The Rensselaer at Hartford Catalog and Student Handbook is an official publication of Rensselaer at Hartford for its students, faculty, staff, and friends. It is published by the Office of Communications, Rensselaer at Hartford, 275 Windsor Street, Hartford, Connecticut 06120-2991.

Notice Regarding Changes All information in this catalog pertains to the 2003-2004 academic year and is correct to the extent that the information was available on the catalog preparation date. However, Rensselaer reserves the right to change the course offerings, tuition, fees, rules governing admission, requirements for graduation and the granting of degrees, and any other regulations affecting its students. Such changes are to take effect whenever the administration deems necessary whether or not there is actual notice to individual students.
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Welcome to Rensselaer

Education for Working Professionals

Vice President and Dean: Alan C. Eckbreth

Education for Working Professionals (EWP) is one of Rensselaer’s core enterprises and encompasses a range of programs designed specifically for current and future workforce leaders with a range of high-end, customized, degree, certificate, and professional development programs. Program content flows from the heart of Rensselaer’s research strengths and unique academic programs. The EWP organization supports the Rensselaer vision by forging strategic partnerships with businesses, governments, universities, and innovative professionals who impact society and technology around the nation and the world.

Rensselaer’s educational enterprise for working professionals is dedicated to providing a highly interactive learning environment for students who are seeking high-level knowledge while they hone their analytical capabilities and leadership skills and enhance their innovative thinking. The intent is to have Rensselaer graduates—executives, senior professionals, managers, and individuals with high potential—become architects of their futures. With dramatic increases in the rate of change, working professionals expect and demand an academic environment that fits the evolving needs of their fast-paced world.

Rensselaer at Hartford

Rensselaer at Hartford, a branch campus of Rensselaer Polytechnic Institute, provides a challenging educational environment and a dynamic learning experience for students who need to balance their professional, academic, and personal lives. Over 1,400 students attend classes at Rensselaer’s Hartford campus and Groton, Connecticut regional site.

Rensselaer at Hartford offers graduate programs in Business Administration, Management, Computer Science, Computer and Systems Engineering, Electrical Engineering, Engineering Science, Mechanical Engineering, and Information Technology. Specialized programs include the Dual Master’s Degrees, the Weekend M.B.A., the Weekend M.S. (Financial Management Concentration), and the Executive Master’s Program, as well as several graduate certificates in Bioinformatics, Computer and Information Sciences, and Engineering. Courses are delivered by faculty with significant industry experience, solid academic credentials and scholarship, and exceptional teaching skills whose expertise is grounded in sound research and best practices on a global basis. Each course is designed to meet the needs of working professionals seeking to advance their careers and enhance their organizations’ successes. Rensselaer graduates are entrepreneurial and personify the Institute’s slogan, “Why not change the world?”

Distance Delivery

Rensselaer, through our signature distance learning program, RSVP, is a leading provider of graduate-level, distributed education programs for working professionals at leading corporations and government agencies all over the world. Over 1,000 students participate annually in Rensselaer courses, certificate, and degree programs from their workplace, at home, or on the road using a range of distributed delivery technologies, including satellite broadcast, videoconferencing, mailed videotape, CD-ROM, and online technologies. RSVP courses originate from Rensselaer’s Troy or Hartford campuses and are supported by course Web sites and other means that provide communication and collaboration tools to facilitate interaction between student and faculty and among students. RSVP is known for excellence in content, delivery, and services and has received considerable national recognition and numerous awards. Degree and Certificate programs in Engineering, Science, Information Technology, Management, and Technical Communication are available via distance.
Regional Site in Groton, Connecticut
Rensselaer operates a regional site in the Groton/Southeastern Connecticut area. Many faculty members from Rensselaer’s Hartford campus travel to the Groton site to teach courses. On-site courses are supplemented with distributed delivery of courses from Rensselaer’s Troy and Hartford campuses via videoconference delivery. Online courses are also available to students at the Groton site. Many of the degree and certificate programs available on the Hartford campus are also available at the Groton site.

Professional Development Programs (PDP)
A full range of professional development programs and services are offered at Rensselaer at Hartford. These non-credit programs are designed to provide working professionals and organizations with the critical skills needed to be effective in today’s dynamic workplace. Programs generally range from one to five days in length. Training programs and workshops are available in the areas of Leadership and Executive Development, Technical and Professional Development, and Information Technology. Specialized programs reflective of Rensselaer’s research strengths are also available, as well as the quality-focused offerings of the Connecticut Quality Council. PDP offers services designed to help companies and individuals understand and define their developmental needs. Services include: needs assessment, custom program development, executive coaching, and multiple delivery options and locations. See pages 87-88 for more information.

Accreditation
Rensselaer at Hartford is accredited by the Middle States Association of Colleges and Schools, by the Board of Governors for Higher Education of the State of Connecticut, and by a number of professional and academic societies. Rensselaer’s Lally School of Management and Technology is an accredited member of AACSB International, The Association to Advance Collegiate Schools of Business International.

Affirmative Action Policy
Rensselaer at Hartford admits qualified students without regard to age, race, color, gender, sexual orientation, religion, national or ethnic origin, veteran status, marital status, or disability. Rensselaer is committed to equal access and equal opportunity. Should you require special accommodations in order to participate in any of the programs offered, please contact the Director of Operations and Facilities at (860) 548-5392. Alternative formats of this material may be provided upon request.
Frequently Asked Questions

Do I have to apply to take classes?
Anyone wanting to take classes at Rensselaer must apply and be admitted. Although Rensselaer requires the formal admission of all students prior to registering for a credit course (even if you are not seeking a degree), the process is designed to be both streamlined and flexible. We also offer an online application that can be accessed at: www.rh.edu.

How is an application evaluated?
The review process is designed to comprehensively evaluate an applicant’s academic and professional background. Some factors include: the undergraduate or graduate school attended, the applicant’s major, the year graduated, subsequent course work, performance in key subjects, rank in class (if available), awards and/or honors received, letters of recommendation, a personal statement of goals, résumé, and standardized test scores (if requested).

When should I apply?
The rolling admission process allows you to apply and enter a program during any of the three terms beginning in September, January, or May. It is recommended that you apply at least thirty days prior to the start of classes. Artificial deadlines are NOT imposed, and applications are reviewed through the first week of classes on a first-come, first-accommodated basis.

How long does the application process take?
As soon as all of your materials are received your application will be considered for a decision. Our Admissions Office will contact you in writing with the admissions decision.

Do you require GMAT or GRE test scores?
Although applicants to the M.B.A. are required to submit GMAT scores, waiver of this requirement may be granted to part-time applicants. Please refer to pages 14-15 for complete details on the GMAT waiver policy. Please note: the GMAT cannot be waived for full-time M.B.A. candidates.

The Graduate Record Examination (GRE) is not required for our master’s programs in Engineering, Computer Science or Information Technology. However, if an applicant’s credentials do not indicate strong probability of success in a competitive graduate program, a GRE may be required as part of the process.

How long does it take to complete a degree and how long does a student have to complete all the requirements?
Rensselaer at Hartford’s primary mission is to provide education for the working professional. Classes are held once a week, in the evenings or on weekends, on a trimester basis. A student sets his or her own pace depending upon the number of classes he or she decides to take each term. All work for a 30-credit master’s degree must be completed within three calendar years, beginning with the date on the original acceptance letter. All work for the 60-credit M.B.A. must be completed within five calendar years, beginning with the date on the original acceptance letter. However, one-year extensions are frequently considered and granted.

Are your programs accredited?
Yes. Our Lally School of Management and Technology is accredited by AACSB International (The Association to Advance Collegiate Schools of Business International). Rensselaer at Hartford is accredited by the Middle States Association of Colleges and Schools (MSACS) and by the Board of Governors for Higher Education of the State of Connecticut.

When are classes scheduled?
Computer Science, Information Technology, and Engineering classes are held Monday-Thursday from 5:30-8:30 p.m. Management courses are offered Monday-Thursday, from 5:30-9 p.m., and on alternating Saturdays. We also offer the Weekend M.B.A. and Weekend M.S. (Financial Management Concentration) programs that meet on Friday evenings and alternating Saturdays. Each course meets once a week.
Will I have an advisor?
Each student, whether matriculated or non-matriculated, is assigned a faculty advisor.

How does the M.B.A. differ from the Master of Science in Management?
The M.B.A. is a 60-credit program (20 classes). It consists of 15 core management courses and 5 electives, which can be organized into a concentration. The M.B.A. equips graduates with the skills necessary to assume leadership positions in their organizations.

The M.S. is a 30-credit program (10 classes). It consists of 4 core management courses and 6 electives that must be organized into a concentration. The M.S. is a more specialized program, because the majority of the coursework focuses on the area of concentration.

The Lally School of Management offers several different concentrations that can be applied to either the M.B.A. or the M.S. in Management. See pages 53-55 for details.

Do you require a Thesis for the M.B.A./Management programs?
All students enrolled in the M.B.A. and M.S. programs in the Lally School of Management and Technology are required to complete a 3-credit CAPSTONE course. The CAPSTONE is an opportunity for students to synthesize the body of knowledge gained during their course of study and is ordinarily completed in the final term of the degree program.

For more information on CAPSTONE, please visit: www.rh.edu/publications/catalog/current/lally.html.

What is the dual degree program?
The dual degree program is a combination of an M.B.A. and an M.S. or M.Eng. program. Taken separately, the two degrees consist of 90 credit hours. However, if done in a “dual” format, both may be earned in 72 credit hours. If you are interested in a dual degree, it is beneficial to fill out a Plan of Study and meet with an advisor as soon as possible.

How many classes can be transferred or waived?
A student in the M.B.A. program may waive up to four classes (12 credit hours) and transfer two (6 credit hours) of appropriate graduate work. The transfer/waiver process must be approved by the faculty advisor and department chair. Transfer courses must be the same subject, depth, and breadth of a course offered by Rensselaer.

A student in the M.S. program may transfer two graduate courses (6 credit hours) and the same rules apply.

What is tuition?
Tuition is charged at the rate of $942 per credit hour of graduate instruction. There are no additional fees for registration, use of the library, computing facilities, Commencement, parking, or any other Rensselaer at Hartford student service.

Do you offer Financial Aid?
Rensselaer offers a range of programs and resources to help you effectively manage graduate educational expenses. Please see pages 17-18. You may call the Financial Aid Office at (860) 548-2422 or (800) 433-4723, ext. 2422 to request a Financial Aid Handbook and application materials, or visit the online Financial Aid Handbook at: www.rh.edu/finaidhb.

If I still have questions, what should I do?
Contact the Office of Admissions. Student Services personnel are available to answer your questions over the phone, or you may wish to schedule an appointment. For more information, please call (860) 548-2420; (800) 433-4723, ext. 2420; or e-mail: rem-info@rh.edu.
Academic Calendar

Fall Term 2003

August 26 - Tuesday
New Student Orientation
Hartford Campus

August 27 - Wednesday
New Student Orientation
Groton Site

September 1
Labor Day -
no classes, facilities closed

September 2
Classes begin

September 23
Drop Deadline (Last day to drop a course
without full financial penalty)

October 3
Degree Applications due in Office of the
Registrar for December 2003 graduates

November 7
Last day to request Thesis or Project Defense
and to submit copy to Committee Members

November 27-28
Thanksgiving recess -
no classes, facilities closed

December 1
Classes resume

December 5
Last day to submit approved Thesis or Project

December 18
Classes and exams end

December 25
Christmas Day - facilities closed

December 31
Official date of December degree award
(Degrees will be available in February 2004)

January 1, 2004
New Year’s Day - facilities closed

Dates in the Academic Calendar are subject to change.
The calendar for RSVP courses will be coordinated with the RSVP office on the Troy campus.

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2003

2004
Spring Term 2004

January 6 - Tuesday
New Student Orientation
Hartford Campus

January 7 - Wednesday
New Student Orientation
Groton Site

January 12
Classes begin

January 19 - Monday
Martin Luther King, Jr. Day -
no classes, facilities closed

February 3
Drop Deadline (Last day to drop a course
without full financial penalty)

February 6
Degree Applications due in Office of the
Registrar for May 2004 graduates

February 16 - Monday
Presidents’ Day -
no classes, facilities closed

February 17 - Tuesday
Classes resume (Follow Monday class schedule.
There are no Tuesday classes this week.)

March 5
Last day to request Thesis or Project Defense
and to submit copy to Committee members

April 2
Last day to submit approved Thesis or Project

April 27
Classes and exams end

May 5 - Saturday
Commencement
(Rensselaer, Troy, New York)

June 5 - Saturday
Commencement
(Rensselaer at Hartford)

Summer Term 2004

May 4 - Tuesday
New Student Orientation
Hartford Campus

May 5 - Wednesday
New Student Orientation
Groton Site

May 10
Classes begin

May 31
Memorial Day -
no classes, facilities closed

June 1
Drop Deadline (Last day to drop a course
without full financial penalty)

June 11
Degree Applications due in Office of the
Registrar for August 2004 graduates

July 5 - Monday
Independence Day (observed)-
no classes, facilities closed

July 9
Last day to request Thesis or Project Defense
and to submit copy to Committee members

July 23
Last day to submit approved Thesis or Project

August 12
Classes and exams end

August 31
Official date of August degree award (Degrees
will be available in October 2004)

Fall Term 2004

August 31 - Tuesday
New Student Orientation
Hartford Campus

September 1 - Wednesday
New Student Orientation
Groton Site

September 7
Classes begin
Rensselaer at Hartford has diverse computing resources that rival or exceed many systems currently installed in other educational institutions and industries. Technical and Information Services (TIS) provides technical support services to all students, faculty, and staff for their academic, instructional, and research endeavors. TIS is responsible for the design, development, implementation, and maintenance of a state-of-the-art computing environment for the Rensselaer at Hartford community. To meet this challenge, we have developed a distributed network of personal computers (PCs), high-end workstations, and file servers using a client-server model.

Rensselaer at Hartford’s computing power is based on client-server architecture, combining high-speed networking with high-powered workstations and servers. Using this model enables us to provide a multi-user computing environment that is capable of handling demanding database management and compute-intensive applications for students and staff.

A variety of computing facilities, general access labs, and technology classrooms are available for student use. Our facilities have consistent equipment installed (Sun Workstations, PCs, etc.) and numerous software packages. TIS offices are located on the second level in Hartford.

**Network and Servers**

Rensselaer at Hartford’s computing infrastructure is based on an open TCP/IP client-server architecture and uses Cisco System’s 7206/3600 routers and Catalyst 6500/5505/3500 switches to support a high-speed 10/100 Mbps switched network. All servers connect to the network via a dedicated 100 Mbps full duplex link. Workstations and PCs connect to the network via dedicated 10/100 Mbps links to switches from Cisco and Allied Telesyn.

Users can access Rensselaer at Hartford’s network services from either home or office. The local dial-up service consists of 20 high-speed V.34+ 3Com/US Robotics Courier modems connecting to Cisco 2510 communication servers. Internet access is via a high-speed T3 connection. Two Additional T1s link Hartford to the Rensselaer Groton Site and Rensselaer Polytechnic Institute in Troy, New York.

