Registered Nurses)
1203.10	Nursing Administration	M.S. Master of Science (For B.S. Graduates in Nursing)
1203.10	Adult Nurse Practitioner	M.S. Master of Science
1203.10	Adult Nurse Practitioner	Advanced Certificate
1215	Health Information Management	B.S. Bachelor of Science (For A.A. and A.S. Graduates) B.P.S. Bachelor of Professional Studies (For A.A.S. Graduates)

1703	Applied Mathematics	B.S. Bachelor of Science
2001	Psychology	B.A. Bachelor of Arts (For A.A. or A.S. Graduates)
2208	Sociology	B.A. Bachelor of Arts (For A.A. or A.S. Graduates)
4901	General Studies	B.A. Bachelor of Arts (For A.A. and A.S. Graduates)

## Retention and Graduation of Undergraduates

Graduation statistics of full-time students entering in the successive fall semesters of 1987, 1988, 1989, 1990, 1991, and 1992 are as follows:

Date of Entry	% of Students Graduated
Fall 1987 .....	79.2%
Fall 1988 .....	79.7%
Fall 1989 .....	77.2%
Fall 1990 .....	81.6%
Fall 1991 .....	77.5%
Fall 1992 .....	73.8%



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# Professional Advisory Committees

To develop and implement its academic programs, SUNY Institute of Technology seeks the guidance of selected individuals who are outstanding in the fields offered for study at the college. These individuals make up advisory committees that serve each of the programs of the college. They present suggestions and ideas to the deans and directors of the college in areas of program development, facilities, staff, placement of graduates, recruitment of students and faculty, and financial aid to students. The input of these career-based committees helps keep the curricula of the college in step with the changing trends in business, industry, government, and social agencies.

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# Courses

The courses described in this catalog are expected to be taught within the academic years 1997-1999. The college reserves the right to cancel any course when the enrollment is insufficient to support it. The right is also reserved not to offer a course if resources become unavailable, or if the course has been dropped from the curriculum since the last printing of the catalog.

The college also reserves the right to change faculty assignments, and therefore cannot guarantee students the faculty of their choice.

Additional information can be secured by contacting the Registrar's Office, SUNY Institute of Technology at Utica/Rome, P.O. Box 3050, Utica, New York 13504-3050. Telephone 315/792-7265.

## Accounting

### **ACC 301 Financial Accounting Theory (4)**

An accelerated introduction to accounting theory, including the nature and need for accounting principles and accounting concepts. Coverage includes financial statement preparation and analysis, internal control, and accounting systems.

### **ACC 305 Managerial Accounting Problems (4)**

Controller use of accounting data to assist with decisions on budgeting, factor and product combinations, pricing, and for performance evaluation of segments of the firm. Prerequisites: ACC 301, MAT 311 or equivalents, or permission of instructor.

### **ACC 310 Income Tax I (4)**

Analysis of Federal Income Tax legislation and IRS interpretations affecting individuals' returns. This includes analysis of accounting methods used to determine gross income, deductions, capital gains/losses, and business income. Also includes instruction on availability and use of tax services. Prerequisite: ACC 301 or equivalent.

### **ACC 311 Income Tax II (4)**

Impact of Federal tax legislation and IRS regulation on taxation of corporations, partnerships, estates and trusts. Special attention is given capital gains/losses, normal tax and surtax, income and deductions of domestic and international/multi-national organizations. Prerequisite: ACC 310 or equivalent.

### **ACC 320 Fund Accounting (4)**

Accounting principles and procedures as applied to not-for-profit entities. Accounting and financial management procedures for governments, health facilities, educational institutions, and charitable organizations. Prerequisite: ACC 301.

### **ACC 321 Financial Planning and Controls for Not-For-Profit Organizations (3)**

Students will learn the elements of budgeting and financial controls for governments, educational institutions, health care entities, charities, and volunteer organizations. By the end of the course students should be able to prepare budgets and cash flow projections, and prepare program cost analysis for not-for-profit organizations. Prerequisite: ACC 320.

### **ACC 370 Cost Accounting (3)**

Cost accounting and related analytical concepts. Topics include cost accumulation, variance analysis, joint costs, and standard costing. Prerequisite: ACC 301 or equivalent.

### **ACC 385 Intermediate Accounting I (3)**

An advanced theory course in accounting, including problems in corporation accounting, evaluation of items on the balance sheet, and statement of income. The course emphasizes the opinions, statements, and other current publications of the American Institute of Certified Public Accountants and the Financial Accounting Standards Board. Prerequisite: ACC 301 or equivalent.

### **ACC 386 Intermediate Accounting II (3)**

Continuation of Intermediate Accounting I. Topics include Stockholder's Equity and more complex accounting topics, including accounting for pensions, leases and income taxes, and the Statement of Cash Flows. Prerequisite: ACC 385 or equivalent.

### **ACC 430 Accounting Controls For Not-For-Profit Organizations (3)**

Students will acquire a working knowledge of cash flow projections, budgeting, cost accounting and control and evaluation techniques for not-for-profit organizations. Case study analysis and presentations will be the primary instructional method. Students will learn to use an electronic spread sheet to assist in analyzing case studies. Cross-listed with HSM 435. Prerequisite: ACC 301.

### **ACC 450 Auditing (4)**

Auditing standards and techniques used in audit engagements; preparation of audit working papers and audit reports. Prerequisite: ACC 386 or equivalent.

### **ACC 471 Advanced Management Accounting (3)**

Students will learn techniques for budgeting, cost-volume-profit analysis, segment evaluation and analyzing operating constraints. They will research and develop solutions to various advanced management accounting problems through case studies and problems from the CMA Exam. Finally, the students will present their analysis and recommendations orally and in writing. Cross-listed with ACC 571. Prerequisite: ACC 305 or ACC 370 or equivalent.

### **ACC 475 Advanced Accounting Problems (4)**

Advanced accounting problems cover partnerships, home office and branch relationships, fiduciary accounting, governmental and institutional units, consolidated financial statements, corporate mergers and acquisitions, and other advanced problems. Prerequisite: ACC 386 or equivalent.

### **ACC 480 CPA Problems I (4)**

To assist students preparing for careers in public accounting, emphasis is placed on analysis required in examinations preliminary to expressing a professional opinion as to fairness; includes examination procedures and methods of reporting results. Prerequisite: Permission of instructor. Cross-listed with ACC 580.

### **ACC 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

## Anthropology

### ANT 301 General Anthropology (4)

Examines the general characteristics of a holistic cultural approach. Presents a general theory of human cultural development. Places specific anthropological issues, such as the origin of gender roles, inequality, and the nature of the state, in theoretical and cross-cultural perspective. Integrates data from cultural anthropology, linguistics, biological anthropology, and archaeology where appropriate. Designed for upper division students with no previous background in anthropology.

### ANT 302 Biological Anthropology: Contemporary Issues (4)

Introduces the fundamental theoretical and research themes in the holistic study of humans as a life form. Examines how these themes are pursued in various practical contexts. Includes an overview of biological evolutionary theory, basic genetics, and other concepts essential for addressing major topics like human biological variation, primate studies, and human evolution.

### ANT 303 Cultural Diversity (4)

Examines the nature of social and cultural systems of diversity. Investigates cultural practices relevant to the constitution of such social constructs as race, class, gender and sexuality. Emphasizes the processes through which such ideas, products and culturally and historically constructed social worlds, become parts of a taken-for-granted social universe. Integrates the relationship between conceptions of race, class and gender and sociological and anthropological practice. Course may not be taken by Sociology majors.

### ANT 320 Social Policy (4)

Examines various attempts to apply social science knowledge to address social problems and bring about appropriate change in human behavior. Explores the process by which social policy is developed and implemented. Examples taken from both the United States and other cultures. Among possible topics are social service, needs assessment, health and healing, work, education, and technological change. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### ANT 321 Distinction: Race, Class and Gender (4)

Examines the nature of social and cultural systems of distinction. Investigates cultural practices relevant to the constitution of such social constructs as race, class, gender and sexuality. Emphasizes the processes through which such ideas, products of culturally and historically constructed social worlds, become parts of a taken-for-granted social universe. Integrates the relationship between conceptions of race, class and gender and sociological and anthropological practice. Prerequisite: ANT 301 or SOC 300, or an introductory anthropology or sociology course. Restricted to Sociology majors.

### ANT 331 Displaced Peoples': Diasporic Communities in the Modern World (4)

Analyzes culturally diverse social, political and economic issues concerning displaced communities of exiles, migrants (recent and traditional) and refugees in the United States, Europe and elsewhere. Considers the status of displaced populations resulting from war, political and economic crisis and religious distinction in the contemporary world. Emphasizes the creation of social relations that cross the borders of the nation-state. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### ANT 332 Pre-Columbian Urban Centers (2)

Introduces students to pre-industrial urban centers of the Americas that thrived before Europeans arrived. Evaluates architectural variation and patterns in artifact distribution used to examine such issues as social stratification, economic organization and occupational specialization, political administration, and religious activities. Promotes a sense of variation in urban centers and complex sociopolitical systems that existed in the New World prior to European contact by examining a number of Pre-Columbian centers.

### ANT 371 People and Systems: Cultural Perspectives on Information Practice (4)

Presents the general concepts essential to a cultural perspective on information practice, including awareness of how information activities are mediated by cultural constructs and are developed within pre-existing socio-technical frameworks. Examines the results of research and reflection from a variety of relevant fields which document and illuminate the social and cultural dimensions of system development. Illustrates how to combine these results and reflections into analyses of why systems succeed or fail and how to incorporate into system development work specific tools which increase the likelihood of system success. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### ANT 382 Cultures, Health and Healing (4)

Presents the essential elements of a cultural perspective through examination of health and illness-related behavior. Places disease and illness in holistic perspective. Explores specific issues in medical anthropology, such as the way various cultures conceive disease and illness, cross-cultural conflict in health care delivery, industrial and non-industrial approaches to therapeutic intervention, the relationship of disease and human evolution, and alternative approaches to the study of such issues. Assumes no previous study in anthropology, although this would be helpful. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### ANT 460 Ethnography (4)

Provides an intensive survey of ethnographic practice in anthropology and sociology. Examines a wide range of ethnographic materials focusing on the actual production of ethnographic materials including the use of "participant observation," the collection and making of the ethnographic text, questions of ethics in field work practice, and recent feminist and postmodern discussions. Provides students' with the skills and information required in fieldwork practice. Covers specific projects that require students to generate primary field data and complete an analysis of this data using one or several of the theoretical perspectives covered during the semester. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### ANT 490 Selected Topics in Anthropology (4)

An in-depth treatment of a selected topic in Anthropology. Provides students with the opportunity to investigate Anthropological subject matter that will not be repeated in a future seminar. Prerequisites: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### ANT 491 Independent Study (Variable 1-4)

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisite: Matriculated student only, permission of instructor and dean of subject area.

## ART

### ART 335 Drawing (2)

This is a beginning course in free-hand drawing for the layperson. The student will be guided through a sequence of lessons beginning with line quality, the vocabulary of lines, and proceed through drawing materials and techniques, foreshortening and shading. Emphasis will be placed on the representation of forms in drawing. Lessons will consist of lecture-demonstrations, class work, and homework. The expected result is to provide the student with more confidence in the self-expression and appreciation of drawing.

### ART 340 Painting - Technique & Style (2)

An investigation of visual art forms and techniques that influence and express qualities of American culture. Aspects of design, color and style will be explored through studio experience, lecture, slides, and demonstrations, to enable the student to use the elements of line and color to create visual space on a flat surface.

### ART 341 Painting II - Technique & Style (2)

Continuation of the investigation of visual art forms and techniques, for students who wish to improve visual literacy. Students will explore several major styles in the modern Western tradition, applying and experimenting with the brush and pigment techniques through which those styles are achieved.

### ART 350 History of American Art (4)

A survey of important trends and significant styles of American painting and sculpture from colonial times, including works of Sargent, Whistler, Homer, Inness, Johns, and Pollock. Lectures, slides, museum tours.

## Astronomy

### AST 322 Astronomy (4)

A survey of the nature of celestial bodies within the solar system, as well as constellations and phenomena in and beyond our galaxy. Also covered are comets, meteoroids, asteroids, black holes, quasars, pulsars, supernovae, star clusters, and double stars. Does not meet General Education Laboratory Science Requirement.

## Biology

### BIO 302 Genetics (4)

A broad coverage of the field of genetics to include discussion of the transmission, chemical nature, and function of genetic material, with special attention to its importance in medicine, agriculture, and other aspects of human life and culture. Three hours of lecture and three hours of laboratory. Satisfies the general education requirement for a laboratory science course.

### BIO 305 Biology of Aging (4)

This introductory course in biology emphasizes the process of aging. Topics include demographics, concepts of aging, anatomy and physiology as well as general non-medical assessments of the elderly. Students can not receive credit for both BIO 350 (Advance Physiology) and BIO 305.

### BIO 337 Nutrition and Health (4)

This course examines the nature of nutrients, their metabolism and physiological function, and the factors that may influence the degrees to which these nutrients are required for healthy functioning. Nutritional health issues and the influence of drugs and environmental factors on nutrition and health will be emphasized.

### BIO 350 Advanced Physiology (4)

An integrated study of human physiology at the biochemical, cellular, tissue, and organ level. The course is designed primarily for upper division science and nursing majors. Emphasis will be on explanation of biochemical and cellular mechanism in the major organ systems of the human body. Prerequisite: Introductory course in Anatomy and Physiology or Consent of Instructor. Does not meet General Education Laboratory Science Requirement.

## Business

### BUS 305 Law of Business Transactions (4)

A case-approach analysis of business transactions in the legal environment. Coverage includes: court structure and processes, contracts, sales, commercial paper, secured transactions, and property transactions. Related local, state, and federal statutes and forms are also considered.

### BUS 306 Business Law II (3)

Designed to extend the student's legal knowledge of business transactions by stressing issue recognition and case analysis. Topics covered include agency, property, suretyship, legal liability, bankruptcy, and business organization. Prerequisite: BUS 305.

### BUS 310 Principles of Insurance (4)

Introduction to basic principles of life, health, property, liability, and other forms of insurance from the viewpoint of the purchaser. Emphasis will be on universal insurance concepts and not specific policy provisions. Consideration is given to the importance of risk in personal and business transitions and various methods of handling risk with emphasis on insurance.

### BUS 345 Real Estate Transaction (4)

The principal purpose is to develop an understanding of the legal framework and basic principles that apply to real estate transactions. Residential and commercial real estate transactions will be examined in detail. Specific legal issues are presented in a problem-solving format and may include: introduction to real estate, recording statutes, title abstracting and title insurance, survey and legal descriptions, mortgages, leases, deeds of conveyance, settlements and closings and Real Estate Settlement Procedures Act.

### BUS 375 Entrepreneurial Functions (4)

A classroom opportunity to understand small business and become familiar with actual functions of entrepreneurship. The course is aimed at highlighting those responsibilities and challenges a college graduate will be exposed to when gaining employment. It will offer a more detailed understanding of operational functions to the average business person, and it will offer a new or potential entrepreneur an insight into the future.

### BUS 420 Employee Benefits (4)

Concepts of group life, health, retirement, and emerging employer sponsored benefit plans. Emphasis is on plan design and management with special attention to cost funding, regulation and tax considerations. The impact of government programs such as Social Security on individual insurance and employee benefit programs and potential impact of proposals such as national health insurance. Prerequisite: MGT 318.

### BUS 451 Issues in Business and Society (4)

Analysis of forces external to the firm which influence its goals, structure and operation. Includes legal and regulatory constraints, primarily as they reflect the philosophical backgrounds of free enterprise and managerial enterprise, and managerial enterprise

viewpoints current in American business. Also, the social, political, and technological factors which influence managerial/non-managerial behavior in the firm, and the firm's impact on society. Actual cases influencing the firm or industry objectives, and the philosophy of private enterprise will dominate the subject matter.

#### **BUS 455 2000 and Beyond: The Future in Industry and Society (3)**

"The only useful knowledge is about the future." This course crosses traditional disciplinary lines to use history, literature, economics, management theory and statistics to develop scenarios of what the student may experience in life and work in the year 2000 and beyond.

#### **BUS 477 Projects in Business (4)**

The student will complete an in-depth project which provides strong insight to the application of business theory and technique. The student is expected to illustrate a high level of understanding regarding the theory associated with the project. Examples of potential project formats are comprehensive cases studies, a senior thesis, an organization case history, research projects for government or not-for-profit agencies, faculty approved internships, or other projects approved by the supervising faculty. A report suitable to the project will be required.

#### **BUS 485 Management Policy (4)**

Emphasis is placed upon analysis of the factors upon which ultimate business decisions are made; construction and review of business plans, and business strategies in domestic and foreign operations under varying political, economic and legal constraints. Special attention is given to actual situation analysis. Current functional and managerial techniques are applied to a variety of case problems. Prerequisites: Senior status and completion of all business core requirements.

## **Chemistry**

#### **CHE 300 Essentials of Chemistry (4)**

An introduction to chemistry for non-majors. The course will cover some key topics in chemistry, with emphasis on its impact on society. Course includes three hours of lecture and three hours of laboratory per week. Meets General Education Laboratory Science Requirement.

## **Civil Technology**

#### **CTC 312 Intergraph Microstation (2)**

Basics of CAD as applied to civil engineering technology using Intergraph software for typical civil technology applications such as structures design drawings, highway layouts, detailing. One hour of lecture and two hours of laboratory per week. Prerequisite: basic understanding of geometry and trigonometry.

#### **CTC 320 Structural Analysis (4)**

An investigation of the analysis of both determinate and indeterminate structures. Emphasis is placed on application of the principles of mechanics on the analysis of structural systems. Three hours of lecture and two hours of laboratory per week. Lab hours will be used for experiments and problem solving using computer applications. Prerequisite: MTC 318 or equivalent. Pre/Corequisite: MAT 321 and CSC 300 or CSC 317.

#### **CTC 325 Computer Methods in Construction Estimating (4)**

Course emphasizes the determination of probable construction costs. Special attention is given to items that influence and contribute to the cost of a project. Estimates are prepared from drawings and specifications using industry standard estimating

handbooks and software. Three hours of lecture and two hours of laboratory per week. CSC 300 or CSC 317 and CTC 320 or permission of instructor.

#### **CTC 340 Transportation Analysis (4)**

Introductory course to Transportation Engineering. Topics include highway design, traffic analysis, capacity planning, and computer modeling. Three hours of lecture and two hours of laboratory per week. Prerequisite: CSC 300 or CSC 317. Corequisite: MAT 321.

#### **CTC 370 Network Scheduling (3)**

Basic concepts and techniques in network planning and scheduling using PERT and CPM. Advanced methods of mathematical and computer analysis will be covered. Industry scheduling software will be utilized both in class and for solving homework problems. Cross listed with ITC 370. Three hours of lecture with laboratory work substituted as appropriate. Prerequisite: CTC 320 or permission of instructor.

#### **CTC 413 Construction Methods Heavy and Highway (4)**

Course in heavy and highway construction methods. Topics include earth moving and heavy construction, building construction, and construction management. Three hours of lecture and two hours of laboratory per week. Prerequisite: CSC 300 or CSC 317 and CTC 320.

#### **CTC 414 Construction Methods: Commercial and Light Industrial (4)**

Course in commercial and light construction methods. Topics include commercial and light industrial building systems, site work and construction management. Three hours of lecture and two hours of laboratory per week. Prerequisite: CSC 300 or CSC 317 and CTC 320.

#### **CTC 420 Structural Design (4)**

Course emphasizes the structural design process using conventional methods and computer-aided design/engineering. In particular, industry standard design handbooks and software are used to complete a number of building and bridge design problems with a final project. Three hours of lecture and two hours of laboratory per week. Prerequisite: CTC 320.

#### **CTC 430 Engineering Dynamics (4)**

Kinematics of particles, lines and bodies, and the kinetics of particles of rigid bodies with translation, rotation and plane motion using the methods of force - mass - acceleration, work-energy, and impulse momentum. Three hours of lecture and two hours of laboratory work per week. Cross listed with MTC 430 and ITC 430. Prerequisite: MTC 318 or equivalent. Pre/Corequisite: MAT 322 or equivalent.

#### **CTC 435 Welded Structures (3)**

Course emphasizes the design of welds and the use of welding process in structures. Further, the course studies the selection of connecting systems, the fundamental differences between types of welds and procedures, the most efficient use of steel, and economy of weld. Prerequisite: CTC 420.

#### **CTC 440 Highway Design (4)**

Course emphasizes the highway design process using conventional and computer methods. In particular, industry standard design, engineering handbooks and software are used to complete a number of highway design projects involving site planning, earthwork, geometric design, pavement design, and project management. Three hours of lecture and two hours of laboratory per week. Extensive use of InXpress software. Students should have familiarity with CAD. Prerequisite: CTC 340.

**CTC 450 Environmental Engineering Technology (3)**

Introductory course in environmental science and engineering. An understanding of the basic nature of natural systems: The atmosphere, aquatic and terrestrial systems, and how technology affects these systems and can be used to minimize damaging impacts. Cross listed with ITC 452.

**CTC 461 Fluid Mechanics and Systems (4)**

Introduction to fluid mechanics. Study of the principles of statics and dynamics applied to fluids. Some of the topics covered are: Pressure variation in fluids, flow in conduits, flow measurements, special topics in fluid mechanics, etc. Three hours of lecture, two hours of laboratory per week. Cross listed as MTC 461. Pre/Corequisite: MAT 322 or equivalent.

**CTC 462 Drainage Design (4)**

Introductory course in drainage design including topics in applied hydrology, applied hydraulics, culvert sizing, inlet spacing and channel stabilization. 3 hours of lecture and two hours of lab per week. Prerequisite: CTC/MTC 461.

**CTC 465 Special Topics in Civil Technology (Variable 1-4)**

A study of a selected topic of interest to civil technologists which will enhance the student's ability to practice in his/her profession.

**CTC 470 Construction Administration (4)**

Advanced course in the responsibilities and risk associated with project management within the construction industry. Subjects addressed relate to special problems encountered in construction and the management of those problems. Special emphasis is given to responsibilities, relationships between owners, contractors and labor, construction safety and construction contracts. Prerequisites: CTC 320 and CTC 370, or permission of instructor.

**CTC 475 Economic Analysis in Technology (4)**

Methods for choosing between alternatives based on the time value of money. Replacement studies, depreciation and after-tax analysis, risk, uncertainty and sensitivity analysis. Three hours of lecture per week and two hours of laboratory per week. Cross listed as ITC 475.

**CTC 476 Finite Element Applications (4)**

Concepts of Finite Element Analysis and their applications. Analysis of determinate and indeterminate structures, bar, truss, plate, and shell elements. Condition of plane stress and plane strain. Model generation to include fluid flow, combined elements and automatic meshing. Extensive use of ALGOR software. Three hours of lecture and two hours of laboratory work per week. Cross listed as MTC 476. Prerequisite: MAT 322.

**CTC 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

**CTC 492 Internship/Co-Op Assignment (2 or 4)**

Provides part-time supervised experience in a professional atmosphere which supplements classroom instruction. Two written reports on the work experience and two supervisor's evaluations required. One site visit or conference call planned. Required contact hours min. 150. Prerequisite: Permission of instructor. Free elective; CANNOT be counted as a technical elective. Course is graded as satisfactory/unsatisfactory.

**Communications****COM 300 Oral Communications (4)**

This course is designed to train students' capacity for oral communication, with emphasis on research, organization, and presentation of speeches which inform, persuade, and entertain. Delivery, style, and audience analysis will be stressed. Small group discussions will aid the students to interact with others, and to apply the theories and techniques of debating. Extemporaneous speeches are also required and evaluated by the group.