The Hartford student file server is a Sun Microsystems’ Enterprise 450, a high-performance server with four 480 MHz CPUs, 4 GB main memory, and 362 GB of raid disk storage. Additional file service for faculty, staff, and the Rensselaer Groton Site is provided by Sun Ultra 10 servers and Sun Enterprise 220R file servers with two 480 MHz CPUs, 2 GB memory, and 100 GB of disk storage. A 480 MHz dual processor Sun Enterprise 220R file server with 100 GB of disk storage supports classroom and lab workstations and computers. In addition, Sun Ultra 2 Model 1200, Ultra 10, Enterprise 450 and 250 servers supply specialized network services such as e-mail, database, Web access, and Web-based training.

To complete the computing environment, Rensselaer at Hartford has installed high-speed, publication-quality printers from QMS, LexMark, Xerox, and Hewlett-Packard. The QMS 2425EX laser printer provides users with 24 page-per-minute duplex printing, while the LexMark Optra Rn+, T616 and 1650 can print up to 28 pages per minute. All printers are networked and accessible throughout the building.

**Personal Computer Laboratories**

Students have access to several PC-based laboratories and technology classrooms. These facilities are located on the first, second, fourth, and sixth levels of the main building, in the Cole Library, and at the Groton site. The PCs in these facilities are connected to our local area network, giving them access to the Internet, as well as file and print services. The technology classrooms are available for student use when they are
not reserved. Contact TIS for availability of PC-based labs and the technology classrooms. TIS periodically purges files from local hard drives. Therefore, personal files and applications must not be stored or installed on these computers. Access to the Rensselaer at Hartford network file systems is available to all faculty, staff, and registered students. Computer viruses can be a serious problem in any computing environment. Our computer facilities have virus detection and eradication software installed that unfortunately is not always sufficient. Therefore, students, faculty, and staff must take precautions to protect their data and other systems they use.

**Workstation Laboratory and Classroom**

Rensselaer at Hartford’s workstation classroom and laboratory contain the latest workstation technology from Sun Microsystems. Currently, the lab consists of high-performance Ultra 10 desktop workstations with high-speed I/O throughput, expandability, and graphics acceleration. Each workstation is configured with 512 MB of memory, graphics acceleration, nineteen-inch color monitor, 1.44 MB floppy drive, and 20 GB internal hard drive.

**Software Library**

Each PC has multiple operating systems and a variety of industry standard application software installed. The following describes some of the application areas covered: programming languages/tools, office suite (word processing, spreadsheets, presentation, and database applications) Web interface, virus protection, etc.

**Distance Education and Multimedia**

The Distance Education and Multimedia Department provides the instructional technology infrastructure for the educational programs offered by Rensselaer at Hartford. The Department is responsible for distance education, multimedia design and production, multimedia classrooms and auditoriums, and audio-visual services. The Department’s production, technical, and logistic staff provide comprehensive instructional design, production, and technology services.

Faculty and training staff from a number of disciplines and producers from the Distance Education and Multimedia Department work together closely to integrate proven content with instructional strategies designed to make effective use of distance education technology. These design activities are complemented by the technical and logistic support provided by department staff. These efforts provide the best instruction integrated with advanced instructional techniques, delivery systems, and support. The result is rich, yet rigorous, instruction at a location convenient to the student.

Students choose to participate in courses offered via distance education because they:

* Appreciate having classes offered at a site close to work and home.
* Understand the value of interacting with human and technical resources available beyond the traditional classroom.
* Want to gain competence and confidence using interactive technologies that are becoming common in the workplace.
* Recognize and appreciate the value of the wide range of experiences provided using distance education.
* Enjoy participating in using advanced instructional technologies including both synchronous and asynchronous instruction.
In addition to distance education activities, the Distance Education and Multimedia Department staff are responsible for a variety of other instructional technologies and facilities including auditoriums, multimedia classrooms, and audiovisual services. They design and produce single and multimedia instructional materials for use in classes and training programs where technology is integrated into the instructional process. These integrated technologies include satellite broadcasts, Web-based materials, computer and video projection, video conferencing, audiovisual, and interactive multimedia technologies.

**The Robert L. and Sara Marcy Cole Library**

**Director:** Mary S. Dixey

The Cole Library provides users with information resources and services that focus in the areas of management, business, computer science, and engineering. Its specialized collection of print and electronic resources consists of 30,000 volumes; 400 print journals; a collection of special focus e-journals; and a variety of bibliographic and full-text, online databases.

The Cole Library shares an online catalog with its sister library, the Folsom Library at Rensselaer in Troy, New York. The Cole Library Web site provides access to both regional academic library catalogs and those across the nation. The Cole Library has full membership in OCLC, Inc., an international bibliographic system, and has borrowing privileges with over 5,000 member institutions.

Of particular interest to students and faculty are the publications of professional associations such as the Association for Computing Machinery (ACM), the Institute of Electrical and Electronics Engineers (IEEE), and the American Society of Mechanical Engineers (ASME). Special collections include proceedings of the ACM and IEEE.

**Reference**

The professional staff is available to assist students and faculty with research and reference needs using both the Cole Library and other resources. Quick reference by e-mail form is also available. Referrals to other libraries in the area augment in-house resources. Students and faculty may request material not available in the Cole Library through Interlibrary Loan by contacting the Information Services Desk in person, by e-mail form, or by fax.

The Cole Library’s instruction program offers subject-specific sessions on a class and individual basis. The staff is especially attuned to the research needs of the adult student.

**Electronic Access Resources**

The Cole Library provides on-site and modem access to its resources. An open computer area provides online databases that support both the management and the sciences curricula. A full gateway to the Internet is available through PC workstations.

Curriculum-relevant databases are made available on the Internet. The Cole Library’s home page is regularly updated. It offers tutorials and serves as a guide to course-related resources. The information may be reached from remote locations from home or office through an Internet Service Provider.

**Use of the Library**

Students must register with the Cole Library to borrow materials. The Rensselaer at Hartford ID card, issued at registration, also serves as a Library Card. Material in the open collection is loaned for the entire term. Reserve materials are available for shorter loan periods determined by the faculty. Students may contact the Cole Library at (860) 548-2490; (800) 433-4723, ext. 2490; e-mail: lib-info@rh.edu; or visit our home page: [www.rh.edu/library](http://www.rh.edu/library).
Rensselaer Groton Site

Student Services and Enrollment Administrator: Maria Angelos

Courses leading to the Master of Business Administration; Master of Engineering in Computer and Systems Engineering; Master of Science in Management, Computer Science, Engineering Science, Mechanical Engineering, and Electrical Engineering are offered at the Rensselaer Groton Site. Rensselaer has been serving students and corporations in southeastern Connecticut since 1977.

The Groton Site is located at the Trails Corner Professional Center at 618 Poquonnock Road. All student services are available at the Groton Administrative Office.

Cole Library Services

Both faculty and students are asked to refer to “General Information” at: www.rh.edu/library/geninfo.htm for a more complete introduction to services provided by the Cole Library. Resources are available to Trails Corner students through the Cole Library Web site at: www.rh.edu/library. A small collection of basic reference books is housed with the workstations set aside for research and access to the Cole Library. Books borrowed from the Hartford collection are delivered to Groton by shuttle and students may pick them up at the Groton Administrative Office. Links for other library services may be found on the Web at: www.rh.edu/groton/trailscorner.html, or contact the Cole Library for assistance.

Technical and Information Services

The Groton computing facilities have hardware and software resources consistent with those available in Hartford. Students have access to one computing classroom with thirteen PCs and five Sun Ultra 10 desktop workstations. Each system has a myriad of software applications installed and is connected to the Rensselaer at Hartford local area network, providing access to the Internet as well as file and print services. The Groton fileserver is a Sun Ultra 10 with 512 MB of main memory and 100 GB of storage space. The Groton computing facilities are located on the second floor of the Trails Corner Professional Center.

Distance Education and Multimedia

The Groton distance education facilities are designed to receive courses at the Groton Site. One interactive compressed video receiving room with audio and video systems is available. One multimedia computer classroom is available for classes, which may also be configured for distance education. Distance Education and Multimedia staff assist with the technical and logistical aspects of these classes and provide audiovisual support.
Admissions

Acting Associate Dean for Enrollment and Student Services: Rebecca M. Danchak

General Information for All Applicants
While early submission of applications is encouraged, we realize that changes in work and other priorities often result in late applications, and as many as possible will be accommodated. Degree and nonmatriculated (non-degree status) applicants have different application requirements. Please read the section that pertains to you. If you are interested in nonmatriculated status at this time, but may wish to matriculate in the future, then please read both sections. Application forms and complete application instructions are available by calling the Office of Admissions at (860) 548-2420; (800) 433-4723, ext. 2420; or e-mail: rem-info@rh.edu. You can also apply online at: www.rh.edu.

Degree Applicants
An applicant may request degree status if he or she has received a bachelor’s degree from an accredited undergraduate institution and has demonstrated a strong academic record. Credentials will be reviewed to determine whether the applicant has the necessary qualifications and meets the admissions standards established by Rensselaer. Please refer to the checklist of application credentials needed to complete your file which can be found on page III in the application package. Degree-seeking applicants may sometimes be admitted with conditions. Admission and continued enrollment depend upon the satisfactory fulfillment of the stated conditions.

Nonmatriculated Applicants (Non-Degree Applicants)
The applicant who wishes to undertake graduate course work to improve his or her knowledge in a specific area but not follow a degree program is considered for nonmatriculated status. An applicant may request nonmatriculated status if he or she has received a bachelor’s degree from an accredited undergraduate institution and meets the admissions standards established by Rensselaer. It does not represent a conditional admission to any degree program, nor does it guarantee later degree admission. If the ultimate academic goal is a master’s degree, then applicants should apply for degree status at the outset. Admission to non-degree status is granted if the supporting documents indicate strong academic achievement and demonstrate that the applicant has the necessary preparation for the desired course(s). To apply, an applicant must submit an application form indicating the requested course or courses; application processing fee; an unofficial copy of the bachelor’s (or post-baccalaureate) degree transcript showing all courses, grades, and award of the degree; and proof of immunization as required by Connecticut State law. If the transcript is not sufficient for a decision, the Acting Associate Dean for Enrollment and Student Services may request additional supporting documents such as references or results from standardized admissions tests.

Applicants with Postbaccalaureate Degrees
Applicants who have been awarded a postbaccalaureate degree (i.e., M.S., M.B.A., J.D., Ph.D., etc.) may be eligible to participate in Rensselaer at Hartford’s special admissions process. Please call the Office of Admissions at (860) 548-2420 or (800) 433-4723, ext. 2420 for details, or e-mail: adm-info@rh.edu.

International Applicants
To receive complete information on the credentials you will need to submit, please write or call: Office of Admissions, Rensselaer at Hartford, 275 Windsor Street, Hartford, CT 06120-2991 U.S.A.; (860) 548-2420 or (800) 433-4723, ext. 2420; or e-mail: adm-info@rh.edu.

Lally School of Management and Technology GMAT Requirement and Waiver Policy for M.B.A. Candidates
The Graduate Management Admission Test (GMAT) is one component that is given consideration in the admissions decision for applicants to the Management and Technology M.B.A. There are certain occasions when other graduate admissions examinations such as the Graduate Record Examination (GRE) are accepted in place of the GMAT. For example, applicants for a dual degree such as the M.B.A. and
Engineering or M.B.A. and Computer Science may submit GRE scores if desired.

For part-time applicants, a GMAT score must be presented as part of the admissions file. However, a waiver of this requirement may be granted if the candidate presents:

• Significant analytical background as evidenced by strong undergraduate course work and grades. and
• 2-5 years of progressively responsible work experience. or
• A relevant graduate degree.

Those applicants wishing to pursue a full-time course of study (12 credit hours or more each term) will be required to submit GMAT scores with only rare exception. Additionally, international students must demonstrate English language proficiency by submitting a Test of English as a Foreign Language (TOEFL) score of at least 600 or 250 on the computerized grading scale.

The GMAT is not required for applicants to the M.S. degree in Management. However, students concerned about the competitiveness of their academic background may wish to take the GMAT exam to obtain an additional academic credential.

**Background Preparation for Master of Science in Computer Science and Nonmatriculated Computer Science Applicants**

Depending upon academic background and professional experience, some students may be required to begin their studies with one or more of the following prerequisite "immigration" courses beyond the standard 30 credits needed for degree completion.

- CISH-4960 Introduction to Computer Programming
- CISH-4010 Discrete Mathematics
- CISH-4020 Object Structures
- CISH-4030 Structured Computer Architecture

Students with immigration courses as prerequisites may be admitted conditionally. Since these are undergraduate courses, students are expected to achieve a grade of “B” or better in each course. Achievement below this level is cause for reexamination of admission. In addition, these immigration courses will not enter into the calculation of a student’s GPA for graduation.

**Background Preparation for Master of Science in Information Technology (IT) and Nonmatriculated IT Applicants**

Depending upon academic background and professional experience, some students may be required to begin their studies with one or more of the following prerequisite “immigration” courses beyond the standard 30 credits needed for degree completion:

- CISH-4960 Introduction to Computer Programming
- CISH-4010 Discrete Mathematics
- CISH-4020 Object Structures
Students with immigration courses as prerequisites may be admitted conditionally. Since these are undergraduate courses, students are expected to achieve a grade of “B” or better in each course. Achievement below this level is cause for reexamination of admission. In addition, these immigration courses will not enter into the calculation of a student’s GPA for graduation.

**Background Preparation for Engineering Applicants**
The Bachelor of Engineering Technology (BET) is not generally appropriate for master’s level courses or degree programs in Engineering. If you hold a BET degree and are interested in courses and/or a degree in Engineering, please refer to the General Engineering Requirements on page 38. If you do not yet have this background, please call the Office of Admissions at (860) 548-2420 or (800) 433-4723, ext. 2420 to discuss your particular circumstances. In certain instances, you may be required to submit scores from the Graduate Record Examination (GRE) Engineering Test or to pursue further instruction in order to meet these background requirements.
Financial Aid

Financial Aid Officer and Veterans Coordinator: Gayle Hoffman

Rensselaer offers a range of programs and resources to help you effectively manage graduate educational expenses. While many companies offer their employees tuition reimbursement, the amount and timing of this benefit vary tremendously from company to company. Full tuition may not be covered, payment may be made to a student only after grades are issued, and taxes (on tuition above $5,250 for the year) also may be withheld. Whether you anticipate a cash flow problem or your needs go deeper than that, we have a program designed specifically for you. Please call the Financial Aid Office at (860) 548-2422 or (800) 433-4723, ext. 2422 to request a Financial Aid Handbook and application materials, or visit our Web site at: www.rh.edu for financial aid information.

Student Loans

William D. Ford Federal Direct Loan Program. Certain basic eligibility criteria apply to this loan program. For instance, you must be a U.S. citizen or permanent resident, degree-seeking, and must maintain half-time enrollment (six credit hours) each term of the loan period. Evidence of financial need is not necessary for a graduate student to borrow up to $18,500 each academic year (limited only by the actual cost of attendance). Demonstrated financial need, however, is necessary for up to $8,500 of this amount to be subsidized (i.e., accrue no interest while you are enrolled half-time).

A 3 percent origination fee is deducted from the requested loan amount. (Currently, an up-front interest rebate on Direct Loans effectively reduces this fee to 1.5 percent. To keep this rebate you must make your first 12 monthly payments on time.) The variable interest rate has a ceiling of 8.25 percent and is reset every July 1. The interest rates in effect through June 30, 2003, are as follows: 3.46 percent while enrolled in school half-time, in a grace period, or in deferment and 4.06 percent during repayment. These interest rates are based on the bond equivalent of the 91-day Treasury bill sold at the final auction before June 1 plus add-on percentages of 1.7 and 2.3 percent, respectively.

The U.S. Department of Education has set up an Office of the Ombudsman to work with student loan borrowers to informally resolve loan disputes and problems. To contact Ombudsman Debra Wiley’s office, please use the toll-free number (877) 557-2575 or visit their Web site at: www.ombudsman.ed.gov. For a copy of the policy regarding return of Direct Loan funds (for students who withdraw completely from this institution), please contact the Financial Aid Office.

Student Loan Deferments

In-school deferment requests should be submitted to the Financial Aid Office. Enrollment is certified on a term-by-term basis immediately following the posted add/drop deadline. Loan deferment usually requires certification of both half-time enrollment plus degree-seeking status. Perkins loans generally require that deferment forms be completed each term. Students considering deferment should be aware of the following definitions:

- Part-time status (i.e., less than half-time): one to five credit hours per term
- Half-time status: six to eleven credit hours per term
- Full-time status: twelve or more credit hours per term

Scholarships

Rensselaer awards a limited number of partial to full-course tuition waivers each term to students who most clearly demonstrate financial need. Generally these recipients have limited financial resources or are undergoing temporary financial duress. The application deadline is approximately one month prior to the beginning of each term. If you are interested in researching grant and scholarship opportunities on your own, please see the Financial Aid Handbook or visit our Web site for Internet-based resources.
Veterans’ Benefits

Rensselaer at Hartford’s degree programs are approved for the training of veterans. If you believe you are eligible for education benefits, please contact the Financial Aid Office and request an Application for Education Benefits form. Or, you can complete this form online by going to the Veterans online application Web site at: www.vabenefits.vba.va.gov/vonapp/. If you already have a Certificate of Eligibility, a copy of this document should be submitted to the Financial Aid Office. If you previously have received veterans’ education benefits while attending another institution, please ask for a Request for Change of Program or Training Location form. Once completed, this form will be submitted to the Veterans Administration (VA) Regional Processing Office with your Enrollment Certification.

Each term you should indicate on your registration form that you are applying for veterans’ benefits. Enrollment Certification forms are forwarded to the VA Regional Office immediately following the posted add/drop deadline.

For additional information on veterans’ education benefits, please visit the VA Web site at: www.gibill.va.gov or call their education information hotline at (888) 442-4551.

Rensselaer at Hartford is easily accessible from Interstates 84 and 91.
Student Financial Services

Director of Finance and Administration: Margaret Hoban
 Supervisor, Student Accounts: Audrey C. Cardillo

Tuition and Fees

For the Fall 2003 term, course tuition is $942 per credit hour for courses and programs. Total tuition is based on the number of credit hours for which a student is registered as of the end of the third week of the term (the Drop Deadline - see Academic Calendar). Tuition paid after the drop deadline will be subject to a late fee of $50 per course. No credits or refunds will be issued for any courses dropped after the Drop Deadline. If a student adds a course or courses at any time during the term, tuition will be charged for the entire term.

Degree candidates not registering for course work in their final term must register for Degree Completion (course number ADMN-5020H01). This no-credit designation carries a $50 administrative fee.

Financial Responsibilities

Tuition is due and payable at the time of registration. Final payment arrangements must be made no later than the first week of class. Academic credit, degrees, grade reports, diplomas, and transcripts will not be granted to students who have not fulfilled all financial obligations to Rensselaer at Hartford. In addition, students who have not satisfied their financial obligations will be unable to register for future terms. Should a student fail to pay any amounts due Rensselaer at Hartford in accordance with the terms of the Catalog, Rensselaer may, at its option, increase the amounts due by any attorneys' fees, collection agency fees, or any other costs or charges incurred in the collection process.

Payment Options

Payments can be made through Student Accounts located on Level 6 in Financial Services. Normal business hours are 8:30 a.m. to 5 p.m. Monday through Friday. For the convenience of our students, payments are also accepted at the Reception Desk located on Level 3. Extended hours at the Reception Desk are Monday - Thursday 8 a.m. to 9:30 p.m., Friday 8 a.m. to 9 p.m., Saturday 8:30 a.m. to 5 p.m., and Sunday 11 a.m. to 4 p.m. Other arrangements can also be made by contacting Student Accounts directly at (860) 548-2413. Payment may also be made at the Groton site during normal business hours.

Checks, Money Orders, and Travelers Checks should be made out to Rensselaer at Hartford. To expedite processing, please also include your RIN (Rensselaer Identification Number) and name on all forms of payment.

Credit Card Payments. Rensselaer at Hartford accepts Mastercard, Visa, Discover, and American Express. If you wish to pay all or a portion of your charges by credit card, please contact Student Accounts as indicated above.

Payment Plan. As an alternative to paying one lump sum at the beginning of the term, Rensselaer at Hartford offers a monthly installment plan. This plan, called “Tuition Pay,” is coordinated with Academic Management Services (AMS). The plan permits tuition charges to be paid in four interest-free installments over the course of the current term. The only additional cost is an application fee of $35 per term. For more information on Tuition Pay through AMS, please contact Student Accounts, or AMS directly at (800) 635-0120 or visit their Web site at: www.tuitionpay.com.
Employer Payments

1. Direct Billing. Rensselaer at Hartford currently has contracts with several local employers to direct bill the company for tuition charges incurred on behalf of certain qualified employees. If an employer authorizes direct billing by Rensselaer at Hartford, the appropriate authorization form/letter, or purchase order must be submitted to Student Accounts at the time of registration. If you have questions as to whether or not your employer has such an arrangement with Rensselaer at Hartford or the documentation required for such payments, please contact Student Accounts.

2. Tuition Reimbursement. If an employer is supporting tuition costs by reimbursing an employee directly at the end of the term, this does not qualify a student for deferred payment. Students in this situation are considered to be self-paying, subject to the standard financial responsibilities and payment schedules outlined above.

Tuition Refunds

Students who withdraw from a course without registering for another course prior to the Drop Deadline will receive a full tuition refund. All other withdrawals after the Drop Deadline will result in 100% forfeiture of tuition.
Academic Information and Regulations

Registrar: Doris M. Matsikas

Registration

Students must register prior to the beginning of each term as specified in the academic calendar. New students are expected to meet in person with their academic advisor for assistance in course selection. Returning students are given the opportunity to register in advance by mail, fax, or in person on a first-come, first-served basis.

Residence and Time Limit

A student earning a master’s degree is required to complete a minimum of 24 credit hours at Rensselaer at Hartford for each Master of Science degree sought.

Students engaged in working professional programs (part-time students) must complete all work for the master’s degrees requiring 30 credits within three calendar years of the original admission date. Those working professionals working on master’s degrees requiring 60 credits must complete the requirements within five years, beginning with the date of the original admissions letter. Extensions may only be granted if the student is in good academic standing and has an acceptable Plan of Study. Working professionals must petition the Vice President and Dean responsible for Education for Working Professionals for an extension. Final approval may be granted by the Dean of Graduate Education.

Academic Load

A part-time student normally carries a maximum of six credit hours per term. Full-time registration requires enrollment in a minimum of twelve credit hours per term unless the student’s academic program does not permit registering for twelve credit hours. In such cases, full-time status will require a minimum of nine credit hours.

Academic Standing

A student is considered in good academic standing if he or she is making satisfactory progress toward his or her educational goals. Students not making satisfactory progress are subject to dismissal.

Academic Dismissal

Continuation in the graduate program requires satisfactory performance. Satisfactory performance is not limited to the academic record, but also includes other appraisals of the student’s ability.

The minimum GPA of all grades used for credit must be 3.0. If a student’s grade average falls below 3.0, the department will conduct a formal review to determine whether continuation is warranted.

A student will be dismissed from Rensselaer at Hartford if:

• He or she has accumulated six credit hours beyond the stated degree requirements and has not satisfied the 3.0 GPA.
• His or her record indicates two failing “F” grades or three “C” grades where the GPA is less than 3.0/4.0.
• He or she fails to make satisfactory progress toward the completion of course work or a degree program.

Readmission

This policy applies to students who have completed only a few courses and have exceeded the three-year (M.S.) or five-year (M.B.A.) limit to complete degree requirements. Graduate students requesting read-
mission must receive the prior approval of the Acting Associate Dean for Enrollment and Student Services and the academic department Chair.

A student reapply by completing the Rensselaer at Hartford application. Resubmission of the application processing fee, letters of recommendation, and official transcripts are generally not required. However, if the transcripts in the student’s file are not official, or if he or she has completed additional course work at another graduate institution since attending Rensselaer at Hartford, the Office of Admissions will require the appropriate official transcripts.

If readmission is approved, all course work for the master’s degree must be completed within three or five calendar years beginning with the date of the readmission letter. Course work taken prior to readmission will be subject to evaluation by the academic department Chair and faculty advisor. When a student is readmitted, he or she must satisfy current program requirements.

Leave of Absence
A leave of absence is a period of time voluntarily spent away from Rensselaer at Hartford. A student in good standing who finds it necessary to withdraw for an allowable period of time must complete a leave of absence form, stating reasons for the request, and submit it to the Office of the Registrar. A leave of absence is normally given for up to one year.

Withdrawal from Rensselaer at Hartford
In order to leave in good standing, a student who voluntarily withdraws during the academic year must request a withdrawal form and submit it to the Office of the Registrar.

Advisors
Students are required to establish and maintain working relationships with faculty advisors during their programs of study.

Each student is assigned a faculty advisor to assist in academic program planning and the development of an approved Plan of Study. It is recommended that students contact the faculty advisor during their first term.

Students should also meet with the faculty advisor annually and prior to starting their last term before graduation to assure that all degree requirements are being completed in compliance with established criteria. It is the student’s responsibility to ensure that the academic regulations are met and that any deviations from these regulations are approved in advance by the advisor and the academic department Chair.

Requests for change of status, change in program plan, and transfer of credit should be submitted on the appropriate form to the faculty advisor for review, consideration, and processing. Supporting letters and documentation should accompany such requests as required.

In addition to assisting in academic program planning, faculty advisors are aware of Rensselaer at Hartford policies which may affect student status. They are also familiar with future elective course options which may be of special interest to advisees.

Attendance Requirements
Requirements for class attendance are generally determined by the academic department. It is the responsibility of each instructor to make these requirements clear at the beginning of the course, and it is the responsibility of the student to abide by them. If the instructor does not inform the class of the attendance policy, he or she should be asked to state the policy for the class.

The instructor maintains the academic standards held to by Rensselaer at Hartford.

The instructor who defers a class or changes his or her class schedule for any reason is responsible for arrang-
ing for the work that is missed. The entire class must agree with any change to a class meeting schedule or final exam schedule.

**Auditing**

Auditing is attending a course without credit. Auditors may participate in recitations, discussions, or examinations at the discretion of the instructor. Admitted students will be allowed to audit courses on a non-credit basis with the written permission of the instructor.

A student is granted auditor status when the Auditor Registration Form has been signed by all appropriate parties and returned to the Office of the Registrar.

Auditors are charged full tuition for courses audited and may not register for credit in the audited course later in the same term. They may, however, register in a future term on a credit basis for the audited course. Tuition will be charged at the time of registration. Auditors who have fulfilled the attendance requirements of the instructor will be assigned the grade of “AU” for the audited course at the end of the term.

**Changes in Course Registration**

**Add/Drop Regulations:**

1) A student must complete the Add/Drop Form to add a course, to make a section change, or to withdraw from a course.

2) There is no refund of tuition after the first three weeks of the term. Tuition charges are based on the number of credits for which the student is enrolled at the end of the third week of the term (Drop Deadline), independent of any further late drops.

3) After the published Drop Deadline, a student may withdraw after submitting the Add/Drop Form and providing a detailed explanation of the reason for the late withdrawal. Such late drops are assigned the nonpunitive grade of “W” (Withdrawn), and the student is charged full tuition.

4) Failure to attend a class, verbal notification, or other unofficial communication with the instructor or Office of the Registrar does not constitute dropping a course.

5) Students who fail to submit a Drop Form will be assigned the punitive grade “FA” (Administrative Failure) by the Registrar at the end of the term.

6) A Veteran who changes his or her original credit-hour load within a term, or who withdraws, must notify the Veterans Coordinator immediately.

7) Students are reminded that the possibility of receiving a low grade is not sufficient ground to petition for permission to withdraw during the final two weeks of the course. Late withdrawals involving extenuating circumstances beyond the student’s control are given individual consideration.

**Changes in Status**

All changes in student status require completion of a Change of Status form. This form may be used to request one or more of the following:

1) **Admission to Degree Status (Nonmatriculated to Matriculated)**

A prerequisite for admission to degree status is the completion of a minimum of two graduate courses (6 credit hours) and before the completion of four graduate courses (12 credit hours) with grades of “A” or “B” (minimum 3.0/4.0 GPA). No more than twelve credit hours earned as a nonmatriculated student will be transferred to a degree program.

Nonmatriculated students may request admission to degree status by submitting the following docu-
ments to the Office of the Registrar: 1) a “Graduate Request for Change of Status” form, 2) a proposed “Plan of Study” form, and 3) the remaining documents required to complete the formal application as shown in the “Checklist of Required Application Materials” (see page III in Application package). Note that the documents required for admission to degree status vary by department. Admission to degree status is subject to the approval of the department Chair.

2) Returning after an Absence

Students in good standing who have been inactive for one or more academic years may petition to return to graduate study by submitting the Change of Status form. All requests to return to a program after an absence or to return to study after graduation are subject to the review and approval of the appropriate academic officials.

3) Entry to a Second Master’s Program or Alumni Returning for Additional Course Work

Graduates of Rensselaer at Hartford are welcome to return for another master’s degree or additional course work. If returning as an Alumni for additional course work, a Change of Status form is required. If seeking another master’s degree, the Change of Status form and Plan of Study form are required. All requests to enter a new degree program are subject to the review and approval of the academic department Chair.

4) Change in Curriculum

Students wishing to change from one curriculum to another (such as from Mechanical Engineering to Management) must file a new “Graduate Change of Status” form and submit a new “Plan of Study.” All requests to enter a new degree program are subject to the review and approval of the new academic department Chair and the Acting Associate Dean for Enrollment and Student Services. A student who petitions to change his or her curriculum must satisfactorily fulfill current admissions and program requirements.