**COM 302 Advanced Oral Communications (4)**

Students will use a case study approach to oral presentation in group settings. Public speaking skills will be augmented by the newest graphic tools. Designated for Professional and Technical Communication majors; others on a space available basis. Students may not receive credit for both COM 302 and COM 300.

**COM 306 Report Writing and Technical Communication (4)**

Students will learn to communicate more effectively in a professional environment through ample practice with individual as well as group composed documents (i.e. memos, letters, instructions, proposals, and analytical reports) and the oral presentation of a formal report. Since the course is usually taught in a computer lab, word processing and computer graphics are used to enhance the reports. Meets Upper Division Writing Requirement.

**COM 308 Analytical & Research Writing (4)**

This course stresses the analysis of written and statistical material and the use of these sources to support complex arguments. The students will learn to focus and control difficult topics rather than paste together paraphrases from secondary sources. A series of short essays based on readings culminates in a long research essay. Intended for Arts & Science majors; others by permission of instructor. Meets Upper Division Writing Requirement.

**COM 310 Technical Editing (4)**

Industries and organizations rank effective communication skills on the list of desirable qualities needed for success in any profession. This course offers instruction and practice in editing procedures and proofreading techniques for technical and professional documents. After examining writing styles and editing principles, students will critique and edit their own and other students' work. Students will be expected to submit one piece of writing for publication. Students will also be introduced to and use a number of computerized grammar analyzers and style checkers. Prerequisite: COM 306 or equivalent.

**COM 311 Public Relations Writing (4)**

This course is designed to teach students the basic concepts of effective public relations writing and to give them a solid foundation in the use of multiple communication tools that are used in the public relations industry. The emphasis is on media techniques, preparation of materials, and the dissemination of them through appropriate channels. Prerequisites: COM 306 or COM 308. It is also desirable for students to have background in or have completed a course in basic news writing and desktop publishing. Students cannot receive credit for this course and either COM 351, Principles of Brochure and Pamphlet Design, or COM 352, Newsletter Design and Production.

**COM 315 Theater and Communication (4)**

As the art of human interaction, theater provides a means to explore communication issues through role-playing, improvisation, and scripting. Designed for students concerned with group dynamics, public education, and counseling, this

course will examine, through reading and exercise, how theater has affected contemporary America. Students will apply theater techniques to public issues, education, conflict resolution, and group dynamics. May be taken to meet the Humanities Requirement.

#### **COM 316 Media and Communication (4)**

The impact of the mass media (television, radio, journalism, film) upon American society is well-documented. Emerging technologies (computer-mediated communication, cable video, satellite communications) will further change the ways in which we communicate. Through study of communication theory, survey of traditional and new media, and creation of original media projects, students will explore the relevance of the new technologies to their own disciplines. May be taken to meet the Humanities Requirement.

#### **COM 320 Principles of Design for Desktop Publishing (4)**

Students will be exposed to the nature of visual language and how designers use and readers process such information. Theories and research that relate to visual communication will be covered. Students will analyze and evaluate selected readings and examples; and students will use modern desktop publishing techniques to design and produce printed material. Additionally, the theory of design of online material will be discussed with particular emphasis on publication of World Wide Web home pages. Projects will include home page design and publication. Concepts covered earlier in the course will be applied to computer screen design. Prerequisites: Knowledge of basic computer skills.

#### **COM 341 Video and Communication (4)**

The course examines the role of video in the new communication technologies through projects which use video for various applications: education, training, sales promotion, etc. Emphasis is placed on the design process and the many choices available to deliver a video-based message. The course will draw upon the Institute's Instructional Media studio capabilities. Pre/corequisite: COM 342 is recommended, but not required.

#### **COM 342 Field and Studio Video Production (4)**

Covers the fundamentals of basic television and audio production. The student develops skills necessary to serve on production crews and operate audio and video equipment in the broadcast studio. Also covers the fundamentals of television production with emphasis on direction, and operation of associated broadcast field equipment, developing the various skills necessary to produce quality video.

#### **COM 350 Designing Online Information (4)**

This course teaches students to evaluate, design, and develop online information. Students use an authoring tool to design an online tutorial that addresses human-computer interface and design issues covered in the course. Meets Upper Division Writing Requirement.

#### **COM 351 Principles of Brochure and Pamphlet Design (2)**

This course looks at brochures and pamphlets and their purposes within an organization. Students will analyze good and bad examples before producing each type of communication on their own. Students will make extensive use of desktop publishing technology. Prerequisite: COM 320 or equivalent.

#### **COM 353 Newswriting (4)**

This course provides an introduction to the field of journalism. Students will participate in a group discussion about the newswriting process, from story ideas and development through to a close review of the final product. Students will be developing

story ideas and writing articles suitable for publications. Prerequisite: Any upper division writing course.

#### **COM 360 Usability Testing (4)**

The only way to judge the usefulness of a document in the marketplace is by usability testing. Students will study the steps to formalize usability testing and practice the basics of test design and analysis for hypothetical or real products. Students will refine testing methodology and administration, in addition to understanding the factors affecting information and product quality.

#### **COM 380 Communication Theory (4)**

This course exposes students to a range of communication theories, including those allied to systems theory, rhetoric, linguistics, psychology, philosophy, and anthropology. Students will explore a single theorist/theoretical position in depth. May be taken to meet the Humanities Requirement.

#### **COM 400 Computer Software Documentation (4)**

This course explains how to write professional computer documentation, from writing a proposal, to gathering data, to designing a document and related visuals, to running a usability test on the material, to revising style and polishing the final reference. This course discusses the nature of visual language and considers the utilization of modern desktop publishing techniques to develop communication ideas and transfer them onto the printed page. Student teams develop a software documentation package using the school's desktop publishing hardware and software. Prerequisites: Senior status and 12 semester hours in computer science. Meets Upper Division Writing Requirement.

#### **COM 406 Advanced Technical Communication (4)**

This course integrates academic & practical experience by placing students in an industrial or business writing setting. Students will be assigned clients in various businesses and industries, and they will work on site in completing their major projects. As students work through the documentation process, they will be given detailed classroom instruction about the processes of writing and editing in the corporate culture. This course is designed as a 1-semester practicum where students will meet with the instructor in the classroom and with their clients on a regular weekly basis. Prerequisites: COM 306 and COM 320 and permission of instructor.

#### **COM 410 Communication Research Methods (4)**

This course is designed to give an overview of the communication research process and provide training in research methods. It considers theory, underlying logic, and various quantitative and qualitative tools. Students apply principles and strategies by designing, conducting, and reporting on preliminary communication research projects as time permits. Computers are used for statistical analysis of data. Course satisfies the social science, but not the humanities requirement. Prerequisite: Valid campus computer account AND COM 306 OR COM 308 OR COM 400 OR equivalent.

#### **COM 411 Communicating on Computer Networks: Issues and Implications (4)**

This class examines the various facets of computer networks; their history, the reasons for their existence, their use, operation and design, collaborative issues, and concerns regarding copyright and intellectual property. Emphasis is placed on the nature of networks, how they can and will effect our world, and how they are best utilized. Although there will be hands on training and use of the Internet throughout the semester this is not a "tools"

course on using the Internet. Rather, we will use our experiences on the network to write about and discuss the underlying social, political, legal, and educational aspects of networking. Students will become familiar with issues involved with networking as well as associated terminology and jargon.

#### **COM 420 Principles of Information Design & Internet Publishing (4)**

This course is designed to give instruction in various processes that involve innovation, planning, analysis, design, implementation, and promotion of Internet-based information publishing, especially on the World Wide Web. It introduces students to the theoretical principles of visual language and also affords the practical opportunity to apply the principles using modern Internet publishing tools.

#### **COM 490 Special Topics in Communication (4)**

An in-depth treatment of a selected topic not normally treated extensively in other communication courses. The subject matter will be related to current trends in communication. Prerequisite: Permission of instructor.

#### **COM 492 Technical Communication Internship (Variable 2-8)**

The internship, for qualified senior Technical Communication majors, is designed to provide practical work in the field of computer documentation, editing, public relations, or graphics design. Students either work on or off campus under the direction of a qualified communication specialist. Prerequisite: 3.0 GPA in major; permission of program faculty and internship corporate sponsor. Only S/U grades are awarded for this course.

#### **COM 499 Final Project and Professional Portfolio (2)**

This course is designed to give technical communication majors a first-hand look at the job search process (professional development) and portfolio development. Students will be expected to research some aspect of the field, prepare an oral presentation, submit a portfolio for review, and go on an actual interview. Prerequisite: COM 302, COM 306, COM 320, COM 380, COM 406.

## **Computer Engineering Technology**

#### **CET 311 Advanced Digital Systems Design (4)**

In depth study in Digital Systems Design using the 80386 CPU in Virtual-Mode, and related applications. Study analysis and applications of peripherals such as: i8251A PCI (Programmable Communication Interface), and i8255A PPI (Parallel Peripheral Interface), i8257A DMA (Direct Memory Access), and i8259A (Interrupt Controller). Extensive design of memory configurations using Static and/or Dynamic RAMs configurations. Introduction to i80387 architecture and related applications. Three hours lecture, two hours of laboratory per week. Prerequisite: ETC 310 or equivalent. Cross listed with ETC 311.

#### **CET 342 Microprocessor and Embedded Systems Programming and Design (4)**

Programming the microprocessor for embedded systems application. Includes an introduction to interfacing components and hardware of the microprocessor. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 310 or permission of instructor. No prior microprocessor background needed. Cross listed with ETC 342.

#### **CET 416 Data Communication & Computer Network Technology (4)**

The principles and techniques of data and computer communications are covered in detail in this course. Topics

include principles of data transmissions, data encoding, digital communication techniques, transmission codes, error detection and correction, protocols, communication networks, interfacing and architecture. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 316 or equivalent. Cross listed with ETC 416.

#### **CET 423 Microprocessor Interfacing (4)**

Analysis of microprocessor interfacing with operational hardware. Three hours of lecture, two hours of laboratory per week. Prerequisites: ETC 310 or equivalent and ETC 342 or permission of instructor. Cross listed with ETC 423.

#### **CET 429 Microprocessors, Microprogramming and Computer Architecture (4)**

Design of microprocessor and computer central processing units. Stresses the architecture and microprogramming of the processor. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 310 or equivalent or permission of instructor. Cross listed with ETC 429.

#### **CET 431 PC Integration and Maintenance (4)**

This course will stress the upgrading and repair of IBM PC computers and will emphasize the use of diagnostic hardware and software to evaluate PC systems in actual lab situations. Two hours of lecture and four hours of laboratory per week. Prerequisite: ETC 311 or ETC 342 or CSC 332. Cross listed with ETC 431.

## **Computer Science**

#### **CSC 300 Computer Systems and FORTRAN Programming (4)**

Basic concepts of computer science and computer programming. An introduction to computer hardware and applications programming using FORTRAN. No prior knowledge of computers or computing expected. Computer science or computer systems majors will not receive computer science credit for this course.

#### **CSC 302 Computer Systems and COBOL Programming (4)**

Basic concepts of computer science and computer programming. Problem-solving chosen from areas such as business, consumer economics, science, health care management, etc., using the COBOL language. Other topics to be covered included algorithms, flow charting, and batch processing.

#### **CSC 304 Computer Systems and Pascal Programming (4)**

Basic concepts of computer science and computer programming. An introduction to computer hardware and applications using Pascal. No prior knowledge of computers or computing required. Intended for non-majors. Computer science or computer systems majors will not receive computer science credit for this course.

#### **CSC 305 Computer Systems and COBOL Programming II (4)**

A review of basic COBOL. Advanced techniques. Programming problems chosen from various areas of business and management applications. Prerequisite: CSC 302 or equivalent.

#### **CSC 307 UNIX Programming Environment (2)**

Promotes effective use of the UNIX\* programming environment. Topics include: text editor, file system, utility programs, pipe and filter paradigm, shell language programming, internet, and interprocess communication.

\*UNIX is a trademark of Bell Laboratories.

#### **CSC 308 Programming Foundations (4)**

Problem-solving and programming with a modern language. Syntax and semantics of that language, including simple data



types, control structures, subprograms, recursion, and structured data types. Program design by stepwise refinement. Elements of programming style. Current instructional languages are C and C++.

### **CSC 309 Programming Methodology (4)**

Current approaches to programming methodology, the study of methods for transforming classes of problems into computer-implementable representations. Topics include: program specification, introduction to correctness proofs, use of assertions for program documentation and development, and multiple representations for abstract data. Problem classes include string processing, numerical methods, and geometric algorithms. The effect of programming language features on program development will also be emphasized. Prerequisite: CSC 308. Corequisite: MAT 313.

### **CSC 310 Computers and Society (2)**

A half-semester course examining the impact of computers in contemporary society. Topics include: components of a computer system, uses of computers in various disciplines and professions, and problems of data security and privacy.

### **CSC 311A Word Processing (DOS) (1)**

A hands-on introduction to word processing using WordPerfect or a similar DOS-based package. Topics include text entry, formatting, spell checking, search and replace, printing and merge printing. At the conclusion of this course, the student will have the skills necessary for production of a term paper, resume, or similar prose document, and the ability to produce a customized form letter. Students who have received credit for CSC 311 or CSC 311B may not take this course. Only S/U grades are awarded for this course.

### **CSC 311B Word Processing (Windows) (1)**

A hands-on introduction to word processing using Word for Windows or a similar Windows package. Topics include text entry, formatting, spell checking, search and replace, use of a thesaurus and grammar checker, printing, and merge printing. At the conclusion of this course, the student will have the skills necessary for the production of a term paper, resume, or similar prose document, and the ability to produce a customized form letter. Students who have received credit for CSC 311 or CSC 311A may not take this course. Only S/U grades are awarded for this course.

### **CSC 311C Spreadsheets I (1)**

A hands-on introduction to spreadsheets. Topics include building, saving and printing a worksheet, simple formatting, functions, and sorting. At the conclusion of the course, the student should be able to design a spreadsheet for statistical or financial applications, and to answer what-if questions. Students who have received credit for CSC 311 may not take this course. Only S/U grades are awarded for this course.

### **CSC 311D Spreadsheets II (1)**

A hands-on course on advanced spreadsheet features. Topics include print enhancements (fonts, borders, shading, etc.), hiding parts of the spreadsheet, macros, spreadsheet graphing, spreadsheet database functions. Prerequisite: CSC 311C or equivalent. Only S/U grades are awarded for this course.

### **CSC 311E Microcomputer Database (1)**

A hands-on introduction to the use of a microcomputer database using dBASE, Paradox, or a similar package. Topics include database creation, data entry, sorting and report preparation, modification of the database structure, adding/deleting records, form and report generation. Only S/U grades are awarded for this course.

### **CSC 311F Presentation Graphics (1)**

A hands-on introduction to presentation graphics using Powerpoint or a similar package. Topics include text charts, bar/line charts, pie charts, slide shows and transition effects, and output to disk, monochrome and color hard copy, overhead transparencies, 35mm film recorder and videotape. At the conclusion of the course, the student will have the skills necessary to use a presentation graphics package to communicate effectively employing a variety of media. Students who have received credit for CSC 312 may not take this course. Only S/U grades are awarded for this course.

### **CSC 311G Introduction to Desktop Publishing (1)**

A hands-on introduction to the use of a desktop publishing package for the creation of fliers, posters, newsletters, and similar short publications. Topics include page layout, style sheets, text formatting, and image handling. Output to monochrome and color printers is covered. At the conclusion of this course, the student will be able to design and create a short publication. Prerequisite: ability to use a word processing program, or CSC 311A, CSC 311B, or its equivalent. This course may not be taken by students who have received credit for CSC 312. Only S/U grades are awarded for this course.

### **CSC 311H Introduction to Internet Resources (1)**

A hands-on introduction to the use of the Internet as a research tool, and communication channel. Topics include a description of the Internet, and tools such as electronic mail, list servers, news readers, telnet, ftp, gopher, archie, veronica, mosaic, and netscape. At the conclusion of the course, the student will have the ability to effectively and efficiently use Internet resources as they apply to the student's discipline or profession. Only S/U grades are awarded for this course.

### **CSC 311I Data Analysis (2)**

A hands-on introduction to data analysis using a microcomputer-based statistical package such as SPSS PC+. Topics include descriptive statistics, measures of association, and hypothesis testing. Emphasis is placed upon data collection, data organization and report generation. Prior coursework in statistics is helpful, but not required. May not be taken by students who have received credit for CSC 323.

### **CSC 317 Computer Systems and C/C++ Programming (4)**

The basic concepts of computer science and computer programming are covered. Computer hardware and applications programming using C are also introduced. No prior knowledge of computers or computing is required. This course is intended for non-majors. Computer science or computer systems majors will not receive computer science credit for this course.

### **CSC 319 Job Control Language (2)**

Job Control Language is the interface between the operating system and the user. This course covers the general functions of a job control language. IBM 360/370 JCL will be covered in detail. Specific topics may include: device and file definitions (including tape, disk, printer, and punch), procedure definitions, instream procedures, cataloging and uncataloging files, space and resource allocations, and data control block structure. Prerequisite: Two semesters of programming in a single language or equivalent industrial experience.

### **CSC 324 Introduction to Internet Tools in Windows (2)**

A hands-on introduction to the use of software Internet tools in windows environments and the concepts and perspective in computing and communications essential to using them effectively. Topics include the Windows interface and environment, and tools

for browsing, editing and Web site creation and maintenance available in the Windows environment. At the conclusion of the course, the student will have an understanding of computing communication environments and the ability to use Web software tools to construct, configure, and maintain a Web site.

#### **CSC 332 Machine Structures (4)**

An examination of computers as a hierarchy of levels. Topics include: digital logic, microprogramming, conventional machine and assembly language levels. Emphasis is given to those aspects of computer hardware that affect programming. Prerequisite: CSC 327 may be helpful.

#### **CSC 340 Data Structures (4)**

A study of data structures through programming assignments, and then in a language independent setting. The levels of data description and their roles in data structure design are examined. Prerequisite: CSC 308 or equivalent.

#### **CSC 342 Intensive FORTRAN (2)**

An intensive survey of the FORTRAN language. Intended for computer science majors. Topics include data and control structures, files, and file handling. Prerequisite: CSC 340.

#### **CSC 343 Intensive C (2)**

An intensive survey of the C programming language. The use of C programming language constructs for efficiency and generality of implementation. Programming techniques useful for operating system features emphasizing performance tradeoffs. Prerequisite: CSC 340.

#### **CSC 344 Intensive APL (2)**

An intensive survey of the APL language. Intended for computer science majors. Topics include: primitives, data and control structures, workspace management, and input/output functions. Prerequisite: CSC 340.

#### **CSC 345 Logic Design (4)**

A concentration on the digital logic level of computer organization. The theoretical and practical concepts covered include: Boolean algebra, simplification of Boolean functions, and analysis and synthesis of digital circuits with emphasis on mixed logic. The most common combinatorial and sequential integrated circuits, and algorithmic state machines are highlighted. Prerequisites: CSC 332 and MAT 313.

#### **CSC 347 Ada Software Development (4)**

This course examines aspects of Ada software development, providing a thorough study of the syntax of Ada and a detailed presentation of Ada-based software design methodologies. Topics covered include: Ada statements and program units, management of Ada program libraries, semantics of Ada tasking, structured Ada-based design methodologies, including extensions of the Buhr methodology and Petrinet-based approaches, and object-oriented design proposals. Current software design issues such as reusability are also addressed. Prerequisite: CSC 340 or permission of instructor.

#### **CSC 348 LISP Programming (2)**

An intensive survey of the LISP programming language. Topics include: expressions, data types and representations, control structures, and input/output functions. Prerequisite: CSC 340.

#### **CSC 350 Database Management (4)**

Introduction to Data Base concepts; data modules, data normalization, data description languages, query facilities, file organizations, index organizations, file security, data integrity,

the relationship between operating systems and data base systems, and data manipulation using data base systems. Prerequisite: CSC 340.

#### **CSC 351 Web Development and Internet (4)**

This course teaches students to install, configure and maintain an Internet/Intranet Web Server. Topics include: developing Web pages, Hypertext Markup Language (HTML), Common Gateway Interface (CGI) scripting, and displaying information on the Web via a Database Management System (DBMS). Prerequisite: CSC 308 or equivalent.

#### **CSC 353 Fourth-Generation Systems and Prototyping (4)**

This course will familiarize the student with the concepts for prototyping and information center environment and provide experience in using fourth-generation tools and application generators. The topics to be covered include: the prototyping development cycle; data modeling in prototyping; in-depth study of some 4GL and application generator system; artificial intelligence tools for prototyping; management of prototyping projects. Prerequisite: CSC 350 or permission of instructor.

#### **CSC 354 Office Automation (4)**

An examination of trends in office automation including defining requirements, data processing and communication hardware and software and associated management issues. Prerequisite: CSC 350.

#### **CSC 355 Software Engineering (4)**

A practical introduction to the art of designing, building, maintaining, and documenting software. Four areas are addressed: how to write "one-shot" programs; how to write large systems; how to handle large problems (memory, time, data, etc.), and external data input and output. Prerequisite: CSC 340. In addition, CSC 332 is recommended.

#### **CSC 357 Software Engineering Projects (4)**

This course offers the student an opportunity to participate in a non-trivial software engineering team project and to apply the concepts studied in CSC 355. The following will be emphasized throughout the project: documentation of projects; different roles in a project; corporate, academic and military software development standards; specification and requirements documents; configuration, quality assurance, test, verification, integration plans; post-development software support. Prerequisite: CSC 355.

#### **CSC 360 Decision Support Systems (4)**

Study of the decision making process; components of a Decision Support System including dialogue model, and data managers; how Decision Support Systems (DSS) are designed, developed, and implemented.

#### **CSC 361 Information Services Management (4)**

An examination of contemporary issues in the management of an information services department. Topics to be selected from equipment procurement, hardware and software integration, networking, data communications and security. Prerequisite: One course in computer science.

#### **CSC 377 Introduction to the Theory of Computing (4)**

Introduction to theoretical computer science. Topics include: automata, formal languages, Turing machines, recursive function theory, computational complexity, and program correctness. Prerequisites: CSC 309 and MAT 313.

**CSC 407 UNIX System Administration (4)**

Topics will include: concepts involving system administration and maintenance procedures to facilitate normal system operation; technical details regarding problems that could result from operating system malfunction as well as threats to system security that are inherent in a multiprogramming environment; techniques and tools for hardware and software configuration management. Prerequisite: CSC 307; Corequisite: CSC 430 or permission of instructor.

**CSC 409 Software Project Management (4)**

This course presents different techniques for managing software projects and technical staff and familiarizes the student with artifacts of project management. The topics to be covered include: user specification; project proposal; contracts; software cost models and estimation techniques; project planning; implementation management; project delivery. Prerequisite: CSC 355.

**CSC 415 Structure and Interpretation of Programs (4)**

This course will introduce major techniques used in controlling the complexity of large programs. These techniques include: procedural and data abstractions, recursion, type hierarchies, object-oriented and stream processing system structures. The use of the scheme programming language provides the opportunity to work with procedures as first-class objects, to explore object-oriented programming and see how environments are maintained in a statically scoped block structured language. Prerequisite: MAT 313 and CSC 340 or equivalents.

**CSC 420 Numerical Computing (4)**

Basic techniques of numerical computation. Topics include: computer arithmetic and error control, solution of non-linear algebraic equations including some non-linear optimization, polynomial interpolations including splines, curve fitting, integration, and an introduction to differential equations. Emphasis will be on non-formal settings with a view toward applications. Prerequisites: Knowledge of FORTRAN or permission of instructor, and MAT 322.