5) Dual Degree

Matriculated students may request admission to seek dual degrees (earning two separate degrees concurrently) by submitting a Change of Status Form and a Plan of Study form for each degree program. This request is subject to approval of the academic officials from each curriculum.

Any change affecting the student’s permanent record, such as change of name, address, social security number, or status must be reported to the Office of the Registrar as soon as possible. Questions concerning Change of Status procedures should be directed to the Office of the Registrar.

Consortium Registration

Rensselaer at Hartford Students

Rensselaer at Hartford is a member of the Hartford Consortium for Higher Education. Eligible students who wish to take a course through the Consortium program should contact the Registrar for information and forms.

Rensselaer at Hartford students who wish to register at a Consortium school must bring the Consortium Graduate Student Registration Form, validated by the Rensselaer at Hartford Registrar, to the other school. Rensselaer at Hartford students are reminded that attendance at the other school is on a space-available basis.

Approved courses taken at one of the Consortium colleges are entered on the student’s record in the same manner as courses taken at Rensselaer at Hartford, and thus carry term and cumulative hours and quality points.

Consortium Students From Other Schools

Rensselaer at Hartford requires the formal admission, prior to registration, of all students or full-time employees of member institutions who wish to take a course through the Consortium program.
Students participating in the Consortium Employee Agreement are limited to one course per term without tuition obligation on a space-available basis.

Credit Hour Definition

Academic credit is assigned in terms of the credit hour. For formal course work, one credit hour is equivalent to one class hour per week for one term as specified in the academic calendar. All courses carry three credit hours except where noted.

Credit by Transfer, Examination, and Waiver

Transfer of Credit

1) Credit for graduate work completed in residence at other accredited institutions may be offered in partial fulfillment of the requirements when the grade earned is a “B” or better, the work is substantially equivalent to the Rensselaer course it replaces, and the course has not been credited toward an undergraduate degree. No more than six credit hours may be transferred toward the degree, and not more than six credit hours used for a master’s degree in one area can be applied to a second master’s degree.

2) A matriculated student who obtains the approval of his/her academic advisor to take graduate-level course work elsewhere while enrolled at Rensselaer at Hartford must apply for transfer of credit as soon as the credit has been earned.

3) It is the student’s responsibility to complete the Transfer of Credit Form; submit an official transcript indicating grade received and credit awarded; and any other documentation required by his or her advisor, such as a catalog description of the course and a (new or revised) Plan of Study. Courses taken elsewhere and approved for transfer to Rensselaer at Hartford as part of a degree program are not considered in computing the “B” average requirement. For additional information concerning the awarding of credit by transfer, contact the Office of the Registrar.

4) On the student’s official transcript, a Transfer of Credit will record only the course title and the credit hours, but not the grade of the transferred course. The credit hours of a transferred course compute into the cumulative earned hours, but do not affect the attempted hours column.

Validation Examination

In certain instances, a Validation Examination may be given to establish course credit for proficiency acquired in an area of specialization.

A matriculated student in good standing may petition his or her department for permission to satisfy a program requirement by means of a Validation Examination and to replace the required course with an approved elective. Under no circumstances may credit by Validation Examination be counted toward satisfying the residency requirement.

Validation Examinations must be approved in advance by the academic department Chair and are administered by the instructor of the course for which credit is desired. Validation Examinations are not permitted for courses previously failed or audited. The examination fee is $75. Forms and information concerning the exam fee are available from the Office of the Registrar.

Waiver

A student whose prior academic preparation is substantially equivalent to the level and content of a required core course may petition the department for a waiver from the course.

Courses required for M.S. degrees may be waived only with substitution. M.S. students requesting waiver(s) must fill out Plan of Study and Request for Waiver with Substitution forms indicating the course or courses to be waived and include: 1) an unofficial transcript, 2) a catalog description of the course, and 3)
a letter justifying the rationale for the waiver. These materials should be submitted to the advisor.

Waivers for credit apply only to the M.B.A. degree and are limited to a maximum of twelve credit hours. M.B.A. students requesting waiver(s) must fill out a Plan of Study form and Request for Waiver form indicating the course or courses to be waived and include: 1) an unofficial transcript, 2) a catalog description of the course, and 3) a letter justifying the rationale for the waiver. These materials should be submitted to the advisor.

**Grade Requirements**

A “B” average must be maintained in order to fulfill degree requirements. When the student’s academic performance is unacceptable, one of the following actions will be taken:

1) The Acting Associate Dean for Enrollment and Student Services will inform the student in writing that his or her quality point average has fallen below the stated “B” (3.0) average.

2) The academic department Chair may require that the student take a substitute course or repeat a course.

3) The academic department Chair may, under exceptional circumstances, request that the student be reexamined in a course.

For further information, please refer to the section on Academic Standing on page 21.

**Grading System**

Letter grades and their meanings are:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
</tr>
<tr>
<td>F</td>
<td>Failed</td>
</tr>
<tr>
<td>FA</td>
<td>Failed (due to administrative reasons)</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete course work</td>
</tr>
<tr>
<td>IP</td>
<td>In Progress (multiple-term course)</td>
</tr>
<tr>
<td>NE</td>
<td>Not Examined</td>
</tr>
<tr>
<td>S</td>
<td>Satisfactory in a satisfactory/unsatisfactory graded course</td>
</tr>
<tr>
<td>U</td>
<td>Unsatisfactory in a satisfactory/unsatisfactory graded course</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>WI</td>
<td>Failed (course that was previously graded “I” in which the student did not meet the deadline for completing course work)</td>
</tr>
<tr>
<td>Z</td>
<td>Grade unknown--see instructor</td>
</tr>
<tr>
<td>AU</td>
<td>Audit</td>
</tr>
</tbody>
</table>

**Grading System Explanation**

**FA Grade**
The grade “FA” (Administrative Failure) is assigned by the Registrar to students who register for a course they do not attend and do not submit an Add/Drop Form.

**I Grade**
The grade “I” (Incomplete) is given when he or she is unable to complete required course work due to illness or other extenuating circumstance such as a personal emergency beyond the student’s control.

The “I” grade is given only after the contract form (“Authorization for the Grade of Incomplete”) is completed and signed by the instructor and the student and received by the Registrar.
The “I” grade is given only in instances of truly incomplete class work, such as laboratory exercises, course projects, term papers, etc.

Under no circumstances may the “I” grade be given for the following situations:

- Absence from a final exam
- Student on class list who never attended class
- Student who wishes to do additional post-term work to improve a grade
- Student who wishes to repeat the course as an auditor, retaking examinations, etc., to improve a grade

The work for which the “I” grade was given must be completed within one term. If facilities are required to complete the outstanding work, but are not available during the next term, then one year is the maximum time limit, subject to the approval of the instructor.

If the agreements made in the “I” grade contract are not faithfully observed, or if the “I” grade is not cleared in the time specified by the contract, the grade automatically becomes a “WI.” The “I” is considered a penalty grade in the calculation of the term GPA. Until changed, it is calculated as if it were the grade of “F.”

**IP Grade**

The “IP” (In Progress) grade is given at the end of the preliminary term of multiple-term courses such as thesis, project, seminar, culminating experience (CAPSTONE), or practicum.

**NE Grade**

The “NE” (Not Examined) grade is given by the instructor to a student who has been excused from taking a final exam at the scheduled time. The “NE” grade is recorded on the student’s record when the instructor submits the “NE Grade Authorization” to the Office of the Registrar.

The grade of “NE” must be made up on the day specified by the instructor and prior to the end of the subsequent term.

If the examination is not taken by the date specified, the grade automatically becomes an “F.”

Once the “NE” grade is changed to an “F,” no other grade change will be accepted.

It should be noted that the grade of “NE” is not considered in the calculation of the term GPA.

**S Grade & U Grade**

“S” (Satisfactory) and “U” (Unsatisfactory) grades can only be assigned in courses specifically approved for such grading by the Curriculum Committee. Examples of such courses are seminar, thesis, project, or certain general electives.

**W Grade**

The grade “W” (Withdrawn) is assigned by the Registrar when a student is permitted to withdraw from a course after the drop deadline.

**WI Grade**

This letter grade is assigned by the Registrar to students who received an Incomplete (“I”) grade but failed to meet the criteria or the deadline specified in the “I” contract. The grade is calculated as an “F” in the student’s grade point average. Once the “I” grade is changed to “WI,” no other grade change will be accepted.

**Z Grade**

The “Z” grade (Grade Unknown) is assigned by the Registrar when the grade roster is not submitted by the instructor in time to print the term grade reports. The student should see his or her instructor for the grade.

**AU Grade**

The grade “AU” (Audit) is assigned to students who have officially registered as auditors and who have
fulfilled the instructor’s attendance requirements.

NOTE: The grades A, B, C, F, FA, S, U, or WI cannot be appealed or changed six months after award by instructor.

Quality Point Average (QPA)

A student’s quality point average is determined on the basis of the following numbers assigned to the letter grades: A=4, B=3, C=2, F=0, I=0, FA=0, WI=0. The grades U, S, IP, NE, W, AU, and Z are not considered when computing averages. The quality point average is computed by multiplying the number corresponding to the grade in each and every course by the number of credit hours for the course, totaling these products and then dividing the sum by the total number of credit hours for the courses considered. Credit granted for work taken at another institution other than a member of the Hartford Consortium for Higher Education and credit granted by waiver and examination are not included in the QPA.

The quality point average for the term is computed at the end of each term. The cumulative quality point average is computed at the end of each term for the full period of attendance at Rensselaer at Hartford. If a student repeats a course, both grades are entered on the record and the quality points and credit hours are considered in computing the average.

Institutional Requirements

A candidate for a master’s degree must:

• Be in good academic and disciplinary standing.
• Satisfy the culminating experience requirement as specified by the academic department.
• Complete a Plan of Study with at least 30 credit hours (60 for the Master of Business Administration) beyond the bachelor’s degree with satisfactory grades.
• Satisfy grade requirements with a minimum of 3.0 GPA.
• Satisfy residence requirements (refer to page 21).
• Satisfy the department’s practicum or seminar requirement, if applicable.
• Present a thesis or project, if required.
• Pursue a Plan of Study that will lead to the completion of all requirements.
• Satisfy all financial obligations.
• File a Degree Application with the Office of the Registrar by the date specified in the academic calendar for the term in which he or she plans to fulfill degree requirements. If a degree application was filed for a previous term but the require-

<table>
<thead>
<tr>
<th>Grade</th>
<th>Contributes To Quality Hours</th>
<th>Quality Points Earned</th>
<th>Contributes To Earned Hours</th>
<th>Temporary Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>(BLANK)</td>
<td>NO</td>
<td>0</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>A</td>
<td>YES</td>
<td>4</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>B</td>
<td>YES</td>
<td>3</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>C</td>
<td>YES</td>
<td>2</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>F</td>
<td>YES</td>
<td>0</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>FA</td>
<td>YES</td>
<td>0</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>I</td>
<td>YES</td>
<td>0</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>IP</td>
<td>NO</td>
<td>0</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>NE</td>
<td>NO</td>
<td>0</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>S</td>
<td>NO</td>
<td>0</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>U</td>
<td>NO</td>
<td>0</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>W</td>
<td>NO</td>
<td>0</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>WI</td>
<td>YES</td>
<td>0</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Z</td>
<td>NO</td>
<td>0</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>AU</td>
<td>NO</td>
<td>0</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>
If the requirements were not fulfilled, a new degree application must be filed for the term in which the student actually is graduating.

A student pursuing more than one master’s degree must meet the above requirements for each degree sought.

Master’s Thesis and Master’s Project

Certain departments may specify presentation of a thesis or completion of a project as a requirement for a Master’s degree. Usually six, but no more than nine credit hours are allowed for a Master’s thesis or project. Theses and projects are graded either “S” (Satisfactory) or “U” (Unsatisfactory).

In a department that ordinarily requires a thesis or project, a student may be permitted to substitute additional courses on recommendation of the advisor and with the approval of the academic department Chair.

Submission of the thesis or project report and any final examination on the thesis or project must occur by the dates listed in the academic calendar for the year. Students who wish to undertake a thesis or project in Management should contact the academic department Chair for information and guidelines. Students in the Engineering and Computer and Information Sciences curricula would complete the thesis or project under the guidance of a thesis/project committee, as well as the principal advisor. Details concerning deadlines, proposal, and defense are available in the guide “Project/Thesis Requirements and Guidelines” which can be obtained from the department.

The candidate must submit the final original copy of the thesis or project, together with the advisor’s written approval of both content and format, to the academic department Chair at least one week before the end of the term in which the degree is to be awarded.

Additional original copies, as specified by the individual department, may be requested. Upon receipt of the $26 binding fee, the record of completion is forwarded to the Office of the Registrar and the thesis or project will be bound by the Cole Library.

Degree Completion

At the beginning of the term in which the degree is expected, eligible degree candidates who have fulfilled all departmental requirements and satisfied all financial obligations must file a Degree Application Form and current Plan of Study form with the Office of the Registrar.

No student is considered a degree candidate until he or she files the Degree Application Form.

Students who apply for degree completion but do not fulfill degree requirements must reapply for degree completion by submitting a new Degree Application Form for the term in which completion is anticipated. Degrees are conferred in August, December, and May.

Degree candidates not registering for course work in their final term must register for Degree Completion (course number ADMN-5020H01). This no-credit designation carries a $50 administrative fee.

Commencement exercises are held on the grounds of Rensselaer at Hartford in June to honor graduates for the entire academic year. Information concerning the degree clearance procedure and deadlines may be obtained by contacting the Office of the Registrar. Graduates may also attend Commencement on the Troy Campus in May.

Transcript Requests

Students in Rensselaer at Hartford programs may request an official transcript by writing to: Student Records and Financial Services, Rensselaer Polytechnic Institute, 110 8th Street, 1010 Troy Building, Troy, NY 12180-3590; request via Rensselaer’s Web site: www.rpi.edu, click on Departments and Offices, then
Student Records and Financial Services, then Forms, then Transcript Request Form; or fax the request to the Registrar’s Office in Troy, New York, at (518) 276-6180.

Former students/graduates in Hartford Graduate Center programs (Biomedical Engineering, Health Care Management, Corporate Fellows) may request an official copy of their transcript by writing to the Office of the Registrar, Rensselaer at Hartford, 275 Windsor Street, Hartford, CT 06120-2991.

All requests for transcripts should include the student’s full name, social security number, signature, and the name and address of the recipient. The transcript will be mailed at no charge.

Note: Official transcripts bearing the seal of Rensselaer Polytechnic Institute or Rensselaer at Hartford will be issued only after all financial obligations have been met.

Please note that transcripts submitted as part of the application process cannot be photocopied, faxed, or given to the student. Students requiring this information must, therefore, obtain these records directly from their college or university.
## Computer Science

### Computer Science - Full-time Faculty

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Position</th>
<th>Degree and Institution</th>
<th>Teaching Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown, Roger H.</td>
<td>Clinical Assistant Professor Member, Faculty of IT</td>
<td>M.S.E.E., University of Illinois</td>
<td>Networks, Security</td>
</tr>
<tr>
<td>DeNoia, Lynn A.</td>
<td>Clinical Professor Member, Faculty of IT</td>
<td>Ph.D., Brown University</td>
<td>Networking, MIS</td>
</tr>
<tr>
<td>Ellis, Heidi J.C.</td>
<td>Clinical Associate Professor Member, Faculty of IT</td>
<td>Ph.D., University of Connecticut</td>
<td>Web Engineering, Software Engineering</td>
</tr>
<tr>
<td>Hartley, Timothy J.</td>
<td>Clinical Associate Professor Member, Faculty of IT</td>
<td>M.S., University of Connecticut</td>
<td>Database Systems</td>
</tr>
<tr>
<td>Martyn, Timothy O.</td>
<td>Clinical Associate Professor Member, Faculty of IT</td>
<td>Ed.D., University of Massachusetts</td>
<td>Database Systems</td>
</tr>
<tr>
<td>McKim, Jr., James C.</td>
<td>Interim Chair, Department of Engineering and Science, Clinical Professor, Member, Faculty of IT</td>
<td>Ph.D., University of Iowa</td>
<td>Object Oriented Programming, Software Engineering</td>
</tr>
<tr>
<td>Smith, Susan M.E.</td>
<td>Clinical Assistant Professor Member, Faculty of IT</td>
<td>Ph.D., Rensselaer Polytechnic Institute</td>
<td>Bioinformatics, Enzyme Structures</td>
</tr>
<tr>
<td>Younessi, Houman</td>
<td>Clinical Professor Member, Faculty of IT</td>
<td>Ph.D., Swinburne University of Technology (Australia)</td>
<td>Software Engineering Research Methods</td>
</tr>
</tbody>
</table>

### Computer Science - Adjunct Faculty

<table>
<thead>
<tr>
<th>Adjunct Faculty</th>
<th>Position</th>
<th>Degree and Institution</th>
<th>Teaching Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blough, R. Thomas</td>
<td>Adjunct Lecturer</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Industrial Automation</td>
</tr>
<tr>
<td>Clarke, David L.</td>
<td>Adjunct Associate Professor</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Operating Systems, Compiler Design</td>
</tr>
<tr>
<td>Exley, Gerard</td>
<td>Adjunct Assistant Professor</td>
<td>Ph.D., University of Connecticut</td>
<td>Networks, Discrete Mathematics</td>
</tr>
<tr>
<td>Kline, Gary L.</td>
<td>Adjunct Lecturer</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Software Engineering</td>
</tr>
<tr>
<td>Kousen, Kenneth A.</td>
<td>Adjunct Assistant Professor</td>
<td>Ph.D., Princeton University</td>
<td>Java; Object Oriented Concepts, Analysis and Design</td>
</tr>
<tr>
<td>LaBarre, Robert E.</td>
<td>Adjunct Assistant Professor</td>
<td>Ph.D., University of Connecticut</td>
<td>Mathematics and Complexity</td>
</tr>
<tr>
<td>Languedoc, Robert M.</td>
<td>Adjunct Lecturer</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Object Structures</td>
</tr>
<tr>
<td>McCabe, Patricia A.</td>
<td>Adjunct Lecturer</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Database Systems</td>
</tr>
<tr>
<td>McCarthy, Charles F.</td>
<td>Adjunct Lecturer</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Myers, Mark R.</td>
<td>Adjunct Assistant Professor</td>
<td>Ph.D., Cornell University</td>
<td>Computability and Complexity</td>
</tr>
<tr>
<td>Oakes, George</td>
<td>Adjunct Lecturer</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Object Engineering</td>
</tr>
<tr>
<td>Sharlow, John</td>
<td>Adjunct Assistant Professor</td>
<td>Ed.D., SUNY, Albany</td>
<td>Structured Computer Architecture</td>
</tr>
<tr>
<td>Skrabacz, Steven D.</td>
<td>Adjunct Assistant Professor</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Distributed Computing, Security</td>
</tr>
<tr>
<td>Weatherby, Gerard</td>
<td>Adjunct Lecturer</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Object Oriented Programming &amp; Design</td>
</tr>
</tbody>
</table>
Master of Science in Computer Science

Applicants are assumed to have knowledge of computer concepts and programming in a high-level language (e.g., C, Pascal). To receive the Master of Science Degree in Computer Science, students must earn a minimum of 30 credit hours in Computer Science or Engineering courses and satisfy the following requirements:

1) Plan of Study
Each student completes a Plan of Study in consultation with his or her advisor. This Plan will include required immigration courses (if any), two core courses, elective courses, and the Computer Science Seminar. At least two of the elective courses should pertain to a specific area which reflects the student’s professional or academic interest.

2) Immigration Courses
Depending on academic background and professional experience, some students may be required to begin their studies with one or more prerequisite “immigration” course(s) beyond the standard 30 credit hours. The immigration courses are:

- CISH-4961 Introduction to Computer Programming
- CISH-4010 Discrete Mathematics and Computer Theory
- CISH-4020 Object Structures
- CISH-4030 Structured Computer Architecture

Students with two or more immigration courses as prerequisites may be admitted conditionally. Since these are the equivalent of undergraduate courses, students are expected to achieve a grade of “B” or better in each course. Achievement below this level is cause for reexamination of admission. In addition, these immigration courses will not enter into the calculation of a student’s GPA for graduation.

3) Core Courses
Each Plan of Study will contain the following two courses:

- CSCI-4210 Operating Systems
- CSCI-6050 Computability and Complexity

Elective Courses
To provide some breadth to the Plan of Study, each student will take two courses from the Systems group (e.g., Networking, Computer Architecture, Software Engineering, Object Oriented Design) and one from the applications group (e.g., Database Management, Software Engineering Management).

With the exception of the immigration courses, all courses with the designation CISH or CSCI and most designated ECSE may be used as electives for the degree.

4) Advanced Courses
At least 18 credit hours must be at the “advanced” level. All courses with suffix numbers 6000-6990 fall into this category. These courses may include special topics courses which are offered under CISH or CSCI-6960 Topics in Computer and Information Sciences, or ECSE-6960 Topics in Electrical Engineering.

After completing course work in a particular area, students may elect to complete a six-credit Master’s Project (CISH or CSCI-6980) or Thesis (CISH or CSCI-6990) in that area.

5) Program Completion
Students will complete their program of study via one of two paths:

**Applied Path:**
- CISH-6960 Research Methods
- CISH-6900 Computer Science Seminar

**Theory Path:**
- A Theory Course
- Master’s Thesis/Project
For More Information
Information concerning the Computer Science programs may be obtained by contacting James C. McKim, Jr., at (860) 548-2458, (800) 290-7637, ext. 2458; e-mail: jcm@rh.edu; or by visiting: www.rh.edu/does/.

Computer Science Graduate Certificate Programs
(Minimum of 12 Credit Hours)
The Computer Science Graduate Certificate Programs are designed with a selective focus and require that a student successfully complete four graduate courses (twelve credit hours of which nine credit hours must be in residence), with an average grade of “B” or better, in a specific area of Computer Science. Credits earned in Graduate Certificates may be subsequently applied toward an M.S. degree as electives with advisor’s approval. Additional technical information about the Graduate Certificates can be obtained from the Certificate Program Coordinators listed below. Graduate Certificates are offered in the following six areas:

Bioinformatics
- BIOL-6410 Bioinformatics I: Sequence Analysis
- BIOL-6420 Bioinformatics II: Molecular Modeling
- CSCI-4380 Database Systems
- Approved Elective
Program Coordinator: Susan Smith, e-mail: salers2@rpi.edu

Computer Network Communications
- ECSE-4670 Computer Communication Networks
- Select any three of the following courses:
  - CISH-6210 Computer Network Analysis and Design
  - CISH-6220 LANs, MANs, and Internetworking
  - CISH-6230 Network Management
  - CISH-6960 Cryptography and Network Security
  - ECSE-6660 Broadband Networks
Program Coordinator: Roger H. Brown, (860) 548-2462, (800) 290-7637 ext. 2462, or e-mail: rhb@rh.edu

Database Systems
- CSCI-4380 Database Systems
- CSCI-6460 Advanced Database Management Topics
- CISH-6110 Object Oriented Database Systems
- CISH-6120 Distributed Database Systems
  or
- CSCI-6470 Database Systems for Engineering Applications
Program Coordinator: Timothy O. Martyn, (860) 548-5354, (800) 290-7637 ext. 5354
or e-mail: martyn@rh.edu

Graphical User Interface
- CISH-6010 Object Oriented Programming and Design
- CSCI-6320 GUI Building
- COMM-6420 Foundations of Human-Computer Interaction Usability
  Approved Elective
Program Coordinator: James C. McKim, Jr., (860) 548-2458, (800) 290-7637 ext. 2458
or e-mail: jcm@rh.edu
Information Systems

ECSE-4670 Computer Communication Networks
CSCI-4380 Database Systems
CISH-4020 Object Structures
COMM-6420 Foundations of Human-Computer Interaction Usability
or
ECSE-6770 Software Engineering I
or
CISH-6010 Object Oriented Programming and Design

Program Coordinator: Timothy J. Hartley, (860) 548-7928, (800) 290-7637 ext. 7928, or e-mail: hartley@rh.edu

Software Engineering

Required
ECSE-6770 Software Engineering I
CISH-6050 Software Engineering Management

Electives (Select any two of the following)
CISH-6010 Object Oriented Programming and Design
CISH-6510 Web Application Design and Development
CISH-6320 GUI Building
ECSE-6780 Software Engineering II

Program Coordinator: Heidi J.C. Ellis, (860) 548-5387, (800) 290-7637 ext. 5387, or e-mail: heidic@rh.edu
Information Technology
Master of Science in Information Technology

Program Objective
Although the term “information technology” may be subject to many interpretations, we consider it to mean “applied computer science.” Therefore, the program provides students with exposure to a practical application of technology within an area of specialization. To this end, students will gain a broad exposure to technology by completing a set of core courses and an in-depth exposure to the application of technology in a particular discipline through courses in a student-selected application area.

Admission Requirements
Students enter the Master of Science in Information Technology program with many diverse backgrounds. Ideally, a student entering the program will have completed undergraduate courses which provide a background in the following areas:

- Computer programming in a high-level procedural language (e.g., COBOL, C)
- Computer programming in an object-oriented language (e.g., C++, Eiffel)
- Data structures and algorithm design
- Discrete mathematics

A student lacking a background in any of the above areas may need to take one or more of the following immigration courses:

- CISH-4690 Introduction to Computer Programming
- CISH-4010 Discrete Mathematics and Computer Theory
- CISH-4020 Object Structures

Academic Requirements
To meet the requirements for the MSIT, students must be formally admitted to the program and must complete an approved Plan of Study that meets the following requirements:

- A minimum of 30 credits
- A minimum of 18 credits of advanced (graduate-level) course work (6000-level courses)
- Five core courses in Information Technology
- A minimum of 12 credits in an approved Application Area
- A culminating/integrating experience

An additional requirement is that no more than half of the credits used toward the MSIT degree may be taken from courses offered by the Lally School of Management and Technology. These courses have the prefix “MGMT.”
Core Courses
The core areas include database systems, telecommunications, software design, management of technology, and human-computer interaction.

<table>
<thead>
<tr>
<th>IT Core Area</th>
<th>Course Number and Name</th>
<th>Term(s) Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Systems</td>
<td>CSCI-4380 Database Systems</td>
<td>Fall / Spring</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>ECSE-4670 Computer Communication Networks</td>
<td>Fall / Spring</td>
</tr>
<tr>
<td>Software Design</td>
<td>ECSE-6770 Software Engineering I</td>
<td>Fall / Spring</td>
</tr>
<tr>
<td>Management of Technology</td>
<td>MGMT-6610 Global Strategic Management of Technological Innovation</td>
<td>Spring</td>
</tr>
<tr>
<td>Management of Technology</td>
<td>MGMT-6810 Managing Technical Projects</td>
<td>Fall / Spring</td>
</tr>
<tr>
<td>Management of Technology</td>
<td>MGMT-6820 Communications in Organizations</td>
<td>Fall / Spring</td>
</tr>
<tr>
<td>Human-Computer Interaction</td>
<td>COMM-6420 Foundations of HCI Usability</td>
<td>Fall</td>
</tr>
</tbody>
</table>

Application Areas
An in-depth experience in the application of information technology to a particular discipline is achieved through courses in a student-selected application area. Because technology changes so rapidly, the application of technology also changes frequently. The available application areas in the MSIT program reflect these changes. Below is a list of application areas currently available to students attending Rensselaer at Hartford. To obtain an updated list and the course requirements, consult with the IT Program home page at: www.rh.edu/does/it_degree.html.

- Bioinformatics
- Database Systems Design
- Management Information Systems
- Networking
- Software Design

Culminating Experience
The culminating experience may be satisfied by either of the following, depending on the application area and the approval of advisor:

- Master’s Project (3-6 credits)
- Computer Science Seminar (1 credit)

Information concerning the Information Technology program may be obtained by contacting James C. McKim, Jr., at (860) 548-2458, (800) 290-7637, ext. 2458; or e-mail: jcm@rh.edu; or by visiting: www.rh.edu/cis/.
## Engineering - Full-time Faculty

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Position</th>
<th>Degree and Institution</th>
<th>Teaching Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown, Roger H.</td>
<td>Clinical Assistant Professor</td>
<td>M.S.E.E., University of Illinois</td>
<td>Networks, Security</td>
</tr>
<tr>
<td>Gutierrez-Miravete, Ernesto</td>
<td>Associate Chair (Interim) Department of Engineering and Science, Clinical Associate Professor</td>
<td>Ph.D., Massachusetts Institute of Technology</td>
<td>Modeling and Simulation</td>
</tr>
<tr>
<td>Hodges, James L.</td>
<td>Clinical Professor</td>
<td>Ph.D., Stevens Institute of Technology</td>
<td>Thermo/fluids</td>
</tr>
<tr>
<td>Mesiya, Mohammed F.</td>
<td>Clinical Associate Professor</td>
<td>Ph.D., Queen's University (Canada)</td>
<td>Communications</td>
</tr>
</tbody>
</table>

## Engineering - Faculty Emeriti

<table>
<thead>
<tr>
<th>Adjunct Faculty</th>
<th>Position</th>
<th>Degree and Institution</th>
<th>Teaching Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Krahula, Joseph L.</td>
<td>Professor Emeritus</td>
<td>Ph.D., University of Illinois</td>
<td></td>
</tr>
<tr>
<td>Punga, Valdemars</td>
<td>Professor Emeritus</td>
<td>Ph.D., George Washington University</td>
<td></td>
</tr>
</tbody>
</table>