**CSC 421 Computational Linear Algebra (4)**

Computational aspects of linear algebra, including linear optimization models, are explored. Topics include: different algorithms for solution of sets of linear algebraic equations, the eigenvalue problems, linear programming, clustering techniques, and software requirements. Prerequisite: Basic Linear Algebra.

**CSC 430 Principles of Operating Systems (4)**

A study of the programs managing resources within a computer system which interact most closely with the hardware, and which present to users efficient, facile, and shared access to computing. Topics covered include processes (communication, implementation, synchronization), memo management (storage allocation, virtual memory), processor management (multiprogramming, timesharing, scheduling), and data management (input, output, file storage). Prerequisite: CSC 340 and CSC 332.

**CSC 431 Principles of Programming Languages (4)**

This course fosters a disciplined approach to the design of programs. Through carefully chosen assignments, the need for certain data structures and programming language features is made apparent. Several different programming languages are used. Topics include: structured programming, recursion, and string processing. Prerequisite: CSC 340.

**CSC 441 Computer Systems Architecture (4)**

After a higher level review of current mainframe architecture and operating systems, advanced architectures, proposed and implemented for parallel computation, will be considered. The second half of the course will survey techniques for modeling and assessing performance of computer systems and networks, with emphasis on probabilistic models. Prerequisites: MAT 325 and CSC 332.

**CSC 445 UNIX Network Programming (4)**

The course explores computer networks from the implementation and programming point of view. The network architecture and communication protocols studied by the class allows connection of heterogeneous systems in an environment that may be geographically distributed. Prerequisite: CSC 340, knowledge of UNIX and C.

**CSC 446 Local Area Network Architecture (4)**

An intensive study of LAN architecture models for computer science students. Topics include: contention-free and contention based models, hybrid nets, HSLANs, integrated voice/video/data models. Prerequisites: CSC 332 and CSC 430 and knowledge of probability and calculus.

**CSC 450 Computer Graphics (4)**

This course presents fundamental concepts and principles for the design and programming of graphics systems. The topics to be covered include: graphics hardware systems; data structures for graphics; windowing; clipping; image transformations; hidden-object removal; shading and lighting theory; solid modeling; elements of animation. Concepts of geometric modeling will be emphasized along actual renderings. Prerequisites: CSC 340 and MAT 315.

**CSC 451 Distributed Systems (4)**

Objectives and basic architecture of distributed systems for networks ranging from standard LAN systems to wide area networks. Algorithms for control of distributed operation focus on synchronization, reliability and performance. Topics include atomic transactions; concurrency control; distributed file stores; remote program executive; network security. Case studies are used to explore issues in distributed system design and implementation. Prerequisites: CSC 430 or CSC 441.

**CSC 454 System Simulation (4)**

An introduction to the basic techniques of systems modeling and analysis through systems simulation. Discrete and continuous system simulation models, use of various simulation packages and analysis of simulation output are included for consideration. Prerequisites: Knowledge of a programming language and senior status or permission of instructor.

**CSC 460 Business Systems Analysis & Design I (4)**

A study of the analysis, design, and implementation of computer systems in business applications. Examples, such as invoicing and accounting systems, airline reservation systems, inventory control and point of sale systems, and payroll and employee records systems will be considered. Prerequisites: CSC 302, 305, 340.

**CSC 465 Techniques of Systems Analysis (4)**

This course emphasizes systems analysis as a discipline, and attempts to identify the role of the systems analyst in the analysis and synthesis of computer-based systems. The student is introduced to various systems analysis techniques, and examines various system application areas. Outside speakers will give presentations on system applications. Prerequisite: CSC 340. In addition, CSC 460 is recommended.

**CSC 477 Algorithms (4)**

How good is it? Is there a better algorithm to solve it? This course aims at developing a toolbox of algorithms for solving real problems that arise frequently in computer applications and the principles and techniques for determining their time and space requirements and efficiency. In addition, the general complexity spectrum is discussed to give students a grounding on intractability and unsolvability. Prerequisites: MAT 313 and CSC 340.

**CSC 480 Compiler Design (4)**

Basic concepts of formal languages and automata theory, and their applications in compiler writing. Several practical parsing methods are discussed. Prerequisite: CSC 340.

**CSC 487 Object-Oriented Systems (4)**

This course introduces the student to the object-oriented programming paradigm. The topics to be covered include: object orientation; objects; messages; encapsulation; classes; single and multiple inheritance; object-oriented languages and programming environments (such as Smalltalk, C++, Actor); implementation issues; applications to simulation and databases. Prerequisite: CSC 340.

**CSC 489 Cooperative Work-Study in Computer Science (Variable 1-4)**

Student will be employed by a cooperating firm or agency. Periodic progress reports will be required. The department will provide a list of cooperating employers, and the student will be required to interview for the position. Students are paid by the employer. Prerequisites: Limited to computer science majors who have completed core courses and secured departmental approval. Additional restrictions are on file with the department. Only S/U grades are awarded for this course.

**CSC 490 Selected Topics in Computer Science (4)**

An in-depth treatment of a selected topic not normally treated extensively in other computer science courses. The subject matter covered in this course will not be repeated in a future semester. Prerequisite: Permission of instructor.

**CSC 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

**CSC 495 Introduction to Artificial Intelligence (4)**

An introduction to the basic concepts and techniques of Artificial Intelligence. Topics include: representation, search strategies, control, and logic and other problem-solving paradigms. Applications in vision, learning, robotics and natural language understanding. Prerequisite: CSC 340.

**Economics****ECO 310 The Theory of Price (4)**

An in-depth analysis of the operation of market forces in determining resource allocation in the private sector via the price system. Comprehensive theoretical models of the consumer, the producer, and market structure are developed. The student will become acquainted with the techniques whereby economists analyze, for purposes of public policy, such issues as environmental restrictions, public utility rate fixing and other price controls, commodity taxation, minimum wage laws, occupational licensing, and the economics of crime and punishment.

**ECO 312 The Theory of National Income and Employment (4)**

A study of both classical and modern theory focusing on the determination of national income, employment, and the rate of inflation. The major versions of the classical and Keynesian systems are developed, including a review of the consumption function and the behavior of investment. Specific modern problems, such as the effects of wage-price controls, the institutional difficulties surrounding monetary and fiscal policy-making, and the growth/no growth issue, are discussed.

**ECO 330 Economics of Aging (4)**

This course covers a variety of economic problems related to aging, from the viewpoints of both the individual and society as a whole. The economic characteristics of older persons will be examined, including labor force participation, financial circumstances, consumption patterns, and health status. Major attention will be given to formal and informal economic security arrangements including individual saving programs, public and private pension systems, health insurance, and other legal and financial devices. Long-term projections of the aged population, and its impact on the American economy, will be reviewed.

**ECO 405 Economics of Health Care (3)**

Providers and consumers of health care have historically been insulated from the classic economic market forces of supply and demand. However, recent and anticipated changes in health care financing and provider and consumer behaviors are expected to have profound effects on the supply and demand of health care. Examined in this course are: the products of health care, the demand for health care, the supply of health care, and government regulation and its influence on supply and demand. Cross-listed with HSM 405.

**ECO 420 Public Finance (4)**

Economics of the role of government in society. Topics include: basic rationale of governmental economic activity, problems of choosing among alternative expenditure programs, social and economic aspects of taxation, debt policy, financial relationships among federal, state, and local governments, and urban problems. Prerequisite: ECO 310 or ECO 312 or equivalent.

**ECO 425 Economics of the Environment (4)**

An economic analysis of environmental protection. Topics include: the economic nature of environmental problems; a description of air, water, and land pollution; global environmental issues; the economics of natural resource use, conservation, and recycling; and an analysis of the history and evolution of environmental policies in the United States. Prerequisite: ECO 310 or equivalent.

**ECO 440 Labor Economics (4)**

A study of labor in the United States, with major emphasis on the economic forces determining wage levels, wage structures, the composition of the work force, and other labor market phenomena. Economic techniques, applied within labor's legal, historical, and institutional framework, are used to analyze such topics of social concern as the economic impact of trade unions, labor-management disputes, the anatomy of unemployment, and the issue of discrimination in the labor market. Prerequisite: ECO 310 or equivalent.

**ECO 450 Money and Banking (4)**

A detailed examination of money, credit, and financial institutions, with emphasis on how the monetary system influences economic activity. Topics include: the nature and functions of money, the commercial banking system, non-bank financial institutions, the roles of the Federal Reserve System and the Treasury, monetary policy, and international money and banking. Prerequisite: ECO 312 or equivalent.

**ECO 460 International Economics (4)**

Review of the international economic connections that bind countries together. It will consider the nature of that integration through a discussion of both international trade and international finance. Among the topics treated will be the advantages of free trade, constraints to trade, preferential trading, multinational corporations, the balance of payments, and the determination of exchange rates.

**Electrical Engineering Technology****ETC 300 Tools in Technology (2)**

Introduction to the field of CAD (Computer Aided Design) in the electrical engineering technology field. Will cover the proper design of schematic drawings and the techniques of designing printed circuit boards. Prerequisite: ETC 302 and ETC 310 or equivalents.

**ETC 301 Electrical Theory and Design (4)**

An accelerated study of DC and AC circuits, Ohm's Law, Kirchoff's Laws, series and parallel circuits, power, magnetism, and phasors. Three hours of lecture, two hours of laboratory per week. Prerequisite/corequisite: MAT 311 or equivalent. All students who have an EET associate degree may not enroll in this course for credit.

**ETC 302 Electronics I (4)**

Introduction to semiconductors, conductors, and insulators. Analysis of transistors, diodes, and their related application in rectifier and amplifier circuits. Wave-form interpretation, AC-DC load lines, biasing techniques, small signal amplifiers, and H parameters. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 301 or permission of instructor. All students who have an EET associate degree may not enroll in this course for credit.

**ETC 304 Operational Amplifiers & Linear Electronics (4)**

Introduction to operational amplifier circuits incorporating feedback. Amplifier configurations, feedback amplifiers, applications of Op-Amps in analog computers, and active filters. Three hours of lecture, two hours of laboratory per week. Prerequisites: MAT 320 or equivalent. All students who have an EET associate degree may not enroll for this course for credit.

**ETC 310 Digital Systems I (4)**

Design of circuits using TTL devices. Applications of MUX-DEMUX circuits. Analysis of semiconductor RAM and ROM memories. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 301 or permission of instructor. All students who have an EET associate degree may not enroll in this course for credit.

**ETC 311 Advanced Digital Systems Design (4)**

In depth study in Digital Systems Design using the 80386 CPU in Virtual-Mode, and related applications. Study, analysis and applications of peripherals such as: i8251A PCI (Programmable Communication Interface), and i8225A PPI (Parallel Peripheral Interface), i8257A DMA (Direct Memory Access, and i8259A (Interrupt Controller). Extensive design of memory configurations using Static and/or Dynamic RAMs configurations. Introduction to i80387 architecture and related applications. Three hours lecture, two hours of lab. Prerequisite: ETC 310 or equivalent. Cross listed with CET 311.

**ETC 316 Communication Transmission Techniques (4)**

Study of signals, modulation techniques (analog and digital), transmissions lines, microwave techniques and devices, antennas.

Optical fiber, wireless and data communication are also introduced. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 302 or equivalent.

**ETC 331 Control Systems (4)**

Basic control systems studied using Laplace transforms. Principles of electro-mechanical control systems (electrical and mechanical), measuring means, components and their characteristics, and controller characteristics. Analysis of a control system by the frequency/phase responses and stability criteria. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 304 or equivalent.

**ETC 342 Microprocessor and Embedded Systems Programming and Design (4)**

Programming of the microprocessor for special applications. Includes an introduction to interfacing components and hardware of the microprocessor. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 310 or permission of instructor. No prior microprocessor background required. Cross listed with CET 342.

**ETC 356 Programmable Controllers (2)**

Use of programmable controllers to create relay logic ladder diagrams for the development of control systems.

**ETC 360 Advanced Circuit Analysis (2)**

Advanced circuit analysis stressing network theorems, solutions of time, and frequency domain problems. Prerequisites: MAT 321 and ETC 301.

**ETC 391 Fiber Optics (4)**

Principles and analysis of fiber optic components and systems, fiber optic sensors, integrated optoelectronics and applications of fiber optics in telecommunications and instrumentation. Three hours of lecture, two hours of laboratory per week. Prerequisite: One physics course with optics and/or permission of the instructor. Cross-listed with PHO 391.

**ETC 412 Digital Systems Design III (4)**

Advanced study analysis and design of digital systems, using the core architecture of the i80386 Processor in PVM (Protected Virtual Mode) and the i80387 Co-Processor. Hardware and software development making use of tools from various sources and/or emulators. Implementation of systems' analysis and troubleshooting with 386-Debuggers. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 311.

**ETC 416 Data Communication & Computer Network Technology (4)**

The principles and techniques of data and computer communications are covered in detail in this course. Topics include principles of data transmission, data encoding, digital communication techniques, transmission codes, error detection and correction, protocols, communication networks, interfacing and architecture. Three hours of lecture, two hours of laboratory per week. Cross listed with CET 416.

**ETC 419 Satellite Communication (2)**

Principles of satellite communications, techniques of transmitting speech, data and video using satellites. Prerequisite: ETC 316 or permission of instructor.

**ETC 421 Wireless Communication Systems (4)**

Study of the theory and the techniques used in the implementation of wireless communication systems. Principle and analysis of mobile communication systems, wireless LAN, personal

communication networks and Land-Mobile/satellite communications systems are also included. Prerequisite: ETC 316.

#### **ETC 423 Microprocessor Interfacing (4)**

Analysis of microprocessor interfacing with operational hardware. Three hours of lecture, two hours of laboratory per week. Prerequisites: ETC 310 or equivalent and ETC 342 or permission of instructor. Cross listed with CET 423.

#### **ETC 429 Microprocessors, Microprogramming and Computer Architecture (4)**

Design and implementation of high-performance controllers using bit-slice microprocessors. Includes the analysis of components and system design techniques. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC 310 or equivalent or permission of instructor. Cross listed with CET 429.

#### **ETC 431 PC Integration and Maintenance (4)**

This course will stress the upgrading and repair of IBM PC computers and will emphasize the use of diagnostic hardware and software to evaluate PC systems in actual lab situations. Two hours of lecture and four hours of laboratory per week. Prerequisite: ETC 311 or ETC 342 or CSC 332. Cross listed with CET 431.

#### **ETC 433 Automatic Control Systems (4)**

Transfer function approach to the analysis and design of feedback control systems. Use of Nichols charts, Bode diagrams, and root locus plots to predict system performances. Analog and digital simulation of industrial control system problems. Prerequisite: ETC 331 or equivalent.

#### **ETC 434 Servomechanism Design (2)**

Servomechanism controls design. Mathematical modeling of AC & DC servosystems and study of their related stability, network compensation, performance, inertial damping, resonance. Tracking system design approaches. Analysis of scaling and non-linear performance. Two hours of lecture per week. Prerequisite: ETC 433.

#### **ETC 435 Digital Control and Robotics (4)**

Discrete-time systems and z-transform, sampling and reconstruction, state-space technique and digital stimulation, stability of digital control systems, digital filtering and digital compensator design, discrete-time optimal control, and applications in robotics. Three hours of lecture, two hours of laboratory per week. Prerequisites: ETC 331 and one course in computer programming.

#### **ETC 444 Special Topics in Microprocessor/Digital (2)**

Seminar on the state-of-the-art in microprocessor and digital techniques. Topics will vary as technology changes. May be taken more than once for credit provided topics are different. Prerequisite: ETC 310 or equivalent or permission of instructor.

#### **ETC 445 Microcontrollers (2)**

Study the operation and design of systems using single chip microcontrollers and microcomputers. Current equipment will emphasize the Motorola MC68HC11 series of microcontrollers. Prerequisite: ETC 310 or equivalent.

#### **ETC 446 Programmable Logic Devices (2)**

Study the application and digital system design using Programmable Logic Devices. Course will utilize PLD design and simulation packages provided by integrated circuit manufacturers. Prerequisite: ETC 310 or equivalent.

#### **ETC 455 VLSI Design Fundamentals (4)**

Very Large Scale Integration (VLSI) design fundamentals relating to cell design, layout, chip design tools for both NMOS and CMOS are covered. Emphasis on chip testability will be at the end of the course. The course is supplemented by state-of-the-art labs. Three hours lecture and two hours lab. Prerequisite: ETC 310 or equivalent or permission of instructor.

#### **ETC 465 Microprocessor Based Robotics Design (4)**

Microprocessor-based design applied to the field of robotics control. Development of hardware and software based on Intel Microcontroller devices and study of their related interface with 16-bit and/or 32-bit CPU's. Prerequisite: ETC 311.

#### **ETC 470 Computer-Aided Circuit Design (4)**

Formulation of circuit equations. Solution of linear equations, Gaussian Elimination, and LU factorization. Frequency domain analysis, sensitivity analysis, time domain analysis, and introduction to digital design. Incorporation of algorithms within a usable package. Prerequisites: ETC 360 and a programming language course or permission of instructor.

#### **ETC 473 Digital Image Processing and Vision (4)**

Introduction to digital image processing and its application to computer vision, visual communication and pattern recognition. Image acquisition, digital and optical processing, image transmission and enhancement, 3-dimensional imaging and vision, synthesis of computer generated images. Three hours of lecture and two hours of lab work per week. Prerequisites: MAT 321 and programming knowledge or permission of instructor.

#### **ETC 475 Data Compression & Multimedia Technology (4)**

Data compression techniques are covered in detail for video, audio and text compression leading to the standards. Sensors are interfaced and an integrated environment is created by the use of appropriate hardware and software. Prerequisite: ETC 316 or permission of instructor.

#### **ETC 480 Electrical Technology Senior Project I (2)**

This is the first of two two-credit courses which must be taken as a pair. Extensive investigation, preparation, and development of a design project incorporating concepts from senior level courses. A written report is required. At the end of first semester, student should have all information and material required to complete the project in the following semester.

#### **ETC 481 Electrical Technology Senior Project II (2)**

This course involves the full implementation, testing, troubleshooting, and final demonstration of the senior project as proposed in ETC 480. An updated final report shall also accompany the final project. Note: Credit given only if ETC 480 has been successfully completed. Prerequisite: ETC 480.

#### **ETC 483 Optical Communications (4)**

Principles and techniques associated with the transmission of optical radiation in waveguides (fibers) and free space, low and high power optical sources, internal (direct) and external (indirect) modulations. Fiber optical waveguide and characteristics of free space, homodyne and heterodyne detection, and design of optical communication systems. Three hours of lecture, two hours of laboratory per week. Prerequisite: ETC/PHO 391 or permission of instructor. Cross-listed with PHO 483.

#### **ETC 488 Computer Control of Instrumentation (4)**

Computer control of electronic instrumentation via the IEEE Standard 488 General Purpose Instrumentation BUS (GPIB) for

the purposes of data acquisition and its presentation (tabular and graphic form). “C” programming is utilized as the control language. Two hours of lecture, four hours of laboratory per week. Prerequisites: ETC 331 and knowledge of a programming language or permission of the instructor.

#### **ETC 490 Special Topics in Communication Technology (2)**

An in-depth study of topics selected from and based on new developments in communications technology and related areas. Topics may include areas of secure communications, mobile communications, image transmission and optical signal processing, computer-aided design, analysis of communications links and networks and integrated services digital network standards. Prerequisites: ETC 316 and permission of instructor.

#### **ETC 491 Independent Study (Variable 1-4)**

Extensive study of a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, methods of evaluation, and number of credits to be earned. Prerequisites: Permission of instructor; matriculated students only.

#### **ETC 493 Digital Filters (4)**

Review of discrete-time linear systems and random processes, z-transforms, difference equations, and state-space formulations. Discrete Fourier analysis and FFT algorithms, including discussions of recursive and non-recursive filter transformations, FIR transversal and Kallman filters. Three hours of lecture, two hours of laboratory per week. Prerequisite: MAT 322.

#### **ETC 494 Co-op Assignment (Variable 2 or 4)**

Provides 14 weeks of supervised experience in an industrial or government installation applying technology knowledge towards the solution of engineering technology problems and developing abilities required in the student's career. At least two reports and two supervisors' evaluations are required. May be taken repetitively up to a maximum of four credits. Prerequisite: Permission of employer and Dean.

## **English**

#### **ENG 305 Creative Writing (4)**

Through writing prose fiction or poetry, students develop competency in narration, description, characterization, and other writing skills developing a personal “voice”. As students write, critique, and re-write, they learn the skill of self-criticism which is a necessary part of all writing.

#### **ENG 310 Topics in American Literature (4)**

A study of a major period, genre, or theme in American literature. Typical topics include science fiction, twentieth century poetry, and the image of women in American literature.

#### **ENG 311 Topics in World Literature (4)**

A study of a major period, genre, or theme in world literature. Typical topics include the modern European novel, technology in literature, modernism, and women and power.

#### **ENG 312 Studies in the Short Story (4)**

Studies in the Short Story examines the short story as a literary genre. The emphasis is on interpretation, though selections and themes may vary each semester. Literary questions provide the occasion for students to develop reading and writing skills and to explore how literature and composition interact.

#### **ENG 320 Recent American Poetry (4)**

The course begins with several major poets of the 1920's: W.C. Williams, T.S. Eliot, and Wallace Stevens. These poets serve as background for the study of poetry since World War II. Some of the poets studied will be chosen by the class.

#### **ENG 331 Black Voices (4)**

Students will become acquainted with several major figures of Afro-American Literature and will examine their works in light of some of the political, cultural, and sociological influences evident within these works.

#### **ENG 350 Dramatic Literature (4)**

The playwright is a shaper of events as well as a wordsmith. Plays from several cultural eras will be studied to clarify the dramatist's careful balance of plot, character, idea, language, and spectacle. Film and video versions of plays will supplement text study.

#### **ENG 360 Reading the Film (4)**

By accepting film as a legitimate form of literary expression, we utilize the tools of literary analysis which allow us to “read” the images of the cinema. This course will review some of the components of the language of literature and will introduce the basic elements of film technique. Students will be asked to “read,” understand, and critically evaluate the translation of literary elements into the language of film.

#### **ENG 361 Film Directions: Alfred Hitchcock (2)**

This course will encourage students to critically examine the facets of the film image. Using Alfred Hitchcock as a model, students will be presented with the range of options available to a film director and shown some of the techniques employed to make a text (story) visual. Our focus will be on the rhetoric and style found in the language of the cinema and represented in the work of Alfred Hitchcock.

#### **ENG 375 The Novel (4)**

A study of the nature and evolution of the novel, including the social conditions that stimulated its growth and the special characteristics and possibilities of the genre. Emphasis will fall on British and American novels from the 18th century to the present, including trends such as the novel of manners, realism, symbolic and impressionistic realism, and recent experiments (“fabulation,” the non-fiction novel).

#### **ENG 435 Art and Literature (4)**

Study of the ways that literature uses the traditions of the visual arts. Topics will vary. Typical topics are genre painting and the realistic novel and film; impressionist painting and the modernist novel; nature and culture in American art and poetry.

#### **ENG 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

## Environment

### ENV 300 Ecology (4)

Study of interactions living organisms have with their physical and biological environments. Special attention is given to population dynamics, pollution control, and the consequences when ecological systems are disturbed. Does not meet General Education Laboratory Science Requirement.