## Engineering - Adjunct Faculty

<table>
<thead>
<tr>
<th>Adjunct Faculty</th>
<th>Position</th>
<th>Degree and Institution</th>
<th>Teaching Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annigeri, Balkrishna S.</td>
<td>Adjunct Associate Professor</td>
<td>Sc.D., Massachusetts Institute of Technology</td>
<td>Applied Mechanics Technology</td>
</tr>
<tr>
<td>Bose, Sudha</td>
<td>Adjunct Assistant Professor</td>
<td>Ph.D., University of California at Berkeley</td>
<td>Metallurgy, Coatings, Hi-Temp, Ceramics</td>
</tr>
<tr>
<td>Boucher, Kenneth</td>
<td>Adjunct Lecturer</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Semiconductor Power Devices</td>
</tr>
<tr>
<td>Brown, Kenneth W.</td>
<td>Adjunct Associate Professor</td>
<td>Ph.D., Rensselaer Polytechnic Institute</td>
<td>Finite Element Methods</td>
</tr>
<tr>
<td>Bui, Chinh T.</td>
<td>Adjunct Lecturer</td>
<td>M.S.E.E., Rensselaer Polytechnic Institute</td>
<td>Microprocessor System Design, Electronic Circuit Design</td>
</tr>
<tr>
<td>Cassenti, Brice N.</td>
<td>Adjunct Associate Professor</td>
<td>Ph.D., Polytechnic Institute of Brooklyn</td>
<td>Mathematics, Dynamics, Applied Mechanics</td>
</tr>
<tr>
<td>Dennis, Anthony J.</td>
<td>Adjunct Professor</td>
<td>Ph.D., University of Connecticut</td>
<td>Applied Mechanics</td>
</tr>
<tr>
<td>Donachie, Matthew J., Jr.</td>
<td>Adjunct Professor</td>
<td>Sc.D., Massachusetts Institute of Technology</td>
<td>Metallurgy</td>
</tr>
<tr>
<td>LaBarre, Robert E.</td>
<td>Adjunct Assistant Professor</td>
<td>Ph.D., University of Connecticut</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Lemnios, Andrew Z.</td>
<td>Adjunct Professor</td>
<td>Ph.D., University of Connecticut</td>
<td>Rotorcraft, Propulsion</td>
</tr>
<tr>
<td>Lewis, John H., Ill</td>
<td>Adjunct Associate Professor</td>
<td>M.S.M.E., Rensselaer Polytechnic Institute</td>
<td>Gas Turbine Performance Analysis</td>
</tr>
<tr>
<td>Marcin, John J.</td>
<td>Adjunct Lecturer</td>
<td>M.S., Rensselaer Polytechnic Institute</td>
<td>Metallurgy</td>
</tr>
<tr>
<td>Quinn, Joseph W.</td>
<td>Adjunct Lecturer</td>
<td>M.S., Trinity College</td>
<td>DSP, Instrumentation Measurement, Probability</td>
</tr>
<tr>
<td>Rajagopalan, Ramesh</td>
<td>Adjunct Associate Professor</td>
<td>Ph.D., Concordia University of Canada</td>
<td>Controls</td>
</tr>
<tr>
<td>Tew, David E.</td>
<td>Adjunct Assistant Professor</td>
<td>Ph.D., Massachusetts Institute of Technology</td>
<td>Theory of Potential Flow, Turbulence</td>
</tr>
<tr>
<td>Wagner, Timothy C.</td>
<td>Adjunct Associate Professor</td>
<td>Ph.D., Virginia Polytechnic Institute and State University</td>
<td>Radiation Heat Transfer, Propulsion</td>
</tr>
</tbody>
</table>
**Programs in Engineering**

Rensselaer at Hartford offers an engineering curriculum to accommodate the evolving needs of the engineer. The curriculum helps students establish and build on a solid theoretical base while allowing them to practice their skills. This blend of academic rigor and industrial experience creates a unique learning environment for engineering students at Rensselaer at Hartford. Degree programs are offered in Mechanical Engineering, Electrical Engineering, Computer and Systems Engineering, and Engineering Science together with graduate certificate programs in Quality and Reliability Engineering, Systems Modeling and Analysis, and High-Temperature Materials.

**Engineering Degrees**

Degrees are awarded in the following fields of engineering:

- M.Eng. in Computer and Systems Engineering
- M.S. in Electrical Engineering
- M.S. in Engineering Science
- M.S. in Mechanical Engineering

In order to become a candidate for the degree, students must:

- Prepare a Plan of Study with his or her advisor and have it reviewed and approved by the Chair of the Department of Engineering and Science no later than completion of their fourth course.
- Complete a Plan of Study with at least 30 credit hours beyond the bachelor’s degree with satisfactory grades. At least eighteen of the total major credit hours presented toward the degree must have the suffix numbers 6000-6990 or 7000-7990.
- Complete a culminating experience.
- Complete all requirements within five years of admission.

**Culminating Experience (Engineering Seminar)**

The culminating experience is a requirement for the master’s degree in Connecticut. It may be fulfilled by any of the following:

- Submitting an Engineering Seminar paper (0 credit hours) in addition to the required 30 credit hours
- Completing a six-credit-hour master’s thesis or master’s project along with 24 credit hours of appropriate course work
- Completing a three-credit-hour master’s project along with 27 credit hours of appropriate course work

**Plan of Study**

Students must develop a program of study in consultation with their advisor. The program must be recorded in a Plan of Study, which will be reviewed and approved by the advisor and Chair of the Department of Engineering and Science. Students must complete this requirement no later than completion of their fourth course. Students who want to deviate from the approved Plan of Study must receive their advisor’s approval prior to registration.

Students entering the engineering programs are expected to hold a Bachelor of Science degree in one of the traditional engineering disciplines. Applicants who do not must demonstrate at least:

- Mathematics, through Ordinary Differential Equations (3 terms or 12 credits)
- Physics (2 terms)
- Chemistry and/or Engineering Materials (1 term)
- Mechanics (1 term)
- Electronics/Circuits (1 term)
Students lacking one or more of these courses are expected to take corrective action before applying to the engineering programs.

The Bachelor of Engineering Technology (BET) degree is not generally considered appropriate preparation for admission to master’s degrees and courses in Engineering. Applicants with this degree may be required to do significant background repair and/or submit scores from the Graduate Record Examination Engineering test along with the standard admissions credentials. Application forms for this test may be obtained from the Office of Admissions.

All students entering the engineering programs at Rensselaer at Hartford are expected to be familiar with one of the major higher level programming languages (Fortran, C, Pascal, etc.).

To earn the degree, a minimum of six of the major courses taken at Rensselaer must be at the advanced level (6000-6990 or 7000-7990).

A limited number of elective courses outside a specific engineering discipline may be taken and credited toward an engineering degree. The student’s faculty advisor must approve these elective courses.

**Electrical Engineering**

The Electrical Engineering curriculum is designed for students who wish to focus their study in Digital Communications, Control Systems, and Digital Signal Processing.

A Bachelor of Science degree in Electrical Engineering is the desired background for admission to the program. Other students entering the program should have fulfilled the General Engineering Requirements and the Electrical Engineering Background Requirements listed below.

**Electrical Engineering Background Requirements**

- Advanced Mathematics (i.e. Complex Variables, Laplace Transforms, Fourier Analysis, Probability) (1 term)
- Digital Logic (1 term)
- Electronics/Circuits (Active or Passive) (1 additional term)
- Linear Systems or Feedback Systems (1 term)
- Technical Design Elective (e.g., Communications Systems, Semiconductor Devices, Introduction to Microprocessors, Circuit Synthesis (1 term)

Students lacking any of the above courses must consult with their advisor to devise a plan for corrective action.

**Electrical Engineering Program Requirements**

The following must be included in a Plan of Study for the degree of Master of Science in Electrical Engineering:

- At least 18 credit hours in 6000-level courses (or equivalent with approval of advisor)
- At least 21 credit hours in ECSE courses or related technical work
- A three-course specialization to provide depth in an approved technical area
- A two-course sequence outside electrical engineering to provide breadth
- Engineering Seminar
Specializations
A three-course specialization can be constructed in any of the following areas:

- Digital Communications
- Control Systems
- Digital Signal Processing

The student may propose other areas, but they are subject to advisor's approval.

Outside Sequences
A two-course sequence outside of electrical engineering can be constructed in any one of the following areas:

- Computer Science
- Mechanical Engineering
- Management and Technology

Computer and Systems Engineering
The Master of Engineering in Computer and Systems Engineering provides the student with the appropriate hardware and software tools needed in such critical areas as digital communications and signal processing, robotics and automation systems, computer communication networks, and software engineering.

Admission Requirements
1. Students who have received a B.S. degree in Electrical Engineering, Computer Engineering, or Computer Science
2. Students with a B.S. degree in another engineering discipline, mathematics or physics, subject to the condition that the following essential prerequisites for their chosen area of specialization have been completed:

Digital Communications and Signal Processing
ECSE-2010 Electrical Circuits
ECSE-2410 Signals and Systems
ECSE-2610 Computer Components and Operations

Computer Communications Networks
ECSE-2010 Electrical Circuits
ECSE-2410 Signals and Systems
ECSE-2610 Computer Components and Operations

Robotics and Automation Systems
ECSE-2010 Electrical Circuits
ECSE-2410 Signals and Systems
ECSE-2610 Computer Components and Operations

Software Engineering
CSCI-1100 Computer Science I
CSCI-2300 Data Structures and Algorithms
ECSE-2610 Computer Components and Operations

Computer and Systems Engineering Program Requirements
The following must be included in a Plan of Study for the degree of Master of Engineering in Computer and Systems Engineering:
• At least 18 credit hours in 6000-level courses (or equivalent with approval of advisor)
• At least 21 credit hours in ECSE courses or related technical work
• A three-course specialization to provide depth in an approved technical area
• A two-course sequence outside computer and systems engineering to provide breadth
• Engineering Seminar

**Specializations**
A three-course specialization can be constructed in any of the following areas:

• Digital Communications and Signal Processing
• Computer Communication Networks
• Robotics and Automation Systems
• Software Engineering

The student may propose other areas, but they are subject to advisor’s approval.

**Outside Sequences**
A two-course sequence outside of Computer and Systems Engineering can be constructed in any one of the following areas:

• Computer Science
• Mechanical Engineering
• Management and Technology

Preparatory courses do not apply toward the minimum 30 credit hours required for the Master of Engineering degree.

**Engineering Science**
The Engineering Science curriculum serves students whose educational needs do not correspond to the standard professional engineering curricula. It allows students to tailor courses of study to their particular requirements. Each student’s course of study is developed in consultation with the Chair to allow a strongly directed interdisciplinary approach.

The degree awarded in this area is not, nor is it intended to be, accredited for practice. Students entering the Engineering Science program are expected to have fulfilled the General Engineering Requirements.

**Mechanical Engineering**
The Master of Science in Mechanical Engineering allows the student to increase his or her competence in a number of mechanical engineering subjects, or to specialize in depth in the areas of fluid mechanics, heat transfer, mechanical design, solid mechanics, and thermodynamics.

A Bachelor of Science degree in Mechanical Engineering is the desired background for admission to the program. Other students entering the program should have fulfilled the General Engineering Requirements, and the Mechanical Engineering Background Requirements listed below.

**Mechanical Engineering Background Requirements**

- Chemistry (1 additional term)
- Dynamics (1 term)
- Fluid Mechanics (1 term)
- Mechanisms (1 term)
- Thermodynamics (2 terms)
- Statics (1 term)
- Strength of Materials (1 term)
- Heat Transfer (1 term)
- Machine Design (1 term)
Students lacking any of the above courses must consult with their advisor to devise plans for corrective action.

**Mechanical Engineering Program Requirements**

A Plan of Study must include the following:

- MANE-4960 Numerical Analysis for Engineers
- MANE-7010 Math of Engineering & Sciences
  (These courses may be waived if the student is competent in the subject.)
- At least eighteen credit hours in mechanical engineering courses at an advanced level (or equivalent with approval of advisor). All courses with the suffix numbers 6000-6990 and 7000-7900 apply.
- At least 21 credit hours in MANE courses
- A minimum of 30 credit hours, including Engineering Seminar. A limited number of elective courses outside the area of mechanical engineering are permitted. However, the student’s advisor must approve these courses.

**Engineering Graduate Certificate Programs**

**Graduate Certificate in High Temperature Material**

Materials used in the “hot zones” of propulsion and power generation systems must satisfy stringent demands for integrity and performance. Materials exposed to these extreme environments exhibit continuously evolving microstructures and this must be accounted for during the component design stage of production.

Rensselaer offers a Certificate of Advanced Graduate Studies in High Temperature Materials. The Certificate is designed to provide an understanding of the properties of high temperature alloys and also teaches skills to improve those properties by manipulating the material microstructure through processing.

The Certificate of Advanced Graduate Studies in High Temperature Materials Technology in Propulsion and Power Generation is awarded on successful completion of three graduate level courses. Academic credit from the following three courses can then be applied toward a Master of Science degree.

- MTLE-4260 High Temperature Alloys (Superalloys)
- MTLE-7061 Casting and Joining Processes for Superalloys
- MTLE-6960 High Temperature Coatings Engineering

**Graduate Certificate in Quality and Reliability Engineering**

The Department of Engineering at Rensselaer at Hartford offers a Graduate Certificate in Quality and Reliability Engineering integrating technical skills with business knowledge. The production of reliable products requires processes operating under control. The purpose of quality engineering is to measure and improve process control to increase the reliability of products and services. The Graduate Certificate in Quality and Reliability Engineering is designed to develop skills in the application of quality engineering principles to enhance the performance of industrial and business systems. The program consists of three, 3-credit-hour courses which are available via distance delivery. Credit from all of the following required courses can later be applied toward a master’s degree.

- DSES-6110 Introduction to Applied Statistics
- DSES-6170 Management of Quality Processes and Reliability
- DSES-6230 Quality Control and Reliability
Graduate Certificate in Systems Modeling and Analysis

Simulation and other types of modeling tools create manageable representations of complex systems. These models enable managers and technical analysts to study the feasibility and cost-effectiveness of alternative management policies and system designs. Modern simulation software provides easy access to graphical and computational analyses which enable extensive experimentation with real and proposed systems before resources are committed. These analyses provide the decision support tools needed to assure the reliability, functionality, and efficiency of all types of industrial systems.

This Graduate Certificate is designed to provide skills in the development and interpretation of simulation models of real-world systems. Discrete event models of industrial engineering and management science systems are emphasized. The Systems Modeling and Analysis Graduate Certificate Program requires three, 3-credit-hour courses which are available via distance delivery. Credit from all of the following required courses can then be applied toward a master’s degree.

- DSES-6110 Introduction to Applied Statistics
- DSES-6610 Applied Operations Research
- DSES-6620 Simulation Modeling and Analysis

Professional Engineering

Information about our Professional Engineering seminar topics and preparatory programs for the Professional Engineering Exams is provided at: www.rh.edu/profengineering. The exam review courses for Part I (EIT) and II (PE) and Land Surveyor are held evenings for ten to twelve weeks prior to the April and October state exams. Rensselaer at Hartford works closely with the State of Connecticut to provide testing schedule information as well as application requirements. Courses include:

- Fundamentals of Engineering (EIT) Review Course
- Professional Engineering Review Courses (Mechanical, Electrical, and Civil)
- Land Surveyor Review Course
Lally School of Management and Technology

Chair: David L. Rainey
Department Home Page: www.rh.edu/lsmt

The Lally School of Management and Technology is focused on the intersection of management and technology, and built on the conviction that for all firms in all future markets, technology is the source of sustainable competitive advantage. The mission of the Lally School is to develop technically sophisticated business leaders who are prepared to guide their organizations in the integration of technology for new products, new businesses, and new systems. The Lally School has a vision to be pre-eminent among educational institutions in integrating management and technology for innovation and value creation in the global marketplace. The values that the Lally School holds are:

• Passion for lifelong learning.
• Dedication to the idea that management and technology, innovation, and entrepreneurship are critical to improving the quality of life.
• Vibrant relations with our business partners.
• Rigor and relevance in intellectual contributions and business practice.
• Highest standards of ethics, responsibility, and respect for individuals.
• Creative solutions through interdisciplinary teamwork.
• Commitment to serving our stakeholders.

The Lally School comprises two departments; one based in Hartford, Connecticut, and the other in Troy, New York. The programs, degree requirements, and course offerings included in this section specifically pertain to the Hartford Department.

Programs

The programs offered by the Lally School are the Master of Business Administration (M.B.A.) and the Master of Science in Management. Dual degrees with the Department of Engineering and Science are available. Concentrations for the M.S. programs include: Financial Management, Innovation and Entrepreneurship, International Management, Management Information Systems, Marketing Management, and Production and Operations Management.

Management and Technology Focus

The Lally School and all its programs are based upon three core principles:

• Technology is becoming a primary source of competitive advantage in all sectors of the economy.
• The ability to convert technology to competitive advantage is a function of managerial practice.
• The conventional style of business education, isolated from technology, is obsolete. A new paradigm of business education, in which management and technology are blended together, is required.

Educational Methods

In its programs, the Lally School strives for a balance between theory and practice, and between rigor and relevance. The programs place heavy emphasis on the application of knowledge through team-based projects.
## Faculty

**Full-Time Faculty**

The Lally School full-time faculty possess a broad range of academic and business experience. Their diverse backgrounds help ensure that students receive high-quality academic experiences that are also grounded in the practical realities of business. The faculty is focused on delivering an educational experience that is relevant to the needs of full-time working professionals.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Position</th>
<th>Degree &amp; Institution</th>
<th>Teaching Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albright, Robert</td>
<td>Clinical Associate Professor</td>
<td>Ph.D., University of Pittsburgh</td>
<td>Human Resources, Strategy</td>
</tr>
<tr>
<td>Arnheiter, Edward D.</td>
<td>Clinical Assistant Professor</td>
<td>Ph.D., University of Massachusetts</td>
<td>Operations Management</td>
</tr>
<tr>
<td>Chase, Robin</td>
<td>Clinical Assistant Professor</td>
<td>Ph.D., University of Southern California</td>
<td>Marketing</td>
</tr>
<tr>
<td>Fransson, Martha C.</td>
<td>Clinical Associate Professor</td>
<td>M.B.A., Dartmouth College</td>
<td>Marketing</td>
</tr>
<tr>
<td>Gingerella, Louis W., Jr.</td>
<td>Clinical Associate Professor</td>
<td>M.B.A., Rensselaer Polytechnic Institute</td>
<td>Finance</td>
</tr>
<tr>
<td>Ilovici, Irina</td>
<td>Clinical Assistant Professor</td>
<td>Ph.D., University of Connecticut</td>
<td>Mgt. Information Systems</td>
</tr>
<tr>
<td>Jenkins, Frank C.</td>
<td>Clinical Associate Professor</td>
<td>M.B.A., University of Pennsylvania</td>
<td>Finance</td>
</tr>
<tr>
<td>Kelly, Leonard J.</td>
<td>Clinical Professor</td>
<td>Ph.D., University of Connecticut</td>
<td>Operations Management</td>
</tr>
<tr>
<td>Klein, Hans E.</td>
<td>Clinical Associate Professor</td>
<td>D.B.A., University of Kentucky</td>
<td>Finance</td>
</tr>
<tr>
<td>LaPlaca, Peter J.</td>
<td>Clinical Professor</td>
<td>Ph.D., Rensselaer Polytechnic Institute</td>
<td>Marketing</td>
</tr>
<tr>
<td>Luddy, William J., Jr.</td>
<td>Clinical Professor</td>
<td>J.D., University of Connecticut</td>
<td>Law, Corporate Governance, and Business Policy</td>
</tr>
<tr>
<td>Maleyeff, John</td>
<td>Clinical Associate Professor</td>
<td>Ph.D., University of Massachusetts</td>
<td>Operations Management</td>
</tr>
<tr>
<td>Peters, Randall G.</td>
<td>Clinical Assistant Professor</td>
<td>J.D., Western New England College School of Law</td>
<td>Finance</td>
</tr>
<tr>
<td>Rainey, David L.</td>
<td>Chair, Clinical Associate Professor</td>
<td>Ph.D., Rensselaer Polytechnic Institute</td>
<td>Technology, Innovation, &amp; Environment</td>
</tr>
<tr>
<td>Schroth, Peter W.</td>
<td>Clinical Professor</td>
<td>S.J.D., University of Michigan</td>
<td>International Finance</td>
</tr>
<tr>
<td>Slangen, Guido H.</td>
<td>Associate Chair, Clinical Professor</td>
<td>Ed.D., University of Massachusetts</td>
<td>Human Resources</td>
</tr>
<tr>
<td>Stodder, James P.</td>
<td>Clinical Associate Professor</td>
<td>Ph.D., Yale University</td>
<td>Economics</td>
</tr>
</tbody>
</table>
Adjunct Faculty

The Lally School adjunct faculty includes leading business practitioners whose in-depth knowledge of current business practices enhances student’s learning experience. The current Rensselaer adjunct faculty includes the following:

<table>
<thead>
<tr>
<th>Adjunct Faculty</th>
<th>Position</th>
<th>Degree &amp; Institution</th>
<th>Teaching Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escalera, Miguel A., Jr.</td>
<td>Adjunct Assistant Professor</td>
<td>LL.M., Judge Advocate General’s School</td>
<td>Human Resources</td>
</tr>
<tr>
<td>Hurley, Michael W.</td>
<td>Adjunct Professor</td>
<td>Ph.D., Rensselaer Polytechnic Institute</td>
<td>Human Resources</td>
</tr>
<tr>
<td>Johnson, Wesley H.</td>
<td>Adjunct Assistant Professor</td>
<td>M.B.A., University of Connecticut</td>
<td>Mgt. Information Systems</td>
</tr>
<tr>
<td>Marconi, Robert L.</td>
<td>Adjunct Assistant Professor</td>
<td>J.D., University of Connecticut</td>
<td>Law &amp; Business Policy</td>
</tr>
<tr>
<td>Osterndorf, Warren H.</td>
<td>Adjunct Assistant Professor</td>
<td>M.S., University of Connecticut</td>
<td>Human Resources</td>
</tr>
</tbody>
</table>

Areas of Advanced Research and Study

The Center for Global Business Studies (GBS)

Members of the Lally School faculty have a wide range of international competence, including, for example, experience in dozens of countries and the ability to work with professional materials or participate in international negotiations in at least 15 languages. The Center for Global Business Studies, based at the Hartford campus, facilitates interdisciplinary projects that focus our expertise in such areas as economics, finance, policy, marketing, and law on selected problems in international management. Two of these projects at present are bribery and corruption in international business and international law and policy relating to global electronic commerce. Some advanced students have opportunities to participate in these projects.

Members of the GBS Center not only teach a broad range of international courses but also are leaders of the Lally School’s programs abroad, including those in England and Germany; participate in the editing of the Journal of Business in Developing Nations (which is published at: www.rh.edu/jbdn in cooperation with the Lally School’s Hartford department), the New York International Law Review and other professional journals; are members of the editorial boards of international publications; chair or serve on national and international boards and committees of government agencies, NGOs and other organizations relating to international business including the U.S. Delegation to the United Nations Commission on International Trade Law.

For more information, contact Peter W. Schroth at (860) 548-7845, 1-800-523-6478 ext. 7845, e-mail: schroth@rh.edu.

The Center for Lean Studies (CLS)

The Center for Lean Studies conducts research into advanced management practices based upon the Toyota Management System. Its principal mission is to serve as an internal resource for facilitating continuous improvement in graduate business school education. The key focus areas are to bring the Lean Management System into the classroom and to promote a balanced perspective between the economic and social responsibilities of business.

For more information, contact Bob Emiliani at (860) 548-7849, 1-800-523-6478 ext. 7849, e-mail: emiliani@rh.edu.
Graduate Programs

Master of Business Administration

The objective of the M.B.A. program is to prepare men and women to become leaders of modern organizations, to innovate in the enterprises they serve, and to advance their own careers. The candidates admitted are people who seek to mobilize technology for solving management problems and who bring management insights into organizations. Please see pages 48-50 for complete descriptions.

Master of Science in Management

The M.S. in Management is intended for individuals seeking specialized knowledge to enhance their careers. The program requires a minimum of 30 credit hours of graduate work. The specific requirements for the program are developed for an individual student or a specialized audience. Please see Master of Science in Management and Executive Master's Program descriptions on pages 50-51.

Admissions Requirements

The Lally School of Management and Technology graduate programs set stringent requirements for admission to ensure a common base of work habits and skills in fundamental disciplines. The goal is a rigorous regimen of study and stimulating intellectual exchange. Applicants must have demonstrated analytical background and working knowledge of Microsoft® Office software. The Graduate Management Admission Test (GMAT) standardized test scores (required for M.B.A.), interests, motivation, and academic and work history are carefully considered by the Admissions Committee.

GMAT and Waiver Policy for M.B.A. Candidates

The GMAT is one component that is given consideration in the admissions decision for applicants to the Management and Technology M.B.A. There are certain occasions when other graduate admissions examinations such as the Graduate Record Examination (GRE) are accepted in place of the GMAT. Such cases include applicants for a dual master’s program, such as the M.B.A. and M.S. in Engineering, or the M.B.A. and M.S. in Computer Science.

For part-time applicants, a GMAT score must be presented as part of the admissions file. However, a waiver of this requirement may be granted if the candidate presents:

• Significant analytical background as evidenced by strong undergraduate course work and grades, and
• 2-5 years of progressively responsible work experience, or
• A relevant graduate degree.

Those applicants wishing to pursue a full-time course of study (twelve credit hours or more each term) will be required to submit GMAT scores with only rare exception. Additionally, international students must demonstrate English language proficiency by submitting a Test of English as a Foreign Language (TOEFL) score of at least 250.

Nonmatriculated Applicants (Non-Degree Status)

The applicant who wishes to pursue graduate course work to improve his or her knowledge in a specific area, but not follow a degree program, is considered for nonmatriculated status. Nonmatriculated status does not represent a conditional admission to any degree program. If the ultimate academic goal is a master’s degree, then applicants should apply for degree status at the outset.

Admission to Degree Status (Nonmatriculated to Matriculated)

A prerequisite for non-matriculated students to be admitted to degree status is the completion of a minimum of two graduate courses (6 credit hours) and before the completion of four graduate courses (12 credit hours) with grades of “A” or “B” (minimum 3.0/4.0 GPA). No more than twelve credit hours earned as a nonmatriculated student will be transferred to a degree program.
Nonmatriculated students may request admission to degree status by submitting the following documents to the Office of the Registrar: 1) a “Graduate Request for Change of Status” form, 2) a proposed “Plan of Study” form, and 3) the remaining documents required to complete the formal application as shown in the “Checklist of Required Application Materials” (see page III in the Admissions package). Note that the documents required for admission to degree status vary by department.

Admission to degree status is subject to the approval of the Department Chair and Acting Associate Dean for Enrollment and Student Services.

**Schedule of Course Offerings**

Visit: [www.rh.edu/lsmt](http://www.rh.edu/lsmt) for guidance in developing your Plan of Study. Plan of Study forms may be downloaded at: [www.rh.edu/registrar](http://www.rh.edu/registrar).

**Management and Technology Degree Programs**

**Master of Business Administration (M.B.A.) Program**

The Management and Technology M.B.A. program is designed to achieve a dual goal: (1) the development of technical managers who understand and are able to perform effectively in general management functions, and (2) the development of general managers who understand and are able to interact effectively within the technological environment.

The Master of Business Administration degree consists of 60 credit hours: 42 required and 18 elective. Fourteen required core courses cover the foundation disciplines and functional areas of business management. All students are required to complete a core curriculum and may choose a concentration.

The electives enable students to expand their breadth or depth of knowledge in management. Elective courses should be taken when the student is prepared to address the subject matter. No area of concentration is required for the M.B.A.

It is recommended that students complete the course sequence as shown in the table below. In particular, MGMT-6650 Technology and Competitive Advantage and MGMT-6660 Strategy, Technology, and Entrepreneurship are to be taken near the end of the M.B.A. program. The student’s Plan of Study will be developed in consultation with his or her faculty advisor.
The fourteen core courses are normally offered every term and taken in the following sequence:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT-6710</td>
<td>Designing, Developing, and Staffing High-Performance Organizations</td>
</tr>
<tr>
<td>MGMT-6190</td>
<td>Financial and Managerial Accounting</td>
</tr>
<tr>
<td>MGMT-7100</td>
<td>Marketing and Product Management</td>
</tr>
<tr>
<td>MGMT-6310</td>
<td>Financial Management and Valuation of Firms</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: MGMT-6190</td>
</tr>
<tr>
<td>MGMT-6100</td>
<td>Statistics for Managerial Decision Making</td>
</tr>
<tr>
<td>MGMT-6140</td>
<td>Information Systems for Management</td>
</tr>
<tr>
<td>MGMT-6800</td>
<td>Ethical, Political, and Legal Context of Business</td>
</tr>
<tr>
<td>MGMT-6110</td>
<td>Quantitative Methods for Managerial Decision Making</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: MGMT-6100</td>
</tr>
<tr>
<td>MGMT-6300</td>
<td>Business Economics</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: MGMT-6100 and MGMT-6110</td>
</tr>
<tr>
<td>MGMT-6450</td>
<td>Manufacturing Systems Management</td>
</tr>
<tr>
<td></td>
<td>or</td>
</tr>
<tr>
<td>MGMT-6560</td>
<td>Managing New Product Development</td>
</tr>
<tr>
<td>MGMT-6650</td>
<td>Technology and Competitive Advantage</td>
</tr>
<tr>
<td></td>
<td>Note: Take toward the end of the M.B.A. program.</td>
</tr>
<tr>
<td>MGMT-6350</td>
<td>International Business</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: MGMT-6190, MGMT-6310, MGMT-7100</td>
</tr>
<tr>
<td>MGMT-6660</td>
<td>Strategy, Technology, and Entrepreneurship*</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: MGMT-6650</td>
</tr>
<tr>
<td>MGMT-xxxx</td>
<td>Elective Course</td>
</tr>
<tr>
<td>MGMT-xxxx</td>
<td>Elective Course</td>
</tr>
<tr>
<td>MGMT-xxxx</td>
<td>Elective Course</td>
</tr>
<tr>
<td>MGMT-xxxx</td>
<td>Elective Course</td>
</tr>
<tr>
<td>MGMT-xxxx</td>
<td>Elective Course</td>
</tr>
<tr>
<td>MGMT-xxxx</td>
<td>Elective Course</td>
</tr>
<tr>
<td>Note: Concentrations are <strong>not required</strong> for the M.B.A. program.</td>
<td></td>
</tr>
<tr>
<td>* MGMT-6660 satisfies the CAPSTONE course requirement for the M.B.A. program (see page 56).</td>
<td></td>
</tr>
</tbody>
</table>
Weekend M.B.A. Program

In the Weekend M.B.A. Program, students can earn an M.B.A. degree in a 30-month period of accelerated instruction (10 terms of study). Classes are conducted primarily on Friday evenings and Saturdays, consisting of two courses a term for four terms a year.