### ENV 310 Weather and Climate I (4)

The principles of meteorology and atmospheric science are developed, emphasizing the special characteristics of Central New York State. These are related to national and global patterns of climate. The course makes heavy use of guided individual analysis of weather on a daily basis by the use of the college's meteorological and environmental laboratory equipment. The theoretical basis of meteorology is developed in conjunction with observation of weather as it occurs. Meets General Education Laboratory Science Requirement.

### ENV 315 Introduction to Physical Geology (4)

This course is an introduction to the nature and origin of minerals and rocks, the structure of the earth, the processes of weathering, glaciation, beach formation, and mountain building, and the concepts of geologic time and plate tectonics. Does not meet General Education Laboratory Science Requirement.

## Finance

### FIN 302 Financial Management Principles (4)

General principles of corporate finance are presented. Topics include: the tax environment, an overview of financial planning and control, working capital management, and forms of long-term financing. Objectives include an analysis of responsibilities and functions performed by financial analysts, whether representing a firm, a financial institution, an investment officer, or financial/management consultant. Prerequisite: ACC 301 or equivalent or permission of instructor.

### FIN 332 Fundamentals of Investments (4)

The investment of capital funds is a complex field and topics studied include: investment and risk, determination of investment policy, types of security investments, sources of investment information, the broker, the stock market, and portfolio management.

### FIN 341 Financial Institutions (4)

Analysis of financial institutions with emphasis on their sources of funds and operating characteristics. Emphasis also is given to the role of commercial banks in the money market, and the relationship of the other major financial institutions to the commercial banks.

### FIN 411 Financial Management Problems (4)

An in-depth financial analysis of problems experienced by different firms is pursued using actual cases and outside reading to supplement text data. Studies will cover value of cash flow, capital planning, break-even analysis, inventory control, financial structure, cost of capital, external growth, failure, reorganization, and liquidation. Prerequisite: FIN 302.

### FIN 420 Financial Planning and Control (4)

Analytical techniques and procedures for dealing with capital structure problems of business. Emphasis will be on capital budgeting techniques and methods of ranking investment alternatives available to business. The student should become

familiar with different theories of probabilities to minimize risk in financial planning and control. Prerequisite: FIN 411 or equivalent.

### FIN 491 Independent Study (Variable 1-4)

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

## General Studies

### GEN 499 General Studies Project (4)

Students will design and complete a project that combines two of their three program disciplines. The project must be approved by an advisor in each discipline. The project may take many forms, from a traditional research essay, to a computer program or marketing design. The student will make a presentation based on the project to the faculty advisors at the end of the course. Prerequisites: Senior status; General Studies majors only.

## Geography

### GOG 300 The Ocean World (4)

The study of the world's oceans from the perspective of physical geography. This course draws on several disciplines to discuss the natural environmental processes which influence the world's oceans, with an emphasis on those processes which most affect our lives. This course does not meet any science requirement.

### GOG 310 Economic Geography (4)

This course surveys theories of the location of specific economic activities, such as agriculture, manufacturing, etc. It also considers theories of economic interaction among locations, including transportation, trade, and the role of cities. The student will have a grasp of why particular economic activities are located where they are, and of the economic consequences of physical geography. The goal of the course is an understanding of land-use planning from the geographer's perspective.

## Health Information Management

### HIM 300 The Health Information Management Field (4)

Introduction to the health information field and professional ethics. Regulatory requirements for content and maintenance. Numbering and filing systems. Retention and storage of records. Laboratory and lecture.

### HIM 305 Inpatient Coding & Classification (4)

Coding and classification schemes used for hospital inpatients will be discussed. Special emphasis will be placed on the International Classification of Disease-9th-Clinical Modification (ICD-9-CM) and diagnosis related groups (DRG's). Three hour lecture and two hour laboratory. Prerequisite: HIM 300 or permission of instructor.

### HIM 311 Clinical Concepts I (3)

Students will study the major disease processes in the following body systems: cardiovascular, blood, respiratory, digestive, musculoskeletal and urogenital. Emphasis will be placed on the symptoms, diagnosis, and treatment of each disorder.



**HIM 312 Clinical Concepts II (3)**

Students will study the major disease processes in the following body systems: skin, neurologic, endocrine, special sense. In addition, study will be made of maternal and perinatal diagnoses. Emphasis will be placed on the symptoms, diagnosis, and treatment of each condition.

**HIM 325 Health Care Management/Medical Information Systems (3)**

This course is intended to expose hospital managers to the areas where computers can assist in the direct care of the patient and the management of hospitals. Emphasis will be placed on how to evaluate computers and information systems for hospitals, the unique problems involved in implementing computerized systems in the health care environment, and strategies for minimizing problems.

**HIM 326 Health Information Management Project (1)**

Students will complete a project to supplement coursework in HIM 325. Microcomputers in the health information management laboratory will be used. Corequisite: HIM 325.

**HIM 340 Introduction to the Health Information Management Laboratory (2)**

All students entering Health Information Management will be required to take this course during their first year in the program. The objective of the course will be to familiarize students with equipment, software and other references which will be required for use in subsequent courses.

**HIM 392 Technical-Level Residency (4)**

The student will complete a four week practicum in a hospital health information management services area. Students will practice technical skills learned during the first year of the health information management curriculum. (Note: Students who transfer from a health information technology program will transfer the equivalent of this course.) Prerequisite: HIM 305.

**HIM 400 Nonhospital Health Information Management Systems (3)**

Nonhospital health care settings offer exciting employment alternatives for health information managers. Included in this course will be a study of health information systems for psychiatric, developmental, occupational, long term, home health, correctional, emergency medical services, and veterinary care. In addition, disease registries will be covered. Prerequisites: HIM 305 and HIM 392. Corequisite: HIM 494.

**HIM 401 Health Care Evaluation Systems (3)**

A study of the historical basis for current trends in the evaluation of health care, and an explanation of the role of the health care manager in this process. Methods for assessing quality and appropriateness. Use of the system as a risk management tool. Lecture and laboratory.

**HIM 410 Health Information Department Management (4)**

Department management technique for health information management. Applications of systems analysis, computer science, budgeting, personnel management, and plant layout for the health information manager. Prerequisite: HIM 400, lecture and laboratory.

**HIM 430 Outpatient Coding and Classification (4)**

Coding and classification schemes used for outpatients in hospitals, ambulatory care centers and physician offices will be discussed. Special emphasis will be placed on Current Procedural

Terminology, 4th edition (CPT-4), Ambulatory Patient Groups (APG's), and Resource Based Relative Value Scales (RBRVS). Prerequisite: HIM 300 or permission of instructor.

**HIM 490 Selected Topics in Health Information Management (Variable 1-4)**

Courses offered as Selected Topics in Health Information Management supplement regularly offered courses. Such courses enhance the students general knowledge of Health Information Management topics.

**HIM 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, education goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

**HIM 493 Senior Seminar (2)**

Final summary course, with a discussion of current events in the health information management field and preparation to enter the job market. Includes a final comprehensive examination, which will comprise the entire grade for the course. The exam will be graded on a satisfactory/ unsatisfactory basis with the course grade being S or U. Prerequisites: HIM 410 and management level practicum.

**HIM 494 Specialty Rotation (1)**

Students will rotate through various nonhospital health information management service areas in facilities, such as those dealing with mental health, developmental disabilities, long-term care, hospice, home care, ambulatory care, disease registries, correctional health and occupational health. Corequisite: HIM 400.

**HIM 495 Management-Level Residency (4)**

The student will complete a four week practicum in the health information management services area of a type of health care facility of the student's choice. Students will practice management skills learned in the health information management curriculum. Prerequisites: HIM 410 and HIM 392.

**Health Services Management****HSM 300 Introduction to Quantitative Methods in Health Services (3)**

Biostatistics and health system utilization statistics are significant factors when assessing the health of a population and the use of a health care delivery system. This course is intended to introduce the student to these important considerations and their interpretation.

**HSM 301 Health Care Delivery in the U. S. (3)**

A detailed study of the system and philosophy of health care in the United States. The areas of public health and community medicine are examined from an historical, current and future perspective. The rationale for the patterns and practices in the American system of health services are explored.

**HSM 309 Health Care and the Law (4)**

A study of the legal aspects of various areas of health care administration will be conducted. Specific applications and study will be include the health care administrator, governing boards, hospital liability, consent, procedure, malpractice, and other related topics.

**HSM 401 Introduction to Epidemiology (4)**

Preventing the incidence of disease requires an understanding of the risk factors associated with its cause. This course will provide a foundation for understanding the dynamics of health and disease in society, and impart a grasp of the fundamentals of epidemiology.

**HSM 405 Economics of Health Care (3)**

Providers and consumers of health care have historically been insulated from the classic economic market forces of supply and demand. However, recent and anticipated changes in health care financing and provider and consumer behaviors are expected to have profound effects on the supply and demand of health care. Examined in this course are: the products of health care, the demand for health care, the supply of health care, and government regulation and its influence on supply and demand. Cross-listed with ECO 405.

**HSM 411 Management for the Health Professions (3)**

This course introduces the student to the broad spectrum involved in the management of health services, including the basic management structures of hospitals, nursing homes, and other health-related facilities. Concepts of management are related to the varied organizational structures within these facilities. Some problems involving the development of staffing patterns will be presented. Comparisons of management responsibilities in different types of health facilities will be made, including their similarities as well as differences. Prerequisites: MGT 305 or equivalent.

**HSM 422 Nursing Home Administration (4)**

Aging of the United States population has expanded the need for long-term care services. This course will examine the nursing home as an integral part of the long-term care continuum. This course is intended to provide the foundation necessary for students preparing for an internship and subsequent career as a nursing home administrator. It is a requirement for placement in a nursing home internship. Prerequisites: HSM 301, HSM 411.

**HSM 423 Long-Term Care Policy and Regulations (4)**

Long-term care services are expanding commensurate with the growth of the elderly population. As the service sector increases, the regulatory environment becomes more complex. This course will familiarize the student with the development of long-term care policy and corresponding applicable state/federal regulations on providers. There will be particular emphasis on nursing facilities and other service providers and consumers. Prerequisites: HSM 301 or permission of program advisor.

**HSM 425 Marketing Strategies for Health Planning (4)**

Decision making, relative to facility planning and financial integrity, has become extremely complex in the health care field. Health care marketing is one of the tools available to the health professional which provides guidance and support to these efforts. This course will address many of the planning and marketing variables that should be addressed, as well as how to coordinate these activities. Prerequisites: HSM 300 and HSM 301 or permission of program instructor.

**HSM 430 Ambulatory Care Administration (4)**

The provision of health services has dramatically moved outside the confines of the institution. This course will examine alternative delivery systems that emphasize ambulatory care services versus inpatient institutional, and the specifics of management in an ambulatory care setting. Prerequisites: HSM 301, HSM 411.

**HSM 431 Financial Management for Ambulatory Care Facilities (4)**

This course is designed for the health care administrator who will work primarily in ambulatory care facilities. The course will focus on financial reimbursement issues which the administrator must understand in providing strategic financial and operational direction to his/her facility. Prerequisites: ACC 301 or permission of program advisor.

**HSM 435 Accounting Controls for Not-For-Profit Organizations (3)**

Students will acquire a working knowledge of cash flow projections, budgeting, cost accounting and control and evaluation techniques for not-for-profit organizations. Case study analysis and presentations will be the primary instructional methods. Students will learn to use an electronic spreadsheet to assist in analyzing case studies. Cross-listed with ACC 430. Prerequisite: ACC 301.

**HSM 436 Accounting Practice Case: Not-For-Profit Organizations (1)**

An extensive accounting case analysis problem involving a not-for-profit entity will be assigned. Students will be required to submit a written report. Students must be registered currently in ACC 430 or HSM 435; case study will be arranged by instructor on an independent study basis. Prerequisites: HSM 435 or ACC 430.

**HSM 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

**HSM 492 Internship (Variable 6 - 16)**

Students work off-campus under the direction of a qualified preceptor in one of the many types of organizations involved in health care in New York or other states. Students are exposed to the various components of the organization and they may prepare special reports or studies on behalf of the organization. To be eligible for an internship, students must achieve a C in all HSM core and elective courses and a 2.5 overall grade point average in these courses. Only S/U grades are awarded for this course. Prerequisite: Permission of instructor.

**History****HIS 301 American History: Colonies to Reconstruction (4)**

A description and analysis of the major factors accounting for the transformation of the earliest settlements into a sovereign national power. Emphasis will be placed on the role of immigration, changing institutional values and structures, and the interplay between economic and political forces.

**HIS 302 American History: Reconstruction to the Present (4)**

A description and analysis of the principal forces involved in the growth of the U.S. from a society on the eve of massive industrialization into a technological consumer society. Features stressed will include the rise of the corporation, the development of an urban labor force, the changing role of government, and the integration of the United States into a global political and economic system.

**HIS 304 Understanding Human Nature (4)**

The development of the social sciences from the Scientific Revolution to the present, with emphasis on the problems of method and views of human nature within the larger background of Western intellectual and social history.

**HIS 306 History of Scientific Thought (4)**

This course surveys the history of scientific thought and of technology from antiquity to the Scientific Revolution, the nature of scientific inquiry, and the contributions of major thinkers from Thales to Newton. Emphasis is given to the study of the historical development of the underlying philosophical presuppositions of scientific activity, and the analysis of the relationship between science and technology and their impact on society. This is an intellectual history that requires little or no memorization of dates and events.

**HIS 307 Science, Technology and Society (4)**

This course surveys the history of scientific thought and of teaching from Newton to recent times, the nature of scientific inquiry, and the contributions of major thinkers from Newton to Einstein. Emphasis is given to the study of the historical development of the underlying philosophical presuppositions of scientific activity, and the analysis of the relationship between science and technology and their impact on society. This is an intellectual history that requires little or no memorization of dates and events. It is strongly recommended that HIS 306 be taken before this course.

**HIS 308 Latinos in American History (4)**

A review and analysis of the major historical developments explaining the presence of the United States' largest emergent minority group, the Hispanics, or Latinos. Major themes include the colonial activities of the Spanish and Portuguese; subsequent historical developments involving Mexico, Puerto Rico, Cuba, and other areas of Central and South America; the experience of Latinos in the U. S. in the past 200 years; and the current status and culture of Latino groups in American society.

**HIS 317 Topics in Black History (4)**

Deals with a variety of periods in Black History which have contributed to American life as it exists today. Topics will change each semester and may deal with such diverse matters as the African cultural roots of Afro-American life, views of Black family life and institutions during slavery.

**HIS 350 History of Modern Europe (4)**

A political and social survey of the period 1815-present. Primary attention is given to the major Western European states and Russia. Central themes of the course include: the decline of aristocratic dominance and the attempts of first the middle, and then the lower classes, to gain control of society, the origins of World War I, the war itself and its aftermath, the rise of totalitarianism and the coming of World War II, the Cold War, new prosperity, and the global age.

**HIS 360 Environmental History (4)**

The constantly changing relationship between Americans and the land has been a continuing theme in American history, beginning with the ideas and attitudes the colonists brought with them from Europe and continuing to the current environmental movement and its opposition. This course deals with American attitudes toward land, natural resources, and nature from the roots of our ideas in Western civilization to the present. This course will focus on Native American and European ideas about nature, explore the impact of the ideas of Thoreau, Muir, and Leopold, and analyze how science has changed our understanding of the relationship between Americans and nature.

**HIS 390 Topics in History (4)**

An in-depth examination of particular topics in history. Topics might include World War II, the history of women in America, the Sixties and the Vietnam War, history of presidential elections. Each course will use one or two general textbooks; in addition, every student will be required to perform research on a particular issue related to the topic of the course. May be taken more than once as topics change.

**HIS 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, education, educational goals, methods of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject matter.

**Industrial Engineering Technology****ITC 311 Manufacturing Operations (4)**

Manufacturing concepts which relate to operation selection. A limited number of topics are covered each semester, such as casting, machining, joining, forming, chipless machining, and surface finishing.

**ITC 320 Applications Project I (2)**

Individual student designed project in a major field, includes: written specifications of project requirements, project plan, milestone identification, implementation, and descriptive report. An oral presentation regarding the project is required. Course includes a one-hour lecture per week. Students will work on an independent basis for the other hour.

**ITC 321 Applications Project II (2)**

Individual student designed project in a major field, includes: written specifications of project requirements, project plan, milestone identification, implementation, and descriptive report. An oral presentation regarding the project is required. Course includes a one-hour lecture per week. Students will work on an independent basis for the other hour.

**ITC 327 Production & Operations Management (4)**

Modern production and operations management in an industrial setting. Planning, organizing, and controlling, using the relevant qualitative and quantitative approaches. Forecasting, capacity requirement, planning, work standards, scheduling, fundamentals of inventory control, and material requirement planning.

**ITC 358 Plant Layout and Material Handling (4)**

Analysis and design of layouts used in manufacturing industries. The analysis and selection of the optimal material handling system. Appropriate laboratory experiments will be assigned.

**ITC 362 Computer-Aided Design for Industrial Engineering Technology (4)**

Basics of CAD as applied to Industrial Engineering Technology. AUTOCAD software used for typical Industrial Engineering Technology applications such as: part prints, process prints, tooling layouts, NC prints, office layouts and plant layouts.

**ITC 366 Introduction to Robotics (2)**

Introduction to robot classification, justification, and application characters in different environments. Hands-on operational experience, including motion control, safety, tooling, and industrial application project. One hour lecture, two hours laboratory per week.

**ITC 370 Network Scheduling (3)**

Basic concepts and techniques in network planning and scheduling using PERT and CPM. Advanced methods of mathematical and computer analysis will be covered. Industry scheduling software will be utilized both in class and for solving homework problems. Cross listed with CTC 370. Prerequisite: CTC 320 or permission of instructor.

**ITC 373 Statistical Quality Control (4)**

Modeling and inferences about process quality. Philosophy and methods of statistical process control. Quality improvement in the modern business environment. Techniques for quality troubleshooting, decision-making, and implementation. Review of basic concepts for statistics. Three hours of lecture and two hours of laboratory per week. Prerequisite: STA 325 or permission of instructor.

**ITC 390 ISO 9000 and Total Quality Assurance (2)**

An introduction to European Common Market's quality regulations - ISO 9000 and elements of total quality assurance: Deming's points, quality problem solving tools, control charts, inspection policy trade-offs, product reliability and its life cycle cost.

**ITC 391 ISO14000 - Auditing and Implementation (4)**

An introduction to environmental management systems (EMS)-ISO14000 series topics include: ISO14000 series overview; labeling; EAE; LCA; environmental auditing; conformity assessment; legal and regulatory concerns; global status; preparing for, planning and implementing ISO14000; and different implementation approaches.

**ITC 411 Manufacturing Cost Estimation (4)**

Methods for estimating the cost of manufacturing a newly designed product. Cost of various production processes. Cost-quantity relationships. Postproduction review of production methods and product design improvements. Prerequisites: ITC 311 or consent of instructor.

**ITC 422 Applied Project Thesis (2)**

Students, either individually or in groups, will work on a current engineering technology problem related to their specialty. Scope includes: specification of requirements, project plan, milestone identification, implementation, and description report. An oral presentation on the thesis will be required. Course includes one hour of lecture per week. Students will work on an independent basis for the other hour.

**ITC 430 Engineering Dynamics (4)**

Kinematics of particles, lines and bodies, and the kinetics of particles of rigid bodies with translation, rotation and plane motion using the methods of force - mass - acceleration, work-energy, and impulse momentum. Three hours of lecture and two hours of laboratory work per week. Cross listed with MTC 430 and CTC 430.

**ITC 452 Environmental Engineering Technology (3)**

Introductory course in environmental science and engineering. An understanding of the basic nature of natural systems: The atmosphere, aquatic and terrestrial systems, and how technology affects these systems and can be used to minimize damaging impacts. Cross listed with CTC 450.

**ITC 462 Computer-Aided Manufacturing (4)**

Basic concepts of computer-assisted manufacturing. Computer-aided process planning, materials requirement planning, machinability data bases, computer numerical control

systems, group technology, and integrated manufacturing systems. Two hours lecture, four hours laboratory per week. Prerequisite: ITC 311 or permission of instructor.

**ITC 467 Industrial Safety & Environmental Impact (2)**

Occupational Safety and Health Act (OSHA) standards in industrial safety management. The impact of industry on the environment.

**ITC 475 Economic Analysis in Technology (4)**

Methods for choosing between alternatives based on the time value of money. Replacement studies, depreciation and after-tax analysis, risk, uncertainty and sensitivity analysis. Three hours of lecture and two hours of laboratory per week. Cross listed with CTC 475.

**ITC 483 Quality Improvement (4)**

A thorough study of process improvement with designed experiment, Taguchi's Technique, and modeling & inferences about process quality. Discussion of ISO9000 and total quality management. Three hours of lecture and two hours of laboratory per week. Prerequisite: ITC 373 or STA 325 or permission of instructor.

**ITC 484 Advanced Topics in Statistical Process Control (2)**

Indepth study of Statistical process control in topics such as: Rational sampling and rational subgrouping. The power of charts for locations, control charts and correlated data, slopping control limits, process control for the short run production, difference charts, X-nomial charts, Z-charts, and other charts that are widely used in industry for controlling processes.

**ITC 485 Concurrent Engineering and Design for Manufacture (4)**

This course introduces and familiarizes design, production, quality, and process with latest methods in Concurrent Engineering and Design For Manufacture of new products. Here students will find most of the techniques of world class design and manufacture, detailed and illustrated with actual data and case studies from leading manufacturing firms. Prerequisites: ITC 373 or STA 300 or Consent of instructor.

**ITC 486 Reliability for Design and Production (4)**

Study of reliability related probability distributions, reliability testing methods, failure analysis, reliability assurance, confidence limits for testing as well as manufacturing process control, reliability design, MIL-STD, maintainability, and availability. Prerequisites: ITC 373 or STA 300 or consent of instructor.

**ITC 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

**ITC 492 Technology Internship (4)**

This course provides the student with work experience in a professional atmosphere which supplements classroom instruction. Two written reports and one oral report on the work experience are required. A minimum of 240 contact hours of industrial work is required. Prerequisite: Consent of dean.

**ITC 494 CO-OP Assignment (2 or 4)**

This course provides 14 weeks of supervised experience in an industrial or government installation, applying technology knowledge towards the solution of engineering technology problems, and developing abilities in the student's career. At least three reports, two written and one oral, and two supervisors' evaluations are required. May be taken repetitively up to a maximum of four credits. Consent of employer and Dean of Engineering Technology.

**Instructional Computing****IC 410 Software Evaluation (Variable 1-3)**

This course will address issues faced in selecting software to meet instructional goals. Topics include software classification, evaluation criteria and hardware considerations.

**Management****MGT 305 Management Theory (3)**

A study of the development of management thought and an analysis of managerial functions. Consideration is given to the essential functions of planning, organizing, coordinating, and controlling in the practice of supervisory and middle management. Includes a comparison of management schools of thought, as well as emerging theories, through examination of current literature.

**MGT 307 Organization Behavior (4)**

The growing recognition of the importance of individuals to the effectiveness of organizational performance requires that their behavior be included in business and management curriculum along with more traditional subjects. This course combines an analysis of organizational behavior, based on theory and research in the behavioral sciences, with a variety of activities intended to help the student make realistic applications to the management of organizations. Subject matter includes key organization behavior topics related to small group skills and dynamics: motivation, perception, communications, and individual, team and organizational effectiveness. Prerequisite: MGT 305 or equivalent.

**MGT 318 Human Resources Management (4)**

Current managerial thought recognizes the importance of human resource contributions to organizational effectiveness and goal achievement. A key aspect of this course is the focus on state-of-the-art systems which support basic business objectives as well as foster good working relations between employees and managers. Topics include: human resource planning; legislative and legal requirements; staffing; performance evaluation; employee relations; and compensation. Personal computer projects are included. Prerequisite: MGT 305 or equivalent.

**MGT 320 Appraisal, Compensation and Motivation (4)**

The use of compensation as a motivator is a complex issue, but of paramount importance in all organizations. Key topics include motivation theory, performance appraisal, government regulation and internal and external pay equity. Students design a pay system for a hypothetical company. Prerequisite: MGT 318 or permission of the instructor.

**MGT 340 Communication for Management (4)**

Both theory and application are emphasized in this communication course. Study of perception and the nature of language establish the theory that is then applied to writing business letters and reports. Oral reports, interviews and group processes are also included.

**MGT 344 Management Career Strategies (3)**

Matching individual career goals with organizational needs is the goal of this course. The student considers problems of early, middle and late career stages and some strategies for overcoming the problems. Special problems of women, minorities and mid-life career changes are also studied.

**MGT 415 Industrial and Labor Relations (4)**

Managerial success in many human resource oriented work environment demands competency in the labor relations area. Labor relations extends beyond the traditional boundaries of contracts and grievances. This course provides the necessary background to enable the student to appreciate how the labor relations environment has developed; to function both formally and informally within that environment; and to understand economic, cultural and legal factors which may affect that environment in the future. Prerequisite: MGT 318 or permission of instructor.

**MGT 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

**Management Science****MGS 411 Introduction to Management Science (4)**

A broad range of quantitative techniques and their applications in business are included in this course. Microcomputers and/or calculators are used extensively. The topics covered will be: cost-volume-profit analysis, linear programming-graphical and simplex methods, transportation method, probability concepts and applications, decision theory, inventory and production models, and game theory. Prerequisites: MAT 311, STA 300.

**Marketing****MKT 301 Marketing Management Principles (4)**

Topics covered include: marketing's role in society and the firm, the marketing concept, product planning, consumer behavior, marketing research, channels of distribution, retailing, wholesaling, pricing, promotion, and planning and evaluating marketing strategy. Group discussions, case studies, and spreadsheet software are utilized.

**MKT 312 Marketing Management Problems (4)**

Analysis of problems encountered by firms in marketing goods and services. Emphasis is placed on the formation of strategies to integrate product planning, pricing, distribution, promotion, and service within the existing legal framework. Prerequisite: MKT 301 or equivalent.

**MKT 321 Advertising Management (4)**

Issues in the development and management of creative strategies to accomplish marketing objectives in a competitive economy. Includes the role, scope, and organization of advertising, the use of agencies, media investigations and campaigns, personal selling, and legal, regulatory, and ethical constraints. Prerequisite: MKT 301 or equivalent.

**MKT 345 Retail Management (4)**

The development and application of concepts, programs, and practices involved in merchandising, pricing, buying, promotion, and control of retail organizations. Prerequisite: MKT 301 or equivalent.

**MKT 365 Personal Selling (4)**

The fundamentals of personal selling are discussed and applied throughout the course. Emphasis is placed on developing, within the individual, the ability to sell either products or services. A comprehensive sales presentation is developed by each student for the product or service of an organization of his/her choice.

**MKT 444 Direct Marketing (4)**

An introduction to the fundamentals of effective direct marketing. Topics covered will include: direct mail, telemarketing, interactive TV, and print campaigns. Emphasis will be on a pragmatic approach, with frequent use of cases and outside speakers, as well as field trips and an assignment to conduct an actual direct marketing campaign. Prerequisite: MKT 312.

**MKT 465 Consumer Behavior (4)**

Behavior science theories are examined for practical application in developing marketing strategies: motivation theory, consumer perception, attitude theory, and social referents. Case studies, class discussion, and projects are used to examine consumer behavior. Prerequisites: MKT 301 or equivalent.

**MKT 470 Marketing Research (4)**

Through the use of cases, exercises, and projects, the course reviews the application of research methods to gather marketing information. Applied marketing research studies are examined in steps: plan, design, execution, and interpretation. Prerequisites: MKT 301 and STA 300 or equivalents.

**MKT 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

**Mathematics****MAT 311 College Mathematics (4)**

This course is a review and extension of the language of algebra. Topics include: sets, polynomials, factoring, rational expressions, exponents, radicals, coordinate geometry, inequalities, matrices and determinants, quadratic equations, simultaneous equations, and word problems. Prerequisite: A course in introductory algebra.

**MAT 312 Elements of Calculus (4)**

This is a terminal introductory course in calculus suitable for business, computer science, and telecommunications majors. Topics in both the differential and the integral calculus are covered. These include: functions and graphs, the derivative, differentiation rules, optimization problems, rates of change, exponential and logarithmic functions, the antiderivative, the definite integral, and integration by substitution and by parts. Applications will be drawn from diverse areas such as business, economics, and the life sciences. Prerequisite: MAT 311 or equivalent.

**MAT 313 Finite Mathematics for Computer Science (4)**

This course is required of all Computer Science majors. It is intended to provide a firm grasp of the mathematical ideas which are relevant to all areas of Computer Science. One goal of the course is to develop fluency in understanding and expressing ideas, using mathematical concepts and notation. Topics include: elementary logic, propositional calculus, predicate calculus,

elementary combinatorics, set theory, study of binary relations and of n-ary relations, elements of graph theory, introductory concepts of probability and statistics, matrix algebra, algebras, and algorithms. Prerequisite: MAT 311.

**MAT 320 Precalculus (4)**

This course introduces the student to some of the fundamental concepts needed to be able to study calculus. Topics include: algebra review, functions, graphing, exponential, logarithmic, and circular functions, trigonometry, complex numbers, and vectors. Prerequisite: MAT 311 or equivalent.

**MAT 321 Calculus I (4)**

This course is designed to introduce the student to the differential calculus. Topics include: analytic geometry in a plane, functions, limits, the derivative and differentiation rules, partial derivatives, related rates, extrema, curve sketching, mean value theorem, linear approximations and parametric equations. Prerequisite: MAT 320 or equivalent.

**MAT 322 Calculus II (4)**

This course is designed to introduce the student to the integral calculus. Topics include: the indefinite and definite integrals, areas, volumes, work, the exponential, logarithmic, inverse trigonometric, and hyperbolic functions, integration techniques, improper integrals, L'Hopital's rule, Taylor polynomials and polar co-ordinates. Prerequisite: MAT 321 or equivalent.

**MAT 323 Calculus III (4)**

Many properties of systems studied in applied science are functions of several variables or vector valued functions. This course develops the calculus of such functions. Topics include: vectors and vector valued functions, analytic geometry in space, functions of several variables, partial differentiation, the gradient, maxima and minima, Lagrange multipliers, and multiple integrals. Applications are included throughout the course. Prerequisite: MAT 322 or equivalent.

**MAT 325 Applied Statistical Analysis (4)**

This course deals in depth with statistical methods used to analyze data. Applications are drawn from many diverse areas. Topics include: measures of location and scale for frequency distributions, addition and multiplication laws for probability, the binomial, Poisson, and normal distributions, inferences about proportions and location parameters in one-sample and two-sample problems, analysis of completely randomized and randomized blocks designs, simple linear regression and correlation, sign test, median test, rank sum test, and signed rank test. Prerequisite: MAT 321 or equivalent. Cross-listed with STA 325.

**MAT 330 Differential Equations (4)**

This course is an introduction to the theory of ordinary differential equations and matrices. The emphasis is on the development of methods important in engineering and the physical sciences. Topics include: theory and applications of first order and second order differential equations, Laplace transform method, matrix algebra, determinants, Cramer's rule, eigenvalues, and systems of linear differential equations. Prerequisite: MAT 322 or equivalent.

**MAT 335 Mathematical Modeling (4)**

This course is designed to teach the student some of the skills necessary to construct and critique mathematical models of physical and industrial processes. The student will apply skills acquired in MAT 330 to the models presented. Topics include: applications of first and second order ordinary differential

equations, systems of nonlinear ordinary differential equations, stability, phase plane analysis, optimization, conservation laws and finite differences. Prerequisite: MAT 330 and facility with a computer language, or permission of instructor.

#### **MAT 340 Matrix Methods (4)**

Many systems studied in science, engineering, and computer science involve a linear relationship among many variables. Linear algebra is the mathematical description of such problems. Topics include: systems of linear equations, Gaussian elimination, matrices, determinants, Cramer's rule, vector spaces, linear transformations, eigenvalues and eigenvectors. Prerequisite: MAT 321 or Permission of Instructor.

#### **MAT 365 Computational Linear Algebra (4)**

Computational aspects of linear algebra, including linear optimization models are explored. Topics include: different algorithms for solution of sets of linear algebraic equations, the eigenvalue problems, linear programming, clustering techniques, and software requirements. Cross listed with CSC 421. Prerequisite: MAT 340 or equivalent.

#### **MAT 370 Applied Probability (4)**

An introduction to the theory of probability and its applications. Topics covered include: basic set theory, elementary probability, counting arguments, conditional probability and independence, random variables and their properties, functions of random variables, distribution functions, probability models and applications such as stochastic processes. Prerequisite: MAT 322.

#### **MAT 401 Series and Boundary Value Problems (4)**

This course introduces advanced mathematical methods used to solve certain problems in engineering and the physical sciences. Topics include: sequences and series, Fourier series and transforms, series solutions of ordinary differential equations, partial differential equations, and solution of some boundary value problems. Prerequisite: MAT 330 or equivalent.

#### **MAT 413 Discrete Mathematics for Computer Science (4)**

Background to understanding computer science as the science of clear and concise descriptions of computable, discrete sets. The course provides conceptual tools useful for any advanced study in computer science. Topics include: review of set theory, logic and relational calculus, algebraic structures (lattices, Boolean algebra, semi-groups, groups, rings, etc.) and morphisms and their application in computer science (automata theory, coding, switching theory, etc.), formal languages and their acceptors, and elements of information theory and of the theory of computability. Prerequisite: MAT 313.

#### **MAT 420 Complex Variables and their Applications (4)**

An introductory study of functions involving complex numbers. Subjects are selected based upon their importance in physical and engineering applications. Included are complex numbers, complex functions, analytic functions, complex integration, infinite series, residue theorem, contour integration, conformal mapping and application of harmonic functions. Prerequisites: MAT 322 or equivalent.

#### **MAT 423 Vector and Tensor Calculus (4)**

Vector and tensor calculus is a fundamental area of mathematics, and is used extensively in science, engineering, and technology. The methods developed in this course include: the gradient, curl, and divergence, the del operator in general curvilinear coordinates, covariant differentiation, line integrals, surface integrals, Gauss's theorem, Stoke's theorem, Green's theorem, and the divergence

theorem. Selected applications will be included from fluid and continuum mechanics, and from electromagnetism. Prerequisite: MAT 323 or equivalent.

#### **MAT 425 Real Analysis (4)**

Introduces the student to a rigorous development of the real number system and the theory of Calculus on the real number line. Topics include: basic set theory, the real number system, sequences and series, limits and continuity, the derivative, the Riemann Integral, the Fundamental Theorem of Calculus, and sequences and series of functions. Pre/corequisite: MAT 323.

#### **MAT 440 Linear Algebra (4)**

This course contains a thorough treatment of linear algebra. The emphasis is on the mathematical structure found in the study of linear systems. Extensive development of key mathematical concepts will be emphasized through mathematical proofs and examples. Topics include: systems of linear equations, determinants, proofs and their structure, vector spaces and their properties, the geometry of solutions, linear transformations and mappings, eigenvalues and eigenvectors, and Banach spaces. Prerequisite: MAT 323.

#### **MAT 450 Partial Differential Equations (4)**

A study of Partial Differential Equations, or Pde's, and their applications in science and engineering. The basic development of physical models leading to partial differential equations is discussed. Solution methods and basic theory are presented. Topics include: first order Pde's, method of characteristics, the canonical second order Pde's, separation of variables, Hilbert space methods, finite difference methods. Prerequisite: MAT 323, and MAT 401.

#### **MAT 460 Numerical Differential Equations (4)**

Fundamental mathematical methods associated with the numerical solution of ordinary and partial differential equations are investigated. Algorithms emphasizing both standard and newly developed methodologies are developed in the context of theoretical and practical considerations. Mathematical questions such as convergence, accuracy, and appropriateness of method are developed in a systematic manner. A variety of mathematical models and problems of current interest are used to emphasize many of the core results. Students will learn to develop their own algorithms and to use algorithms from existing high quality numerical libraries. Many of the models studied in this course will come from both standard mathematical models and topics related to current faculty research interests. Topics include: Runge-Kutta methods, finite difference techniques, finite element techniques, approximation methods, error estimation, and accuracy. Prerequisite: MAT 335 and MAT 450 and familiarity with a programming language.

#### **MAT 465 Scientific Computing (4)**

An introduction to issues in scientific and mathematical computing. Students will learn to use computational tools such as visualization, distributed computing, vector computing, and parallel computing to approach a variety of mathematical models and problems of current interest. Many of the problems studied will come from both standard industrial examples and topics related to current faculty research interests. Topics include: visualization of scientific data, analysis of complex processes, and issues surrounding modern computational environments. Prerequisites: MAT 323, and MAT 401 and MAT 335.

#### **MAT 490 Selected Topics in Mathematics (4)**

An in-depth treatment of a selected topic not normally treated extensively in other mathematics courses. Prerequisite: Permission of instructor.

**MAT 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

**Mechanical Engineering Technology****MTC 306 Design Layout Practices (2)**

Current drafting practices: design layouts for machines, products, and processes based upon sketched ideas and availability of commercial parts; converting design layouts to assembly drawings. Prerequisite: MTC 362 or MTC 318 or equivalent.

**MTC 308 Mechanical Components (4)**

Fundamental principles of design, working stresses, analysis and design of mechanical components such as shafting, springs, screws, belts, chains, etc. Three hours of lecture, two hours of laboratory per week. Prerequisite: MTC 318 or MTC 322 or equivalent.

**MTC 310 Mechanical Technology Laboratories (2)**

Students are expected to conduct a series of fundamental experiments and laboratory tests including Mechanics of Materials, Fluid Mechanics, Heat Transfer, Dynamics, and Mechanical Vibrations. A segment on library skills will be included.

**MTC 318 Statics in Machinery (2)**

Analysis of equivalent systems of forces, free body diagrams, equilibrium of particles and rigid bodies, problems involving friction, centroid and moments of inertia. One hour lecture, two hours laboratory work per week.

**MTC 320 Applications Project I (2)**

Individual student designed project in a major field, includes: written specifications of project requirements, project plan, milestone identification, implementation, and descriptive report. An oral presentation regarding the project is required. Course includes a one-hour lecture per week. Students will work on an independent basis for the other hour.

**MTC 321 Applications Project II (2)**

Individual student designed project in a major field, includes: written specifications of project requirements, project plan, milestone identification, implementation, and descriptive report. An oral presentation regarding the project is required. Course includes a one-hour lecture per week. Students will work on an independent basis for the other hour.

**MTC 322 Strength of Materials (2)**

Effect of shape and composition on strength of materials. Moment of inertia, shear forces and bending moments in beams, design of beams, shafts, combined stresses, columns, and indeterminate beams.

**MTC 336 Material Science Applications (2)**

Composition, structure, and behavior of metallic and non-metallic materials, and their effect on the physical, mechanical, and electrical properties of that material. Analysis of crystalline structure, physical properties, and service analysis of materials for physical, mechanical, and electrical properties.

**MTC 350 Solar Energy Technology (2)**

Introduction to solar energy, insolation, fundamental principles of thermodynamics and heat transfer relevant to solar energy applications. Study of the working principles of solar collectors, heating and cooling systems. Application of solar energy for power generation in space. One hour of lecture, two hours of laboratory per week.

**MTC 352 Thermodynamics (2)**

Energy determination science for fluids systems. Enthalpy, entropy, and internal energy properties. Problems in energy state change, steady flow within elementary mechanical systems, and the measurement of energy.

**MTC 362 Experimental Stress Analysis (4)**

Empirical determination of stresses in mechanical components. Static and dynamic stress analysis of combined tension, torsion, and bending loads. Use of commercial instrumentation. Three hours of lecture, two hours of laboratory per week.

**MTC 363 Mechanisms Analysis and Design (4)**

The kinematic study of mechanisms, including velocity and acceleration analysis of linkages, cams, and gears in mechanical systems. Introduction to inertia forces in uniform motion machinery. Use of computers for problem solving.

**MTC 381 Fundamentals of High Vacuum Technology (2)**

Vacuum fundamentals and terminology, pumps, gauges and hardware components, and common vacuum systems. Leak detectors, coaters, ultrahigh vacuum systems, and ion implanters from the standpoint of their component parts, general operations, and maintenance requirements. Thin films for sensors, sputtering modes and ultrahigh vacuum techniques.

**MTC 382 Thin Film Technology (4)**

Thin film applications of metals, alloys, and di-electrics. High vacuum technology for thin films, mechanical effects, transport phenomena, superconductivity, ferro-magnetism, and optical properties. Applications in microcircuitry, sensors, bonding, and material selection processes. Three hours of lecture and two hours of laboratory required per week.

**MTC 421 Senior Research Project (2)**

Students will individually work on a current mechanical engineering technology problem related to their specialty, either through experimentation or literature search, or both. Scope includes specification of project, plan, implementation, and final report/thesis. Prerequisite: TGY 320.

**MTC 422 Applied Project Thesis (2)**

Students, either individually or in groups, will work on a current engineering technology problem related to their specialty. Scope includes: specification or requirements, project plan, milestone identification, implementation, and description report. An oral presentation on the thesis will be required. Course includes one hour of lecture per week. Students will work on an independent basis for the other hour.

**MTC 430 Engineering Dynamics (4)**

Kinematics of particles, lines, and bodies, and the kinetics of particles and of rigid bodies with translation, rotation, and plane motion using the methods of force-mass-acceleration, work-energy, and impulse-momentum. Three hours lecture and two hours of laboratory work per week. Prerequisite: MAT 322 or equivalent. Cross-listed with CTC 430 and ITC 430.



**MTC 440 Engineering Dynamics II (4)**

Continuation of MTC 430, illustrating the application of Lagrange's equations and Hamilton's principle to such problems as balancing, gyroscopic motion, and similar topics. Four-hour lecture per week, with laboratory work substituted for lectures as appropriate. Prerequisite: MTC 430 or equivalent.

**MTC 450 Solar Energy Concepts (4)**

Energy resources, energy consumption patterns, and future energy supplies. Physical, technical, and economical aspects of solar energy as a present and future source of energy. State-of-the-art applications of solar energy to domestic household applications. Four-hour lecture per week, with laboratory work substituted for lectures as appropriate.

**MTC 451 Engineering Heat Transfer I (2)**

Introduction to heat transfer, steady state conduction-one dimension, principles of convection -natural and forced convection systems, radiation heat transfer. Study of the working principles of different types of heat exchangers. One hour lecture, two hours laboratory per week. Prerequisite: MTC 352 or equivalent or consent of instructor.

**MTC 452 Engineering Heat Transfer II (2)**

Steady-state multi-dimensional conduction, unsteady-state conduction, condensation and boiling heat transfer, mass transfer, heat transfer measurement techniques and special topics in heat transfer, such as magneto-fluiddynamic (MFD) systems, transpiration cooling, heat pipe, low density heat transfer and ablation. One hour lecture, two hours laboratory per week. Prerequisites: MTC 352 and MTC 451 or equivalent, or consent of instructor.

**MTC 455 Laser Technology (2)**

Analysis of basic laser fundamentals, including optics and laser hardware. Operational characteristics of specific laser systems. Two-hour lecture per week, with laboratory work substituted appropriately.

**MTC 461 Fluid Mechanics and Systems (4)**

Introduction to fluid mechanics. Study of the principles of statics and dynamics applied to fluids. Some of the topics covered are: Pressure variation in fluids, flow in conduits, flow measurements, special topics in fluid mechanics, etc. Three hours of lecture, two hours of laboratory per week. Cross listed with CTC 461.

**MTC 462 Turbomachinery (4)**

Application of the laws of thermodynamics and fluid mechanics to cascades, axial flow turbines and compressors, centrifugal pumps, fans and compressors, and radial flow turbines. Four-hour lecture per week with laboratory work substituted for lecture as appropriate. Prerequisites: MTC 352 and MTC 461 or consent of instructor.

**MTC 463 Dynamics of Machinery (4)**

Determination of the equations of motion of mechanical devices. Limited to two dimensional, linear, or linearized systems during steady state operation. Includes strategies for modeling and computing both rotation and translation situations. Use of numerical methods to solve systems of equations. Introduction to stability analysis. Prerequisite: MTC 363 or equivalent.

**MTC 464 Vibration Analysis (4)**

Methods for computing natural frequency of mechanical vibrations in machinery. Damped and forced vibrations of two dimensional, linear, or linearized systems, using both theoretical and instrumental investigations. Analysis of absorbers and isolators. Prerequisite: MAT 322.

**MTC 465 Advanced Machine Design (4)**

In depth study of major mechanical elements. Topics include: steady loading, variable loading, flexible elements, clutches, brakes, failure prevention theories, and metal fatigue. Students are expected to integrate course material as well as previous experience into a major mechanical design project. Prerequisites: MTC 362 or MTC 318 and MTC 322 or equivalent.

**MTC 467 Computer-Aided Design and Drafting (4)**

Topics included for study are displaying equations, vector presentation of curves, creating a mathematical formulation, splines, and parametric techniques. Engineering geometry on the computer and basics of three-dimensional geometry are included. Engineering applications on totally supported and independent interactive computer graphics system is presented. Requires two hours of lecture, four hours of laboratory per week. Prerequisites: CSC 300 and MTC 306 or equivalent or consent of instructor.

**MTC 470 Mechanisms of Flow and Fractures in Machine Components (4)**

The course will deal with the nature of plastic flow and the fracture in solids, in general, and their applications to the crack propagation and failures in machine components etc., in particular. Roles of strengthening mechanisms to reduce failures will be emphasized. Laboratory experiments and actual case studies will be performed. Requires three hours of lecture and two hours of laboratory per week. Prerequisites: MTC 336 and MTC 318 or equivalent.

**MTC 471 Space Technology (2)**

The course addresses the application of some of the well-known principles of science and engineering in space technology. The particular topics covered are: spacecraft structure, power systems, propulsion systems, fundamentals of spacecraft dynamics, orbital maneuvers, attitude maneuvers and control systems, spacecraft testing. Students will research an individually selected topic on space technology and make written and oral presentation on it. Prerequisite: PHY 301 or equivalent or permission of instructor.

**MTC 476 Finite Element Applications (4)**

Concepts of finite element analysis and their applications. Analysis of structure, plate, shell, pipes, plane stress and plane strains. Extensive use of FEA software package ALGOR SUPERSAP. Three hours of lecture and two hours of laboratory work per week. Prerequisites: MAT 322 and a formal course in computing or consent of instructor.

**MTC 478 Computational Fluid Dynamics (CFD) (4)**

The course addresses some of the fundamental aspects of computational Fluid Dynamics (CFD). The specific topics covered in the course are: The Governing Equations of fluid Dynamics, Mathematical Behavior of Partial Differential Equations, Basic Aspects of Discretization, Grids with appropriate Transformations, CFD Techniques: The Lax-Wendroff technique, MacCormack's technique, some applications: One-dimensional Nozzle Flows, Two-Dimensional Supersonic Flow-Prandtl-Meyer Expansion Wave, Incompressible Couette Flow, Navier-Stokes equations. Prerequisites: MTC 352 and 461 and MAT 330 or equivalent or permission of instructor.

**MTC 490 Robotics: Design and Materials (4)**

Introduction to design and materials selection for robotics components. Repeatability, vibration, strength, stress, and stability. Design project required. Prerequisites: ITC 366 and MTC 467 or consent of instructor.

**MTC 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

**MTC 492 Technology Internship (4)**

This course provides the student with work experience in a professional atmosphere which supplements classroom instruction. Two written reports and one oral report on the work experience are required. A minimum of 240 contact hours of industrial work is required. Prerequisite: Consent of dean.

**MTC 493 Computer Integrated Manufacturing (4)**

This course addresses some of the fundamental aspects of computer integrated manufacturing. The specific topics covered in the course are: CIM units: computers, input/output, the robot, material handling, computer-aided functions; system design, design of the data base, material requirements planning (MRP), manufacturing resource planning (MRP II), the human factors of CIM. Requires two hours of lecture, four hours of laboratory per week. Prerequisite: MTC 467 or equivalent or consent of instructor.

**MTC 494 Co-Op Assignment (2 or 4)**

This course provides 14 weeks of supervised experience in an industrial or government installation, applying technology knowledge towards the solution of engineering technology problems, and developing abilities required in the student's career. At least three reports, two written and one oral, and two supervisors' evaluations are required. May be taken repetitively up to a maximum of four credits. Prerequisite: Consent of employer and Dean of Engineering Technology.

**Music****MUS 301 SUNY Jazz (1)**

Introduces students to the performance of jazz in an ensemble. Study of basic jazz theory and improvisational techniques. Analysis of musical styles and performers. Students will rehearse ensemble works and perform in a public setting. Pre-requisite: Instructor's permission, based on student's ability to perform a musical instrument appropriate to jazz performances.

**MUS 302 Choral Performance (1)**

Introduces the student to the study and performance of choral music. Students will learn traditional and contemporary choral works and perform these works in a public setting.

**Nursing****NUR 313 Theoretical Bases for Professional Nursing Practice (4)**

This course provides the theoretical and empirical foundation for beginning professional nursing practice. Standards of practice described in the New York State Education Law and the American Nurses' Association (ANA) Standards of Nursing Practice are introduced to students to guide the practice of nursing. Nursing theories and models are examined as the theoretical framework for the discipline of nursing. Through these standards and theories, critical thinking, collaboration, research, decision making, and independent judgement are fostered to enhance the development of professional socialization. Philosophies of nursing and models of caring are introduced to develop the student's understanding of the relationships of nursing to humans,

environment, health, and health care delivery. Theories related to teaching and learning, roles, wellness, and professionalism are examined to assist the student in developing a personal philosophy of nursing and in providing meaningful nursing.

**NUR 314 Comprehensive Health Assessment (4)**

This course focuses on the interrelatedness of the physical, psychological, social, cultural, spiritual, and environmental components of health assessment of humans as they interact with their environment. Assessment of the individual across the life span is addressed as they experience wellness and illness. Utilizing the framework of selected nursing theories, an analytical and comprehensive assessment of the individual's health is emphasized. The relationship of health assessment knowledge, skill, and disposition fostered by the Standards of Nursing Practice and the New York State Education Law is explored within the context of accountability and responsibility of professional nursing practice. Critical thinking skills are enhanced as the student develops a beginning level of competency in physical and psychological assessments within faculty supervised laboratory settings with well individuals. Therapeutic communication skills are also facilitated throughout the obtainment of personal health data and the formulation of nursing diagnoses.

**NUR 324 Contemporary Nursing Practice (2)**

This course provides the student the opportunity to meet the health needs of individuals and families within a culturally diverse society while applying the principles of wellness incorporated in the theories of health protection, disease prevention, health restoration, and health promotion in a variety of clinical settings within the health care system. Contemporary topics as they are related to current and alternative strategies for promotion of health, health education of clients and families, and restoration of health are explored through lectures, discussions, student presentation, and provision of direct client care. Knowledge from the arts, sciences, and nursing theories is applied with health assessment skills to the care of individuals and families. Prerequisites: Matriculated status, NUR 313, NUR 314, BIO 350, current New York Registered Professional Nurse license, current CPR certification, complete health clearance on file. Pre/corequisites: Cultural Anthropology, Developmental Psychology.

**NUR 325 Epidemiology in Nursing (2)**

This course is designed to provide an introduction to the concepts and methods of descriptive epidemiology. The application of epidemiology to nursing practice in culturally diverse communities is explored. Patterns of acute and chronic disease occurrences and progression, and the discovery of unusual disease patterns are critically examined. Utilization of epidemiological information to promote health, prevent disease and maximize wellness will be emphasized. The course will familiarize nurses with the methods appropriate to epidemiologic causes, frequency, and distribution of acute and chronic disease, and the theory behind screening programs. The course will stress a critical appraisal of the health care literature, encouraging a questioning approach which will foster nursing practice based upon adequate support from research.

**NUR 344 Ethical Issues in Nursing (2)**

This course synthesizes theoretical knowledge from nursing theories, the arts and sciences, and humanities to develop knowledge, skill, and disposition essential for ethical decision making. The American Nurses' Association (ANA) Code for Nurses and the values clarification process are examined as they relate to guiding professional nursing practice in ethical situations. Caring and traditional frameworks of ethical decision making models are introduced to clarify the professional nurse's role, duty, obligation, and commitment when experiencing an ethical

situation. The advocacy role of the professional nurse is applied throughout discussions. Dilemmas and issues encountered by professional nurses are critically examined to define, analyze, and justify ethical decisions made within diverse environments of providers, consumers, and organizations (i.e., the health care delivery system). Critical examination of one's personal viewpoint and evidence to support the antithetical position of selected ethical issues and personal experiences are explored.

#### **NUR 444 Nursing Leadership (4)**

The professional nurse functions in the role of leader, manager, collaborator, teacher, counselor, and advocate in the delivery of health care to clients in a wide variety of culturally diverse settings. This course focuses on developing the leadership and management function of the professional nurse through a synthesis of knowledge from the arts and sciences, previous nursing courses, and leadership and management theory utilizing a caring framework. Using selected nursing theories and relevant research findings, the student develops and refines the skills necessary to coordinate, manage, and deliver nursing care and to promote wellness in their practice environment. Content includes leadership approaches, group dynamics, principles of management, autonomy, accountability, liability, and communication. Critical thinking is enhanced through content on decision making, conflict management, use of power, political awareness, collective action, change strategies, professional development, and nursing practice based on standards of care and their legal and ethical implications. The clinical component of this course allows the student to apply self-directed learning from content acquired in the classroom and laboratory settings. Prerequisites: matriculated status, current New York Registered Professional Nurse license, current CPR certification, complete health clearance on file. Prerequisite: NUR 313.

#### **NUR 455 Community Health Organization (4)**

This theoretical course examines the interrelationship among humans, the environment, and community health nursing. Structural and function of the health care delivery system is examined. The student uses critical thinking to assess and analyze culturally diverse populations and community resources as they affect the wellness of populations at risk. The professional roles and standards of community health nurses, as they provide care in numerous community based settings, are examined within a nursing theoretical framework. Principles of teaching and learning, decision making, leadership, and management within the larger social system are examined for their impact on health care delivery. Prerequisites: NUR 313, NUR 325.

#### **NUR 474 Community Health Nursing (4)**

The course builds on nursing theory and clinical experiences essential to community health nursing. Health teaching and health care opportunities are available to the student in a variety of culturally diverse community health settings. Wellness promotion for individuals, families, and groups across the life span is emphasized. Family systems theory and the application of growth and development concepts are fundamental. Clinical experiences are scheduled one day per week (M-F), based on agency availability. Students must provide their own transportation. Prerequisites: NUR 324, NUR 455, current New York Registered Professional Nurse license, current CPR certification, complete health clearance on file. Pre/corequisite: Sociology elective.

#### **NUR 480 Special Topics in Nursing (Variable 1-4)**

A study of a selected topic of interest to professional nurses which will enhance the student's ability to practice professional nursing. Topics may be repeated in future semesters or may change from semester to semester.

#### **NUR 491 Independent Study (Variable 1-4)**

This is an independent study of selected contemporary problems within the nursing discipline. The student is required to submit a written proposal which includes a description of the project, its duration, education goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

#### **NUR 493 Nursing Research Seminar (4)**

The synthesis of knowledge from nursing theories, the arts, and sciences provides a basis for the examination of nursing research within culturally diverse populations. In this culminating course, students develop further skills in critical thinking, decision making, and clinical judgment as they learn to critically analyze qualitative and quantitative research designs. The application of these findings is discussed as it relates to quality nursing services within the health care delivery system. Professional standards of practice, the moral obligation to safeguard human subjects, and the ethical of care are emphasized as professional nurses participate in research activities. Professional socialization is reexamined and students reflect on past and present views of self as a developing professional. Integration of nursing theories is discussed as the students present their personal philosophy of nursing. At the end of NUR 493, the student must be within eight credits of degree completion.

## **Philosophy**

#### **PHI 350 Technology and Ethics (4)**

Traditional ethical theory and the problems in applying theory to contemporary technological situations. Ethics in communication receives special emphasis.

## **Photonics**

#### **PHO 300 Introduction to Photonics (2)**

An intensive survey of basic photonics concepts and fundamental optoelectronic devices, designed primarily for transfer students from disciplines other than photonics or lasers/electro-optics. Offers an overview of optics in its various regimes: rays, waves, and photons, leading to a preliminary development of ideas in geometrical, physical and quantum optics, respectively. Demonstrations, lab tours and guest speakers are used to introduce the field of photonics and its applications. Prerequisites: MAT 311 and PHY 302 (or equivalent) or permission of instructor.

#### **PHO 380 Laser Principles and Systems (4)**

Through lectures and laboratory experiences, the properties of laser radiation, general operational principles, the modification of laser outputs and specific laser systems and their applications are introduced. Three hours lecture, two hours lab per week. Cross-listed with PHY 380. Prerequisites: optics course and Calculus II.

#### **PHO 391 Fiber Optics (4)**

Principles and analysis of fiber optic components and systems, fiber optic sensors, integrated optoelectronics and applications of fiber optics in telecommunications and instrumentation. Three hours of lecture, two hours of laboratory per week. Prerequisite: one physics course with optics and/or consent of instructor. Cross-listed with ETC 391.

#### **PHO 421 Lightwave Propagation (3)**

Mathematically rigorous treatment of electromagnetic wave propagation in free-space and in dielectric media. Topics covered include Gaussian beam characteristics, Fourier optics, diffraction, holography, polarization and crystal optics. Maxwell's equations

are also reviewed in detail, providing a foundation for a basic discussion of the light-matter interaction in relevant photonic materials. Prerequisites: MAT 340, and MAT 401, and PHY 325, and PHY 326, and PHY 401.

#### **PHO 422 Laser Physics and Applications (4)**

Comprehensive overview of laser devices in current use and the principles underlying their operation. Topics covered include: laser safety; Gaussian beam propagation in optical systems; resonator types & stability; mode structure; interaction of photons with atoms; laser amplification and pumping; threshold and gain saturation; output characteristics; Q-switching; mode-locking; second-harmonic generation; applications of lasers in materials processing, communications, industry. Three hours lecture, two hours laboratory per week. Prerequisite: PHO 421 or PHO 382.

#### **PHO 441 Optoelectronic Properties of Solids (3)**

Introduction to solid-state physics of metals, semiconductors, and other crystalline solids, emphasizing their optical and electro-optical response. Concepts of vector calculus are reviewed and basic quantum mechanical principles are also introduced. Prerequisites: PHO 382 and CHE 300.

#### **PHO 442 Optoelectronic Devices (4)**

Detailed survey of sources, detectors, and modulators for optoelectronic applications, with an emphasis on semiconductor-based devices. Topics covered include: electro-optic and acousto-optic modulation; optical carrier excitation in semiconductors; LEDs and semiconductor lasers; photoemissive, photoconductive and photovoltaic detectors; and signal-to-noise ratio considerations. Three hours of lecture and two hours of lab work per week. Prerequisites: PHO 382 and PHO 441 and PHY 326.

#### **PHO 450 Practical Laser Technology (2)**

Introduction to manufacturing aspects of laser technology, design and characterization, as well as to applications in both research and industry. Current emphasis is on the Nd:YAG laser. Concepts treated include pumping options, cooling approaches, cavity configuration, Q-switching, and frequency doubling (second harmonic generation). The course offers a practical, hands-on approach to laser design, construction, and testing through the use of intensive laboratory-based exercises carried out in small groups combined with "back-of-the-envelope" calculations. Prerequisites: PHY 380 or permission of instructor.

#### **PHO 451 Advanced Photonics Lab Techniques (2)**

Concepts introduced in PHO 450 are expanded upon and treated in greater detail. Additional illustration of solid-state lasers' utility in industrial and scientific applications is presented. Particular emphasis is placed on Ti:Sapphire laser pumping, Kerr-lens modelocking, and ultrafast pulse generation for scientific research and materials processing applications. Further topics covered include: characterization of ultrafast pulses using autocorrelation techniques; computer interfacing and data acquisition using GPIB/LabView; and electronic signal processing. Prerequisites: PHY 380 or permission of instructor.

#### **PHO 460 Intro to Optical Design, Fabrication, and Testing (4)**

This course shows students how to apply optical principles and theory to the actual design and manufacture of optical systems. PC-based lens-design software is introduced as a tool for evaluating optical materials, components, and their impact on aberrations. Students also gain experience fabricating several simple optical elements. Two hours of lecture, four hours of laboratory per week. Prerequisites: PHY 326 or permission of instructor.

#### **PHO 470 Introduction to Fourier Optics (4)**

The fundamental techniques of Fourier analysis are developed and applied to the characterization of free-space optical systems, with an emphasis on the spatial filtering and Fourier-transforming properties of apertures and lenses. Topics covered: one-dimensional functions, including the delta-function; harmonic analysis, including Fourier series and integrals; linear shift-invariant systems; impulse response; convolution and correlation; the Fourier transform; and applications of linear filtering. This course provides an appropriate foundation for further study in image processing, holography, and analog optical signal processing. Prerequisites: PHO 421, or consent of instructor.

#### **PHO 472 Introduction to Optical Computing (4)**

Provides a broad overview of systems and devices for optical signal processing and decision-making, emphasizing technology, applications and design trade-offs rather than theoretical issues. The first half of the course covers analog optical computing schemes, including Fourier correlators, synthetic aperture radar processors, and spatial-light-modulator-based matrix-vector multipliers. The second portion of the class focuses on potential devices and architectures for digital optical logic and/or photonic switching, including nonlinear Fabry-Perot-based devices, Self-Electro-Optic-Effect Devices (SEEDs) and related approaches. Integrated optics and optical interconnects are also treated, along with relevant feasibility concerns. Prerequisites: PHO 421 or consent of instructor.

#### **PHO 480 Photonics Senior Project (2 to 4)**

Extensive practical investigation, preparation, development, and design and implementation of a project incorporating concepts from senior level courses. A written report is required. Prerequisite: enrolled in or have completed senior level photonics courses.

#### **PHO 483 Optical Communications (4)**

Principles and techniques associated with the transmission of optical radiation in waveguide (fibers) and free space, low and high power optical sources, internal (direct) and external (indirect) modulations. Fiber optical waveguide and characteristics of free space, homodyne and heterodyne detection, and design of optical communication systems. Three hours of lecture, two hours of laboratory per week. Cross-listed with ETC 483. Prerequisite: ETC/PHO 391 or consent of the Instructor.

#### **PHO 491 Independent Study (1 to 4)**

Extensive study of a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, methods of evaluation, and number of credits to be earned. Prerequisite: enrolled in or have completed senior level photonics courses; matriculated students only.

#### **PHO 494 Internship/Co-Op (2 to 4)**

This course provides part-time supervised experience in a professional atmosphere which supplements classroom instruction. Two written reports on the work experience, two supervisor's evaluations and one site interview required. Required contact hours minimum 150. Prerequisite: Permission of instructor.

## **Physics**

#### **PHY 301 General Physics I (4)**

Algebra-based introduction to mechanics, wave phenomena and thermodynamics. Topics include kinematics, dynamics of linear and circular motion, gravitation, conservation of energy and

momentum, fluids oscillations, sound, thermal physics and the laws of thermodynamics. Includes three hours of lecture and three hours of laboratory per week. Recommended for all Telecommunications majors with appropriate placement scores. Satisfies the General Education Laboratory Science Requirement. This course and PHY 313 can not both be taken for credit. Prerequisite: MAT 311 or equivalent.

#### **PHY 302 General Physics II (4)**

Algebra-based introduction to electromagnetism, optics, and modern physics. Topics include electric forces and fields, electric potential, DC circuits, magnetic forces and fields, electromagnetic induction, AC circuits, electromagnetic waves, geometrical and physical optics and an introduction to modern physics. Includes three hours of lecture and three hours of laboratory per week. Recommended for all Telecommunications majors with appropriate placement scores. Satisfies the General Education Laboratory Science Requirement. This course and PHY 314 can not both be taken for credit. Prerequisite: PHY 301 or equivalent.

#### **PHY 303 Calculus Based Physics I (4)**

The first course in a two course calculus based physics sequence. Topics include mechanics, wave motion, and thermodynamics. Includes three hours of lecture and three hours of laboratory per week. Recommended for all Engineering Technology majors with appropriate placement scores. Satisfies the General Education Laboratory Science Requirement. This course and PHY 301 cannot both be taken for credit. Prerequisite: MAT 321 or equivalent; can be corequisite with permission of instructor.

#### **PHY 304 Calculus Based Physics II (4)**

The second course in a two course calculus based physics sequence. Topics include electricity and magnetism, optics, and modern physics. Includes three hours of lecture and three hours of laboratory per week. Recommended for all Engineering Technology majors with appropriate placement scores. Satisfies the General Education Laboratory Science Requirement. This course and PHY 302 cannot both be taken for credit. Prerequisite: PHY 303 or equivalent and MAT 322 or equivalent. MAT 322 can be corequisite with permission of instructor.

#### **PHY 313 Introductory Physics I (4)**

A general introduction to mechanics, fluids, and thermodynamics, intended for a non-technical audience. Emphasis is on learning basic principles of physics through real-life examples and a hands-on study of everyday objects. Students with majors in Engineering Technology and Photonics will NOT receive credit for this course. Satisfies the General Education Laboratory Science Requirement.

#### **PHY 314 Introductory Physics II (4)**

A general introduction to wave phenomena, electromagnetism, optics and modern physics, intended for a non-technical audience. Basic principles of physics are studied through real-life examples and a hands-on study of everyday objects. Special coverage provided on the physics of modern light wave communication. Students with majors in Engineering Technology and Photonics will NOT receive credit for this course. Satisfies the General Education Laboratory Science Requirement. Prerequisite: PHY 313 or equivalent.

#### **PHY 320 Laser Fundamentals (2)** (Cross-listed with MTC 455)

Analysis of the basic laser fundamentals including optics and laser hardware. Operational characteristics of specific laser systems will be covered. Two hour lecture per week with laboratory work substituted appropriately.

#### **PHY 325 Geometrical Optics (4)**

Covers the topic of classical optics with both lecture and laboratory. The nature of light, the laws of reflection and refraction, mirrors, lenses, image formation as well as aberrations will be covered using geometric techniques. The structure and operation of specific optical instruments will be explored in detail. Prerequisites: MAT 320 and PHY 302 or PHY 304 or their equivalents.

#### **PHY 326 Physical Optics (4)**

Introduce the student via lecture and laboratory to the wave properties of light as observed in such phenomena as interference, diffraction and polarization. Topics also include a review of harmonic wave motion, the principle of superposition of waves, Fraunhofer and Fresnel diffraction, interferometry, coherence, diffraction gratings, multiple reflection interference and optical boundaries. Prerequisites: PHY 325 and MAT 322 and PHY 302 or PHY 304 or their equivalents.

#### **PHY 380 Laser Principles and Systems (4)**

Through lectures and laboratory experiences, the properties of laser radiation, general operational principles, the modification of laser outputs and specific laser systems and their applications are introduced. Three hours lecture, two hours lab per week. Cross-listed as PHO 380. Prerequisites: optics course and Calculus II.

#### **PHY 401 Electromagnetism (4)**

In this course, the laws of electricity and magnetism are developed using the language of vector calculus. Topics include: Coulomb's Law, the electrostatic field and potential, Gauss' Law, dielectrics, capacitors, electric current, the steady magnetic field, Biot-Savart Law, Ampere's Law, magnetic materials, Faraday's Law, the displacement current, Maxwell's Equations, and plane electromagnetic waves. Prerequisites: MAT 322 or equivalent and one year of general physics.

#### **PHY 415 Introductory Quantum Mechanics (4)**

An introduction to the theory and applications of Quantum Mechanics. Topics will include: wave-particle duality, Heisenberg uncertainty principle, quantum states and operators, Schroedinger equation and quantum statistics. Applications will be selected from atomic and solid state physics, including semiconductors and lasers. Prerequisites: Differential Equations (MAT 330) and one year of general physics.

#### **PHY 420 Intermediate Mechanics (4)**

Newtonian theory is used to describe the mechanical behavior of objects. Topics include: Newton's laws of motion, momentum and energy, motion of a particle in one or more dimensions, motion of a system of particles, rigid body motion, introduction to Lagrange and Hamilton's equations. Prerequisite: PHY 303 or equivalent.

#### **PHY 490 Special Topics in Physics (4)**

This course offers a detailed examination of a topic in physics not treated extensively in other physics courses. Prerequisite: Permission of instructor.

#### **PHY 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisite: matriculated students only, permission of instructor and dean of subject area.

## Political Science

### POS 310 American Politics (4)

An introduction to the major features of the American political process. Emphasis on democratic theory and philosophy, American political culture, structures and institutions, and political participation and behavior. Designed for upper division students with no previous introductory course in American politics.

### POS 321 State and Local Government (4)

A structural examination of the organization and responsibilities of state and local governments, with particular emphasis on the state of New York. This course includes a discussion of current problems facing urban governments, and their solution in the context of multiple levels of government.

### POS 330 World Politics (4)

A survey of major political developments in the post-WWII period. Through the use of several case studies, the student will examine political structures and processes in both the western and non-western world.

### POS 340 Elections and Political Behavior (4)

An exploration into the roots and consequences of political behavior with a focus on the "average" citizen. Topics include the formation and importance of political values, the dimensions of political participation, and the implications of empirical evidence for electoral strategy and contemporary democratic theory.

### POS 400 Topics in Political Science (4)

An in-depth examination of a current topic in political science. Examples might include political psychology, media and politics, political ethics, and presidential elections. May be taken more than once as topics change.

### POS 410 Domestic Public Policy (4)

Examination of the decision-making process and the substance of various issues in domestic public policy in such areas as economics, education, the environment, health, poverty and crime. Prerequisite: POS 310 or an introductory course in American politics.

### POS 435 American Politics and Communications Technology (4)

An examination of the interplay between patterns of development in American politics and communications technology, with an emphasis on newly emerging media such as computer networks and low power television. This course analyzes the place of technology in democratic theory, and examines the relationship between communications and governance, elections and political participation. Prerequisite: POS 310 or Permission of Instructor.

### POS 491 Independent Study (Variable 1-4)

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisites: Matriculated students only, permission of instructor and dean of subject area.

## Psychology

### PSY 303 Principles of Psychology (4)

This course surveys the field of psychology, emphasizing issues of current importance. Topics covered include research methodology and the influence of biological, social, and environmental factors

on behavior. No credit will be given to students who have previously taken an introductory psychology course.

### PSY 305 History and Systems of Psychology (4)

The course examines theoretical systems of psychology in historical perspective. Classical and contemporary theories of human behavior will be analyzed in terms of their impact on various fields of psychology. Prerequisite: PSY 303 or equivalent.

### PSY 310 Research Methods in Psychology (4)

This lecture and laboratory course will provide actual experience in the use of a variety of methods of research design and data analysis. It will provide an opportunity for the student to design a research project, either individually or in a small group, by selecting an appropriate sampling procedure, and devising a method of collecting and analyzing data. It will introduce the students to recent developments in research and ethics in research. Prerequisites: STA 300 or equivalent and PSY 305 or permission of instructor.

### PSY 315 Life-span Developmental Psychology (4)

This course will examine the physical, cognitive, social, and emotional developments of individuals from conception to death. Special attention will be given to the environmental and biological factors that contribute to normal development in childhood, adolescence, adulthood, and aging. Prerequisite: PSY 303 or equivalent.

### PSY 322 Abnormal Psychology (4)

This course will examine the dimensions, theories, and empirical findings in human psychopathology. Topics covered will include: concepts of abnormality, theories, classification, etiology, assessment, and treatment of prevalent disorders as well as their prevention. Prerequisite: PSY 303 or equivalent.

### PSY 325 Psychology of Gender (4)

This course will review the major findings and theories related to sex roles and sex typing. It will also examine gender specific issues (e.g. motherhood/fatherhood). Prerequisite: PSY 303 or equivalent.

### PSY 331 Psychology of Personality (4)

A study of determinants of personality and methods of studying personality, including various systems of psychology and their interpretations of personality structure and development. Prerequisite: PSY 303 or equivalent.

### PSY 342 Social Psychology (4)

This course examines principles of social behavior in a variety of settings. Topics include: attitude formation and change, group dynamics, interpersonal attraction, social perception, altruism, and aggression. Prerequisite: PSY 303 or equivalent.

### PSY 352 Industrial and Organizational Psychology (4)

This course examines the behavior of people in an industrial work environment. Topics include: attitudes toward work, organizational climate, appraising employee performance and interest, engineering psychology, worker efficiency, accident behavior, leadership styles, and effectiveness. Prerequisite: PSY 303 or equivalent.

### PSY 360 Perception (4)

A presentation of the basic facts and theories of human perception, concentrating primarily on vision. Topics to be covered include psychophysics, form and space perception, the constancies, the effects of learning, motivation, and set on perception, selective attention, and perceptual development. Prerequisite: PSY 303 or equivalent.

**PSY 362 Learning and Motivation (4)**

This course examines historical and modern concepts of learning and motivation, Pavlovian and operant conditioning, and their application. The relationship of learning to motivation and physiological, cognitive, and social theories of motivation will also be discussed. Prerequisite: PSY 303 or equivalent.

**PSY 364 Psychology of Aging (4)**

The course examines psychological changes and processes associated with old age. Special emphasis is given to personality, sensory and cognitive aspects of the behavior of aging individuals. Prerequisite: PSY 303 or equivalent or permission of instructor.

**PSY 365 Educational Psychology (4)**

This course provides an overview of the psychological theory and research in relation to educational practices. Cognitive, motivational, interpersonal and sociocultural influences on learning and retention in educational institutions will be examined. Characteristics and developmental needs of the learner throughout lifespan, along with evaluative measures of learning/instructions will be considered. Prerequisite: PSY 303.

**PSY 373 Dying, Death & Bereavement (4)**

The course examines psycho-social conceptualizations of dying, death and grief in contemporary society with special emphasis on one's own feelings and attitudes towards death and coping and supportive strategies of the dying and bereaved persons. Socio-cultural, legal/ethical issues are also explored. Prerequisite: PSY 303 or equivalent or permission of instructor.

**PSY 377 Health Psychology (4)**

This course will investigate the relations between physical and mental health. Emphasis will be on the role that psychological factors have for both physical illness and health. The course will also examine stress and stress management techniques. Prerequisite: PSY 303 or equivalent.

**PSY 385 Evaluation Research (4)**

Application of various research methods to the planning, monitoring, and evaluation of social intervention programs. Topics include: research design, questionnaire construction, survey methods, computer applications, and the critical analysis of evaluation studies. Assignments in class and field settings will provide students with practical experience in the design of evaluation studies, data collection and analysis, and the writing of evaluation reports. Prerequisite: PSY 310 or SSC 362 or equivalent.

**PSY 390 Engineering Psychology and Human Performance (4)**

The course deals with the systematic application of relevant information about human capabilities and limitations to design of things and procedures people use. Topics include: information displays, acquisition of skills, person-machine system properties, work space, applied anthropometry, accidents, and psychological factors in transportation. Prerequisite: PSY 303 or equivalent.

**PSY 415 Psychology of Aggression and Nonviolence (4)**

This course deals with the factors associated with aggression and nonaggression. Topics include: theories of aggression, control of aggression, personality patterns of violent and nonviolent individuals, psychology of power, conflict resolution, and techniques for teaching nonviolent behavior. Prerequisites: PSY 305 or PSY 315 or PSY 331 or PSY 342 or permission of instructor.

**PSY 425 Cognitive Psychology (4)**

This course is a survey of thinking and problem solving. The course will follow the history of psychological theory on thinking and problem solving, from associationism to gestalt approaches to modern information processing approaches and artificial intelligence. Particular attention will be paid to practical and clinical applications of research. Prerequisite: PSY 362 or PSY 360 or permission of instructor.

**PSY 444 Applied Social Psychology (4)**

This course is intended to expose students to interventions by social psychologists in real-world problem solving. Topics include: applied nature of social psychology; social psychology of education, religion and politics; cross-cultural psychology; social psychology and legal issues; consumer behavior; social psychology and social policy; and conservation and environmental concerns. Prerequisites: PSY 305 or PSY 331 or PSY 342 or PSY 352 or equivalent or permission of instructor.

**PSY 445 Group Dynamics and Interpersonal Communication (4)**

The course examines interaction in small groups. Topics include: group structure and development, and aspects of group process such as problem-solving, decision-making, productivity, creativity, power, conflict resolution, leadership, and communication. Skill in application of concepts of group dynamics is developed through exercises in experiential learning and observation. Prerequisite: PSY 342 or PSY 352 or equivalent.

**PSY 460 Neuropsychology (4)**

The mind arises from the brain and every topic in psychology has a biological basis. This course is a survey of the biological bases of a wide array of topics, including perception, motivation, emotion, bodily movement, learning, memory and language. Prerequisite: PSY 303 or equivalent.

**PSY 470 Psychological Testing (4)**

This course examines the basic concepts of measurement theory and their application to developing, administering, and interpreting psychological tests. Moral, ethical, and legal issues associated with testing and the use of test results are considered. Prerequisites: PSY 322, or PSY 331 or PSY 352 or equivalent.

**PSY 477 Principles of Psychological Counseling (4)**

This course will examine the theories and techniques used in counseling situations. Special attention will be given to interviewing skills, ethical issues, and the interpersonal dynamics that comprise the major therapeutic approaches. Prerequisites: PSY 322 or PSY 331 or equivalent, or permission of instructor.

**PSY 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, method of evaluation, and number of credits to be earned. Prerequisite: Matriculated students only, permission of instructor and dean of subject area.

**PSY 492 Practicum in Psychology (4)**

Supervised, discipline-related experience in a community service agency is provided. The major emphasis is to help the student in applying theoretical knowledge to real life situations, and to develop skills and competence as a professional. Regular meetings with agency supervisor and practicum coordinator are an essential feature of the practicum. Minimum GPA 3.5 and permission of

the psychology department are required for admission. Prerequisites: PSY 310, and PSY 385 or equivalent. This course will not be a substitute for one of the 3 advanced courses required to complete the credits to major in the Psychology program.

### **PSY 493 Senior Seminar in Psychology (4)**

Special topics of current interest and relevance are treated in-depth. Emphasis is placed on the critical analysis of current research literature and development of independent projects by seminar members. Topics vary from semester to semester. Prerequisites: Senior standing, PSY 310 and PSY 385 or equivalent and permission of instructor.

## **Science, Technology, and Society**

### **STS 300 Introduction to Science, Technology, and Society (4)**

Explores the humanistic and social dimensions of science and technology by looking at the interactions and interrelationships among science, technology, and society. We will explore: 1) the practice of science and technology to understand how scientific and technological work are conducted as creative and human enterprises; 2) how science and technology are shaped by different social and economic forces; 3) the impact of science and technology on society; 4) ethical issues related to science and technology. Meets Humanities or Social/Behavioral Science requirement.

### **STS 350 Science and Technology Transfer and Assessment (4)**

Focuses on two aspects of modern science and technology: 1) an introduction to and critical analysis of technology assessment; i.e., the determination of potential impacts of technology on people and the environment; and 2) an analysis of the basic mechanisms and major obstacles related to the communication and transfer of science and technology to different groups of users, including the general public, and the public's response to science and technology. Meets Social/Behavioral Science requirement.

### **STS 360 Science, Technology, and Politics (4)**

Explores the political dimensions of science and technology. Focuses on science and technology policy in the United States, the politics of technical decisions, and the role of scientists and technologists as experts who provide advice in the policy-making process. Examines the relationships between universities and industry and between science and the military; the possibility for democratic control of science and technology; and the use of science to legitimate political decisions and the regulation of technology. Meets Social/Behavioral Science requirement.

### **STS 490 Topics in Science, Technology and Society (Variable 1-4)**

This course is an in-depth examination of particular topics in science, technology and society. Topics may include: Science, Technology, and Identity; Science, Technology, and the Environment; Science, Technology, and Gender; Science, Technology and Religion; Science, Technology, and Science Fiction. Typically, a topics course will use two or three general textbooks, and every student will be required to perform research on a particular issue related to the topic. May be taken more than once as topics change. Meets Humanities or Social Science requirement.

### **STS 491 Independent Study (Variable 1-4)**

Extensive study and research on a particular topic of student interest under the supervision of a faculty member. The student is required to submit a written proposal which includes a description of the project, its duration, educational goals, methods of evaluation, and the number of credits to be earned. Prerequisites: STS 300 and permission of instructor and dean of subject matter.

## **Social Science**

### **SSC 362 Methods of Inquiry (4)**

This course provides experience in the design and implementation of social science research. Topics covered include philosophies of social science, development of theories and hypotheses, modes of observation, methods of sampling and techniques of analysis. Students will design and implement several research projects during the semester. Use of computers is required, though no prior experience is assumed.

## **Sociology**

### **SOC 300 Social Problems (4)**

Examines social problems in industrial society, and how social institutions can lead to their creation, perpetuation, and solution. Focuses on particular social issues, such as poverty, power, race, ethnicity, gender roles, work, health, education, and war. Explores similarities and differences between sociological and other social science approaches to the study of social problems. Emphasis placed on the United States.

### **SOC 310 The History of Sociological Theory (4)**

Presents a historical overview of the emergence and development of sociological theory, with emphasis on theorists such as Saint Simon, Comte, Spencer, Marx, Durkheim, Weber, Simmel, and post-WWII U.S. theorists. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### **SOC 314 Sociology of Deviance (4)**

Presents major sociological theories of deviance. Examines specific forms of deviance, such as drug abuse, crime, sexual deviance, and mental illness. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### **SOC 322 Sociology of the Family (4)**

Analyzes the nature of gender roles in the family, conceived of as a basic social institution. Examines various patterns of family organization and problems confronting the family. Emphasizes the family in the United States. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### **SOC 350 Chemical Dependencies and Human Behavior (4)**

Explores sociological perspectives on the acquisition, continuation, and elimination of human dependency on chemical substances like drugs and alcohol. Aims to bridge the gap between professional and academic skills and information. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### **SOC 351 Sociology of Crime (4)**

Introduces the study of crime and the criminal justice system. Examines the causes of crime, including violent crime, crimes against property, substance abuse, sexual offenses, white collar, and organized crime. Considers the efforts of the police, courts, penal system, and community to deal with the various types of crime, as well as the social policy implications of our understanding of and approaches to the problem of crime. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

### **SOC 360 The Sociology of Work (4)**

Describes contemporary sociological analyses of work, especially industrial labor processes. Explores the relative impact of technological and social factors on the organization of a variety of specific labor processes. Develops and synthesizes skills of work description. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.



**SOC 370 Sociology of Health and Illness (4)**

Integrates varied sociological perspectives with the study of health and illness. Investigates the relationship between social structure and the experience of health or illness. Examines the organization and delivery of medical services in the United States. Focuses on the individual's experience of illness. Links sociological theory and sociological practice in the healthcare arena. Prerequisites: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

**SOC 381 Social Gerontology (4)**

Compares sociological, biological, and psychological analyses of aging. Analyzes the problems confronting older people in industrial societies. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

**SOC 411 Sociology of Community (4)**

Examines the tradition of Community Studies in American Social Science. Presents various models of community process. Examines particular social problems manifest in communities such as community development, ethnicity, and poverty. Encourages a research orientation in socially-relevant professions. Prerequisite: ANT 321.

**SOC 424 Social Welfare Policy (4)**

Investigates the history, concepts, programs, and practices of social welfare policies in the United States. Promotes an appreciation for the interrelatedness of practice and policy analysis in the field of social welfare scholarship. Prerequisite: ANT 321.

**SOC 446 The Individual and Society (4)**

Presents various ways to conceptualize the mutual influences of individual-level and social-structural processes. Addresses specific topics within social psychology, "human nature," communication and language, perception, socialization, and the acquisition of roles, ideologies, and values. Prerequisite: ANT 321.

**SOC 450 Sociology of Corrections (4)**

Introduces students to correctional institutions by examining the history and philosophy of corrections; the social organization of prison societies as total institutions; the management of prisons; prison violence and court-mandated attempts to restore civility; jails and community corrections; and critiques of traditional approaches to corrections. Prerequisites: ANT 320 or SOC 314, or SOC 351.

**SOC 452 White Collar Crime (4)**

Focuses upon crime that occurs within organizational and occupational contexts. Applies the major theories of crime causation to such illegality whether committed for the benefit of an employing organization, by individuals through the exercise of State authority, by individuals in their particular professional capacity, or for other types of individual gain. Explores avenues for legal and social reforms for controlling these practices. Prerequisite: ANT 320 or SOC 314, or SOC 351.

**SOC 455 Sociology of Law and the Courts (4)**

Examines the social origins of law and the institutions by which it is administered; the effect of law on the reproduction of social arrangements; the history of legal ideas and their influence on legislation and court precedents; and the relation of law to the problem of social order and control. Primary emphasis is on criminal law and courts. Prerequisites: ANT 320 or SOC 314, or SOC 351.

**SOC 465 Sociology of Occupations and Professions (4)**

Presents previous and current sociological approaches to the structure of labor markets, both occupational and professional. Analyzes changes in these markets. Examines the relations between labor markets and other social institutions, such as the family, the school, race/ethnicity, gender, and class. Analyzes professions as particular types of occupation, the social consequences of professionalization, and the implications of current patterns of labor market recruitment, mobility, segregation, and segmentation. Prerequisite: ANT 301 or SOC 300, or an introductory anthropology or sociology course.

**SOC 466 Worker Social Psychology (4)**

Presents previous and current sociological perspectives on the self-concept, consciousness, and alienation of the worker, both blue and white collar, in industrial society. Analyzes the impact of changes in labor processes on such social psychological factors. Explores stock ownership plans, workers' participation, and workers' self-management. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

**SOC 490 Selected Topics in Sociology (4)**

An in-depth treatment of a selected topic in Sociology. Provides students with the opportunity to investigate sociological subject matter. Students may receive credit in a future semester for different topic areas. Prerequisite: ANT 301 or SOC 300 or an introductory anthropology or sociology course.

**SOC 491 Independent Study (Variable 1-4)**

Provides a structure for extensive study and/or directed research (under faculty supervision) on a topic. Application form must include a description of the project, its duration, its educational goals, method for its evaluation, and a suggested number of credits. Prerequisites: Matriculated students only; permission of instructor and school dean required.

**SOC 493 Senior Seminar in Sociology (4)**

Explores in depth a particular sociological topic chosen by the instructor. Emphasizes critical analysis of current sociological literature and the development of independent projects by students. Topic varies. Prerequisite: SOC 310.

**SOC 495 Practicum in Sociology (4)**

Integrates academic and practical experience during one semester placement in an appropriate social service, criminal justice, or work-related community setting. Involves execution of a social practice project, negotiated among student, staff, and placement supervisor. Students must apply for admission to the course. Prerequisites: SOC 310 and SSC 362 and 3.0 GPA and permission of instructor.

**Statistics****STA 300 Statistical Methods (4)**

Study of the methods whereby data are collected, analyzed, and presented. Topics include: frequency distributions, measures of location, dispersion, and skewness, probability and probability distributions, and various topics in statistical inference. May not be taken for credit by students who have passed MAT 321 or equivalent.

**STA 325 Applied Statistical Analysis (4)**

This course deals in-depth with statistical methods used to analyze data. Applications are drawn from many diverse areas. Topics include: measures of location and scale for frequency distributions, addition and multiplication laws for probability, binomial, Poisson, and normal distributions, inferences about

proportions and location parameters in one-sample and two-sample problems, analysis of completely randomized and randomized blocks designs, simple linear regression and correlation, sign test, median test, rank sum test, and signed rank test. Prerequisite: MAT 321 or equivalent. Cross-listed with MAT 325.

## Telecommunications

### TEL 300 Introduction to Telecommunications (3)

An introduction to the field of telecommunications. Interrelation of telecommunications, data processing, and data communications. Managing voice and data systems and discussions of current technologies.

### TEL 301 Basic Voice Communications (4)

Overview of voice communications. Fundamental concepts and terminology, structure of the telecommunications industry, physical and pricing components of voice products and services, and an introduction to telecommunications engineering, FCC registration, and financial considerations in purchasing a telecommunications system. Prerequisite: TEL 300.

### TEL 305 Basic Data Communications (4)

Provides an overview of data communications, including fundamental concepts such as coding schemes, modulation techniques, transmission impairments, and digital versus analog networking. Also explained are various types of networks and terminal configurations and their advantages and disadvantages. Prerequisite: TEL 300.

### TEL 307 Broadband ISDN and ATM (4)

This is a course dealing with the topics of broadband network technology, protocols, and implementation issues. The students should have an adequate background in the basics of telecommunications which the prerequisite, TEL 305, would provide in order to benefit from this course. Students completing this course will be exposed to all facets of the growing broadband network technology and services industry. In addition to lecture and very current reading material, students will further their understanding of a single broadband topic in completing a research paper to be presented to their classmates at the end of the course. Prerequisite: TEL 305.

### TEL 310 Telecommunications Transmission Technology (4)

Will familiarize students with various transmission technologies such as coaxial cables, microwave radio, fiber optics and satellite communications. The advantages and disadvantages of analog and digital technologies are compared as they pertain to long-range network planning. Voice and data integration will also be discussed. Includes an overview of the national wiring standards as presented by the telecommunications distribution methods manual. Prerequisites: TEL 300 and TEL 301.

### TEL 315 Voice Network Design (4)

Introduction to traffic engineering for network analysis and design. Erlang B and C, Retrial, Poisson and Wilkinson Traffic Theories, on-net and off-network design strategies, alternate routing, and network configurations and components. Use of software based design tools. Hands-on design lab using state of the art network design software packages. Prerequisites: TEL 300, TEL 301 and STA 300.

### TEL 316 Data Network Design (4)

Data network design issues and applications, point-to-point network design, multipoint network design, data collection and verification and an overview of protocols. Network design tools

such as MIND, Bones, and Comnet III are used for network design and simulation. Use of simulation results to design a private line or packet switched based data communications network. Three hours lecture, one hour lab. Prerequisites: TEL 305, and STA 300.

### TEL 330 International Telecommunications (4)

An assessment of global telecommunications networks, business, trade in services and equipment, and regulation. Topics include voice and data services, technical standards, transborder data flow issues, network competition, and the role of telecommunications in economic development. Prerequisite: TEL 300.

### TEL 340 Network Standards & Protocols (3)

A detailed study into the process, organizations, and individual specifications of current network standards being developed by the ISO, CCITT, ANSI, EIA and IEEE standards bodies. Specific study topics include the OSI reference model, X.25, X.21, RS-232 and 449, TCP/IP, 802.X family of LAN standards, IBM's SNA and LU6.2, VTP, and FTAM. The course is supplemented by a computer based hands-on protocol analysis lab providing protocol diagnostics and performance tuning activities. Prerequisite: TEL 305.

### TEL 400 Wireless Telecommunications (4)

This course will investigate the technologies, networks, and services of wireless telecommunications systems. Areas examined include public cellular, microcellular and mobile satellite systems; as well as privately owned wireless LANS-WANS and PBXs. Domestic and international regulation of these networks and services, as well as infrastructure, supplier competition, and access technologies will be examined. Prerequisite: TEL 301 and TEL 305.

### TEL 410 Telecommunications of Still and Moving Images (4)

Past, present, and future practice in television, teleconferencing, and facsimile are surveyed. Technical details of these areas including transmission methods. Digital compression techniques. The high definition and fully digital future. Includes regulatory and market topics, as well as technical discussion. Prerequisites: TEL 301 and TEL 305, or permission of instructor.

### TEL 416 Digital Telephone Switching Systems (4)

Digital telephone switching systems design and operations are covered. Programming several different systems, networking switching systems together in a laboratory environment, testing and troubleshooting are also included. Three hours of lecture and a two hour lab component per week. A self-paced computer training program is also included. Prerequisite: TEL 301.

### TEL 420 Telecommunications Systems Analysis and Project Management (4)

A study of project management techniques and processes from a corporate user perspective. Topics include strategic planning, needs assessment, development of requests for proposals, security and disaster planning, financial evaluation techniques, negotiation with vendors, outsourcing, implementation and system changeover planning, and creation of validation and acceptance test procedures. Prerequisite: TEL 300. (Cross-listed with TEL 520).

### TEL 430 Local Area Networks (4)

Survey and evaluation of local area network media, access methods, and topologies. Design, configuration, operation, and configuration of local area networks. Hands-on Novell Network System Administration. Prerequisite: TEL 305.

**TEL 450 Integrated Network Systems Management (4)**

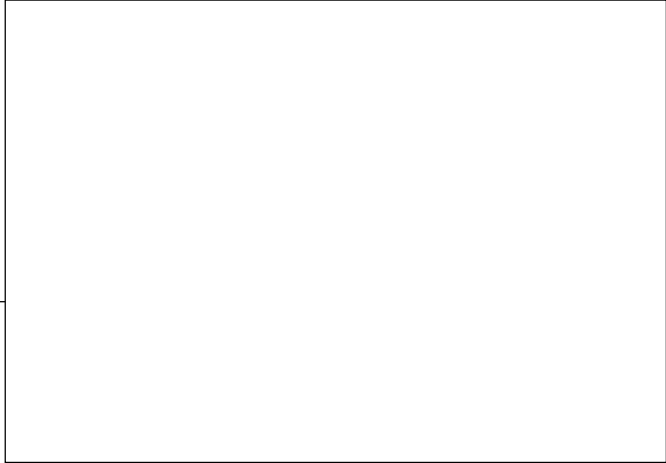
An advanced technical telecommunications course in the methodologies and practices of integrated network management. Study of network transmission methods suitable for integration, topical systems design techniques using software tools, enterprise network management strategies, and integrated network systems applications will provide the appropriate detailed knowledge a student will need to partake in this industry trend. Prerequisites: TEL 305.

**TEL 490 Telecommunications Policy/Issues (4)**

History and current direction of telecommunications policy in the United States and elsewhere. Structure of the local, state, federal, and international bodies overseeing telecommunications; the basis and goals of telecommunications regulation; the current regulatory environment; and contemporary issues in the field. Prerequisite: TEL 300.

**TEL 494 Telecommunications Internship/Co-Op (2 or 4)**

This course provides part-time supervised experience in a professional atmosphere which supplements classroom instruction. Two written reports on the work experience, two supervisor's evaluations and one site interview required. Required contact hours min. 150. Prerequisite: Consent of instructor.



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# The State University of New York

*To Learn - To Search - To Serve*

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*Interim Provost and Vice Chancellor for Academic Affairs* ..... Peter Salins  
*Vice Chancellor for Finance and Business* ..... Brian T. Stenson  
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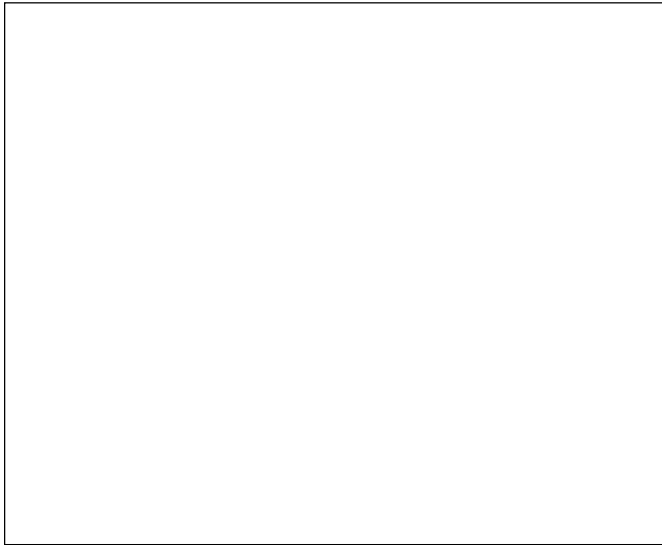
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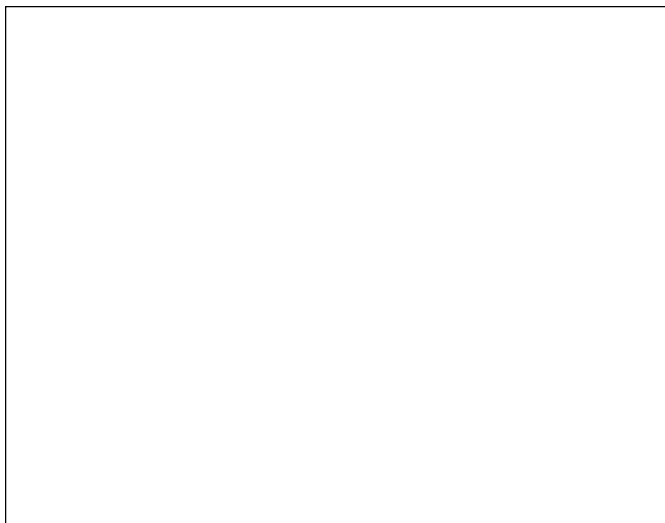
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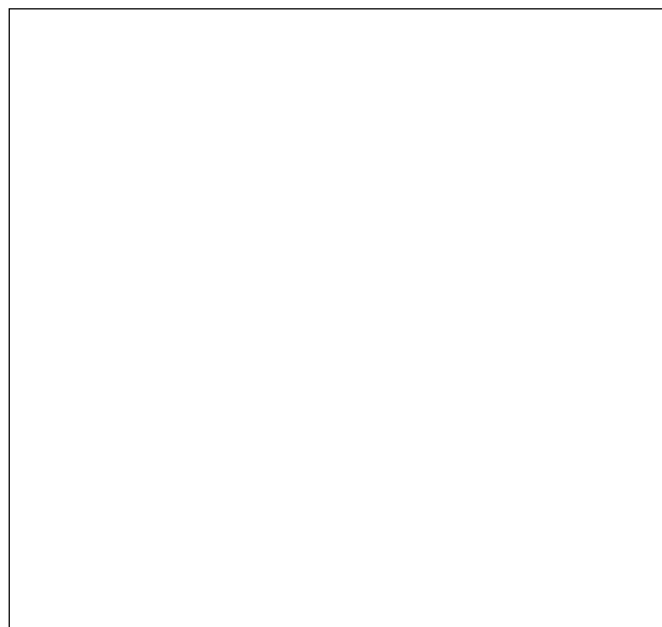
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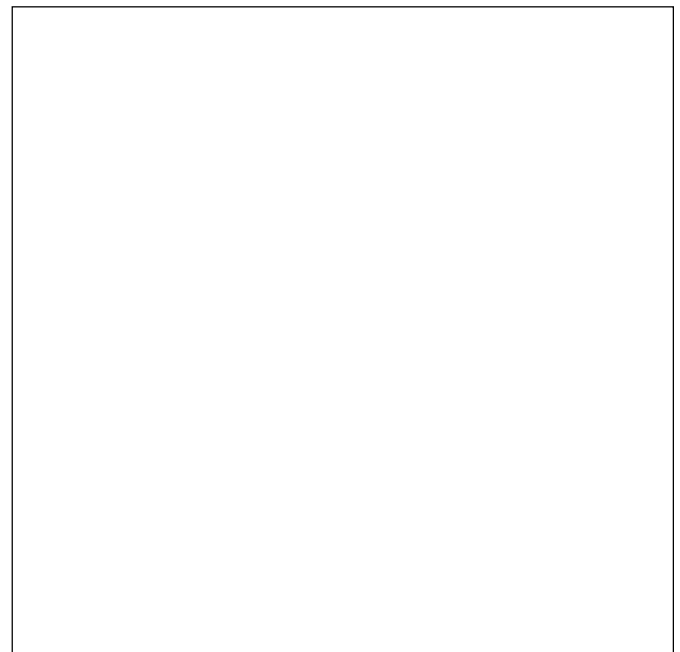
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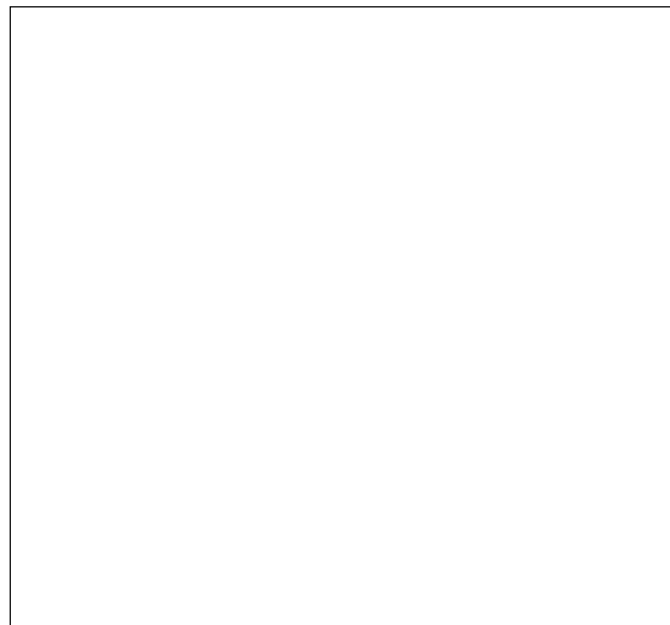
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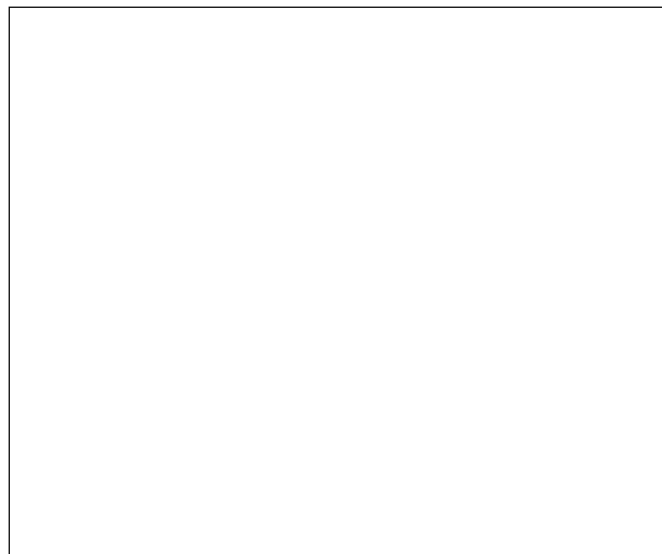
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# State University of New York

State University's 64 geographically dispersed campuses bring educational opportunity within commuting distance of virtually all New York citizens and comprise the nation's largest, centrally managed system of public higher education.

When founded in 1948, the University consolidated 29 state-operated, but unaffiliated, institutions. In response to need, the University has grown to a point where its impact is felt educationally, culturally and economically the length and breadth of the state.

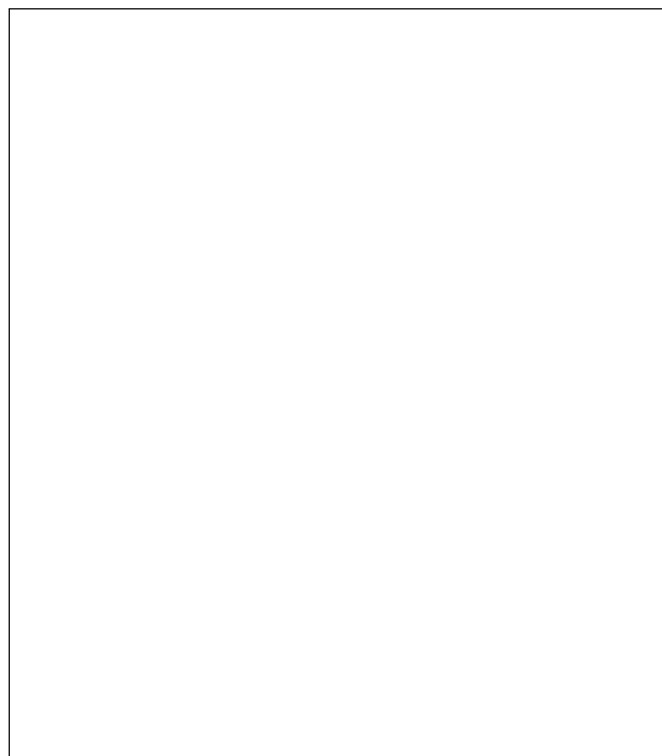
More than 400,000 students are pursuing traditional study in classrooms or are working at home, at their own pace, through such innovative institutions as Empire State College, whose students follow individualized and often non-traditional paths to a degree. Of the total enrollment, approximately 36 percent of the students are 25 years or older, reflecting State University's services to specific constituencies, such as refresher courses for the professional community, continuing educational opportunities for returning service personnel, and personal enrichment for more mature persons.

State University's research contributions are helping to solve some of modern society's most urgent problems. It was a State University scientist who first warned the world of potentially harmful mercury deposits in canned fish, and another who made the connection between automobile and industrial exhaust combining to cause changes in weather patterns. Other University researchers continue important studies in such wide-ranging areas as immunology, marine biology, sickle-cell anemia, and organ transplantation.

More than 1,000 public service activities are currently being pursued on State University campuses. Examples of these efforts include special training courses for local government personnel, State civil service personnel, and the unemployed; participation by campus personnel in joint community planning or project work; and campus-community arrangements for community use of campus facilities.

A distinguished faculty includes nationally and internationally recognized figures in all the major disciplines. Their efforts are recognized each year in the form of such prestigious awards as Fulbright-Hays, Guggenheim and Danforth Fellowships.

The University offers a wide diversity of what are considered the more conventional career fields, such as business, engineering, medicine, teaching, literature, dairy farming, medical technology, accounting, social work, forestry and automotive technology. Additionally, its responsiveness to progress in all areas of learning and to tomorrow's developing societal needs has resulted in concentrations which include the environment, urban studies, computer science, immunology, preservation of national resources, and microbiology.



SUNY programs for the educationally and economically disadvantaged have become models for delivering better learning opportunities to a once-forgotten segment of society. Educational Opportunity Centers offer high school equivalency and college preparatory courses to provide young people and adults with the opportunity to begin college or to learn marketable skills. In addition, campus Educational Opportunity Programs provide counseling, developmental education and financial aid to disadvantaged students in traditional degree programs.

Overall, at its EOC's, two-year colleges, four-year campuses and university and medical centers, the University offers more than 4,000 academic programs. Degree opportunities range from two-year associate programs to doctoral studies offered at 12 senior campuses.

The 30 two-year community colleges operating under the program of State University play a unique role in the expansion of educational opportunity. They provide local industry with trained technicians in a wide variety of occupational curriculums, and offer transfer options to students who wish to go on and earn advanced degrees.

The University passed a major milestone in 1985 when it graduated its one-millionth alumnus. The majority of SUNY graduates pursue careers in communities across the State.

State University is governed by a Board of Trustees, appointed by the Governor, which directly determines the policies to be followed by the 34 State-supported campuses. Community colleges have their own local boards of trustees whose relationship to the SUNY Board is defined by law. The State contributes one-third to 40 percent of their operating cost and one-half of their capital costs.

The State University motto is: "To Learn—To Search—To Serve."

## Campuses of the State University of New York

### University Centers

State University of New York at Albany  
State University of New York at Binghamton  
State University of New York at Buffalo  
State University of New York at Stony Brook

### Colleges of Arts and Science

State University College at Brockport  
State University College at Buffalo  
State University College at Cortland  
State University of New York Empire State College  
State University College at Fredonia  
State University College at Geneseo  
State University College at New Paltz  
State University College at Old Westbury  
State University College at Oneonta  
State University College at Oswego  
State University College at Plattsburgh  
State University College at Potsdam  
State University College at Purchase

### Colleges and Centers for the Health Sciences

State University of New York Health Science Center at Brooklyn  
State University of New York Health Science Center at Syracuse  
(Health Science Center at SUNY at Buffalo)\*  
(Health Science Center at SUNY at Stony Brook)\*

\* *The Health Science Centers at Buffalo and Stony Brook are operated under the administration of their respective University Centers.*

### Colleges of Technology and Colleges of Agriculture and Technology

State University of New York College of Technology at Alfred  
State University of New York College of Technology at Canton  
State University of New York College of Agriculture & Technology at Cobleskill  
State University of New York College of Technology at Delhi  
State University of New York College of Technology at Farmingdale  
State University of New York College of Agriculture & Technology at Morrisville

### Specialized Colleges

State University of New York College of Environmental Science and Forestry  
State University of New York College of Optometry at New York City  
State University of New York Institute of Technology at Utica/Rome\*\* (Upper-division and masters' programs)  
State University of New York Maritime College at Fort Schuyler

### Statutory Colleges \* \* \* \*

New York State College of Agriculture and Life Sciences at Cornell University  
New York State College of Ceramics at Alfred University  
New York State College of Human Ecology at Cornell University  
New York State School of Industrial and Labor Relations at Cornell University  
New York State College of Veterinary Medicine at Cornell University

### Community Colleges

*(Locally-sponsored, two-year colleges under the purview of State University)*

Adirondack Community College at Glens Falls  
Broome Community College at Binghamton  
Cayuga County Community College at Auburn  
Clinton Community College at Plattsburgh  
Columbia-Greene Community College at Hudson  
Community College of the Finger Lakes at Canandaigua  
Corning Community College at Corning  
Dutchess Community College at Poughkeepsie  
Erie Community College at Williamsville, Buffalo and Orchard Park  
Fashion Institute of Technology at New York City\*\*\*  
Fulton-Montgomery Community College at Johnstown  
Genesee Community College at Batavia  
Herkimer County Community College at Herkimer  
Hudson Valley Community College at Troy  
Jamestown Community College at Jamestown  
Jefferson Community College at Watertown  
Mohawk Valley Community College at Utica  
Monroe Community College at Rochester  
Nassau Community College at Garden City  
Niagara County Community College at Sanborn  
North Country Community College at Saranac Lake  
Onondaga Community College at Syracuse  
Orange County Community College at Middletown  
Rockland Community College at Suffern  
Schenectady County Community College at Schenectady  
Suffolk County Community College at Selden, Riverhead and Brentwood  
Sullivan County Community College at Loch Sheldrake  
Tompkins Cortland Community College at Dryden  
Ulster County Community College at Stone Ridge  
Westchester Community College at Valhalla

\*\* This is an upper-division institution authorized to offer baccalaureate and master's degree programs.

\*\*\* While authorized to offer such baccalaureate and master's degree programs as may be approved pursuant to the provisions of the Master Plan, in addition to the associate degree, the Fashion Institute of Technology is financed and administered in the manner provided for community colleges.

\*\*\*\* These operate as "contract colleges" on the campuses of independent universities.

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## Listing of Campus Offices

Offices	Building	Room #	Phone #
Admissions	Kunsela Hall	A108	792-7500
Alumni	Kunsela Hall	A231	792-7110
Athletics	Campus Center	125	792-7520
Bookmark (Campus Bookstore)	Campus Center	108	792-7257
Business (Bursar)	Kunsela Hall	A214	792-7355
Career Services	Donovan Hall	G172	792-7165
College Association	Kunsela Hall	A217	792-7341
College Relations/ Development	Kunsela Hall	A231	792-7113
Counseling Center	Campus Center	208	792-7160
CSTEP	Campus Center	221	792-7545
EOP	Campus Center	208	792-7160
Facilities	Service Bldg.	104	792-7456
Financial Aid	Kunsela Hall	A108	792-7210
Food Service	Campus Center	Din. Hall	792-7224
Grants	Kunsela Hall	A103	792-7270
Health Center	Campus Center	217	792-7172
Information Services	Kunsela Hall	C030	792-7440
Instructional Resources	Kunsela Hall	A012	792-7180
Learning Center	Donovan Hall	G153	792-7805
Library	Kunsela Hall	A120	792-7245
Personnel	Kunsela Hall	A011	792-7191
President	Kunsela Hall	A225	792-7400
Print Shop	Kunsela Hall	A002	792-7204
Public Safety	Kunsela Hall	A022	792-7106
Registrar	Kunsela Hall	A208	792-7265
Residential Life & Housing	Adirondack Halls	CC2	792-7810
School of Arts and Sciences	Donovan Hall	2123	792-7333
School of Business/ Public Management	Donovan Hall	1101	792-7429
School of ISET	Donovan Hall	S140	792-7234
School of Nursing	Donovan Hall	1143	792-7295
Student Activities	Campus Center	221	792-7530
Student Association (URSA)	Campus Center	209	792-7135
Veteran's	Kunsela Hall	A210	792-7263
Vice President Academic Affairs	Kunsela Hall	A221	792-7200
Vice President Administration	Kunsela Hall	A235	792-7300
Vice President Student Affairs	Campus Center	208	792-7505

# Campus Map/Directions

## PARKING CODES:

**LOTS: A, B\*, C, D & G:**

No overnight parking

**LOTS: E\*, F\*, H, I, J\*, K, L, & M\*:**

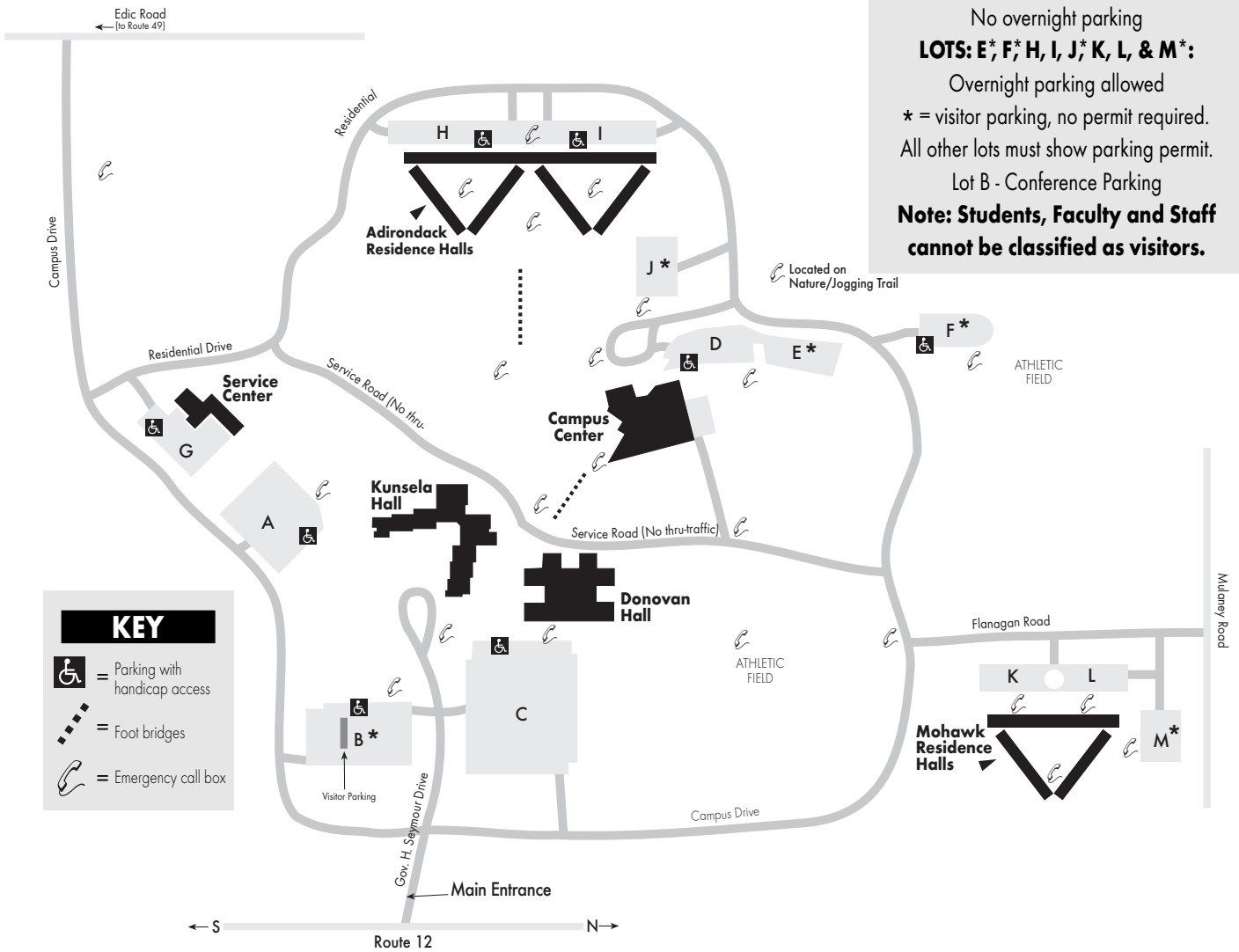
Overnight parking allowed

\* = visitor parking, no permit required.

All other lots must show parking permit.

Lot B - Conference Parking

**Note: Students, Faculty and Staff cannot be classified as visitors.**



## Directions

**From the New York State Thruway**, take Exit 31. Follow signs to Route 790. Take 790 to Routes 8/12 North. Take 8/12 North and follow signs to the College of Technology (Mulaney Road Exit).

**From the South** take Routes 8 or 12 North and follow signs to the College of Technology (Mulaney Road Exit).

**From the East**, take Route 5 to Routes 8/12. Take 8/12 North and follow signs to the College of Technology (Mulaney Road Exit).

**From the West**, take Route 5 or Route 49 to Routes 8/12 North. Take 8/12 North and follow signs to the College of Technology (Mulaney Road Exit).

**From the North**, take Routes 8 or 12 South and follow signs for the College of Technology (Horatio Street Exit).