The Weekend Schedule is designed to appeal to students with significant work experience who are unable to attend classes during the week; who are interested in joining a group of mature students attending classes and working and studying together over 30 months; and who desire an opportunity to earn the M.B.A. degree in a two-and-a-half-year period. The objective is to form a diverse weekend class of broadly experienced middle managers and professionals wanting to reinforce one another’s learning. All required courses will be scheduled on the Friday evening and Saturday schedule in a sequence that is conducive to cumulative skill building and learning. Some electives may be available on weekends while others will be offered during the week.

Applicants interested in this schedule should complete the Supplemental Information Request for the Weekend M.B.A. and submit it (together with the requested résumé and letter of intent) with the Application for Admission to Graduate Study. Upon admission to the Lally School, the applicant will be considered for admission to the Weekend M.B.A. Program. Enrollment is limited. Admission to the Weekend Program is available only to those students specifically selected.

For more information concerning the Weekend M.B.A. Program, contact Nancy Farrell at (860) 548-2477; (800) 433-4723, ext. 2477; or e-mail: farrelln@rh.edu.

Master of Science in Management

The Master of Science in Management is a specialized master’s program requiring a minimum of 30 credit hours of graduate work. The specific requirements for the program are developed for an individual student or a specialized audience. The criteria guiding the development of an M.S. program are as follows:

- The academic program must be specialized and focus on Management and Technology. It must not be of a general business nature. See below for a list of concentrations.
- The academic program must meet the requirements of the Graduate School. A Plan of Study must be approved by the Chair of the Lally School of Management and Technology.
- The academic program must include a CAPSTONE course (formerly called the “Culminating Experience,” or CULEX course) which is satisfied by either: a) taking a course in the student’s area of concentration identified as a CAPSTONE course (indicated by an asterisk (*), or b) conducting an independent research project (MGMT-7980) with the approval of a full-time faculty member. The CAPSTONE is a three-credit course and is ordinarily completed in the final term of the degree program. See page 56 for additional details.
The following is a typical ten-course M.S. program sequence. The four core courses are normally offered every term.

<table>
<thead>
<tr>
<th>Course Sequence</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Management Core: Background in Key Areas of Management</strong></td>
<td></td>
</tr>
<tr>
<td>MGMT-6190 Financial and Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>MGMT-6710 Designing, Developing, and Staffing High-Performance Organizations I</td>
<td>3</td>
</tr>
<tr>
<td>MGMT-6310 Financial Management and Valuation of Firms</td>
<td>3</td>
</tr>
<tr>
<td>MGMT-7100 Marketing and Product Management</td>
<td>3</td>
</tr>
<tr>
<td><strong>Concentration: Five Courses in a Focused Area of Study (see pages 53-55)</strong></td>
<td></td>
</tr>
<tr>
<td>MGMT-xxxx Concentration Course #1</td>
<td>3</td>
</tr>
<tr>
<td>MGMT-xxxx Concentration Course #2</td>
<td>3</td>
</tr>
<tr>
<td>MGMT-xxxx Concentration Course #3</td>
<td>3</td>
</tr>
<tr>
<td>MGMT-xxxx Concentration Course #4</td>
<td>3</td>
</tr>
<tr>
<td>MGMT-xxxx Elective Course</td>
<td>3</td>
</tr>
<tr>
<td>MGMT-xxxx CAPSTONE Course (in area of Concentration or MGMT-6680)*</td>
<td>3</td>
</tr>
</tbody>
</table>

* See page 56 for more information on CAPSTONE.

**Executive Master’s Program (EMP)**

The Executive Master’s Program is a focused, integrated, one-year program leading to a Master of Science in Management degree. It is designed and taught to prepare experienced managers for more senior leadership positions in their organizations. The Executive Master’s Program emphasizes the blending of management and technology as a critical skill set for senior managers in an increasingly technology-based world. The curriculum concentrates on product/service development, managerial decision making, and implementation. The focus is on gaining competitive advantage in a global environment. The following courses make up the program curriculum:

- Organizational Behavior Design and Change
- Quantitative Methods for Managerial Decision Making
- Finance for Decision Analysis
- Marketing and Product Management
- Investment Analysis
- Strategic Information Systems Management
- Strategic Management of Technological Innovation
- Legal Aspects of E-Business and Information Technology
- Leadership and Organizational Improvement
- Technological Change and International Competitiveness

Classes meet on alternating Fridays and Saturdays from late August through June, beginning with a four-day residence week. The program typically features an international trip that is an integral part of the curriculum. Information concerning the Executive Master’s Program may be obtained by contacting Nancy Farrell at (860) 548-2477; (800) 433-4723, ext. 2477; or e-mail: farrelln@rh.edu.
Weekend M.S. in Management, Financial Management Concentration

Overview
This program is designed to update and enhance the skills of the working professional in the critical areas of accounting, investments, mergers and acquisitions, taxation, and financial regulations. Each course is designed specifically to meet the needs of financial professionals seeking to advance their careers and enhance their company’s business.

Schedule
The Weekend M.S. provides a cohort of about thirty students with an opportunity to earn the ten-course Rensselaer M.S. degree in a fifteen-month period of instruction (five terms). Classes meet on Friday evenings from 5:30 to 9:30 p.m. and on alternating Saturdays from 8:30 a.m. to 5 p.m.

Curriculum- 30 credits
MGMT-6190 Financial and Managerial Accounting
MGMT-6710 Designing, Developing, and Staffing High-Performance Organizations
MGMT-6310 Financial Management and Valuation of Firms
MGMT-7100 Marketing and Product Management
MGMT-6320 Investment Analysis I
MGMT-6340 Financial Markets and Institutions
MGMT-7210 Acquisitions and Venture Analysis
MGMT-6330 Investment Analysis II
MGMT-6960 Taxation for Business Investments
MGMT-6650 Technology and Competitive Advantage

Advisor: Randall G. Peteros, (860) 548-5403, e-mail: peteros@rh.edu
Dual Master’s Programs
The technological orientation and flexibility of the Management and Technology M.B.A. allows for unique programs leading to two master’s degrees.

Option 1
Joint M.B.A./M.S. programs allow a student to complete both master’s degrees in a total of 72 credit hours (an M.B.A. alone is 60 credits).

• M.B.A. with the Lally School / Master of Science with the Department of Engineering and Science
Thirty credits are taken to meet the Master of Science in Engineering programs or Computer and Information Sciences degree program, and 42 credits are taken to satisfy the required courses in the M.B.A. program. Because of the graduate work taken toward the M.S., the M.B.A. program waives 12 credits of electives and shares 6 credits from the other degree program. Two Plans of Study are submitted: 1) Plan for the M.S. degree listing 30 credits, 2) Plan for the M.B.A. degree listing 42 credits (unique from the other degree program), 12 credits waived, and 6 credits shared from the other degree program. Please see the M.B.A. advisor for more details.

Option 2
Joint M.S. programs with Management and Engineering or Computer and Information Sciences can be developed that allow the student to study Management and Technology and receive two master’s degrees in 54 credit hours.

• Master of Science in Management / Master of Science with the Department of Engineering and Science
For more information concerning the Dual Master’s Program, contact Guido H. Slangen at (860)548-2445; (800) 523-6478, ext. 2445; or e-mail: guido@rh.edu.

Management and Technology Concentrations
A concentration is a 12-credit-hour (four-course) sequence of related course work that is required for the M.S. in Management program (see above) but not required for the M.B.A. Concentration courses indicated in bold are required in the concentration area. Neither the diploma nor the transcript will specify a concentration.

Financial Management
This concentration prepares students for a career path in corporate finance functions and for careers in the financial services industries. The special finance problems in high-tech industries are explored as well as the impact of technology on financial markets and the financial manager in modern corporations. To provide students with a broad finance background, students take five courses beyond the core financial management courses (MGMT-6190 Financial and Managerial Accounting and MGMT-6310 Financial Management and Valuation of Firms) which are prerequisites for the courses listed below:

MGMT-6320 Investment Analysis I
MGMT-6340 Financial Markets and Institutions

Plus any THREE of the following:

MGMT-6210 Manufacturing Accounting and Control Systems
MGMT-6330 Investment Analysis II
MGMT-6360 International Finance I
MGMT-6380 Advanced Corporate Finance
MGMT-7210 Acquisition and Venture Analysis*
MGMT-7720 International Finance II*

*Satisfies the CAPSTONE course requirement for the M.S. in Management program
Innovation and Entrepreneurship
This concentration has been developed for students who have an interest in new venture creation in startups and established firms. It prepares technically trained professionals in the strategic management of innovation and the integration of the technical functions with other corporate functions and goals. This concentration consists of five courses:

MGMT-6610 Global Strategic Management of Technological Innovation
MGMT-6620 Principles of Technological Entrepreneurship

Plus any THREE of the following:

MGMT-6560 Managing New Product Development
MGMT-6630 Starting Up A New Venture
MGMT-6730 Technological Change and International Competitiveness*
MGMT-6750 Legal Aspects of E-Business and Information Technology
MGMT-6810 Management of Technical Projects
MGMT-7540 Leadership and Organizational Improvement*

* Satisfies the CAPSTONE course requirement for the M.S. in Management program

International Management
This concentration explores the rapidly evolving managerial and technological environments which students will encounter as professionals in a competitive global marketplace. Special emphasis is placed on the following areas: multinational business environments, varying levels of technology, finance, trade issues, politics, and cross-cultural dynamics. To provide students with a broad international management background, students take five courses beyond the core courses (MGMT-6190 Financial and Managerial Accounting, MGMT-6300 Business Economics, MGMT-6310 Financial Management and Valuation of Firms, and MGMT-7100 Marketing and Product Management) which are prerequisites for the courses listed below:

MGMT-6350 International Business
MGMT-6360 International Finance I
MGMT-7120 International Marketing

Plus any TWO of the following:

MGMT-6730 Technological Change and International Competitiveness*
MGMT-7700 International Negotiations
MGMT-7710 Cultural Environment of International Business
MGMT-7720 International Finance II*

* Satisfies the CAPSTONE course requirement for the M.S. in Management program

Management Information Systems
This concentration is designed for professionals responsible for achieving competitive advantage through the development and integration of information technology into organizations. The concentration courses use an interdisciplinary approach to the practices and methodologies of systems analysis, design, development, and integration and evaluation of information technology into business functions and processes. The concentration consists of five courses:

MGMT-6140 Information Systems for Management
MGMT-6170 Advanced Systems Analysis and Design
Plus any THREE of the following:

MGMT-6180 Strategic Information Systems Management*
MGMT-6750 Legal Aspects of E-Business and Information Technology
MGMT-6810 Management of Technical Projects
MGMT-7400 Business Data Communications
MGMT-7410 Database for Managers

*Satisfies the CAPSTONE course requirement for the M.S. in Management program

**Marketing Management**
This concentration is appropriate for students whose mid- to long-term career objectives are related to the marketing function. Students focus their attention on understanding the role of marketing in a contemporary competitive environment and developing a knowledge of the tools, techniques, and concepts which govern the analysis and resolution of marketing issues and opportunities. The marketing concentration consists of five courses (note: all courses, except MGMT-7520 Management of Electronic Commerce, have MGMT-7100 Marketing and Product Management as a prerequisite). Possible choices include:

MGMT-6540 Marketing Communications and Promotion Strategy
MGMT-6550 Marketing Research
MGMT-7110 Buyer Behavior
MGMT-7120 International Marketing
MGMT-7130 Marketing of Services
MGMT-7140 Marketing Strategy*
MGMT-7520 Management of Electronic Commerce

*Satisfies the CAPSTONE course requirement for the M.S. in Management program

**Operations Management**
This concentration provides students with an understanding of how product requirements are translated into the organizations, procedures, facilities, and methods of manufacturing and service operations. The concentration prepares students for management careers at several different levels of the manufacturing and service organization by developing the knowledge necessary to support and add value to the underlying strategic focus of an operating manufacturing system. The production and operations management concentration consists of five courses.

MGMT-6100 Statistics for Managerial Decision Making
MGMT-6450 Manufacturing Systems Management

Plus any THREE of the following:

MGMT-6110 Quantitative Methods for Managerial Decision Making
MGMT-6210 Manufacturing Accounting and Control Systems
MGMT-6470 Management of Quality, Processes, and Reliability
MGMT-6480 Service Operations Management
MGMT-6490 Competitive Advantage and Operations Strategy*
MGMT-7500 Managing Supply Networks
MGMT-7510 Developing Supply Networks
MGMT-7540 Leadership and Organizational Improvement*

*Satisfies the CAPSTONE course requirement for the M.S. in Management program
The CAPSTONE Course Requirement

All students enrolled in the M.B.A. and M.S. programs in the Lally School of Management and Technology are required to complete a 3-credit CAPSTONE course. The CAPSTONE is to serve as an opportunity for students to synthesize the body of knowledge gained during their course of study and is ordinarily completed in the final term of the degree program.

CAPSTONE Course Requirement for the M.B.A. Program

The CAPSTONE course requirement for the M.B.A. program is satisfied by students taking the required course MGMT-6660, Strategy, Technology, and Entrepreneurship.

CAPSTONE Course Requirement for the M.S. Program

The CAPSTONE course requirement for the M.S. program can be satisfied by either:

- Taking a course in the student’s area of concentration identified as a CAPSTONE course, as indicated by an asterisk (*), or
- Conducting an independent research project (MGMT-7980) with the approval of a full-time faculty advisor. The independent research should result in a high-quality research paper that is suitable for publication in a journal. Such efforts are to be separate and independent of course work used to satisfy other M.S. program requirements. For more information on how to complete MGMT-7980, visit: www.rh.edu/lsmt/capstone.html.

M.B.A. / M.S. Program Notes

Transfer of Credit

a) Credit for graduate work completed in residence at other accredited institutions may be offered in partial fulfillment of the requirements, when (1) the grade earned is a “B” or better, (2) the work is substantially equivalent to the Rensselaer course it replaces, and (3) the course has not been credited toward an undergraduate degree.

No more than six credit hours may be transferred toward the degree, and not more than six credit hours used for a master’s degree in one area can be applied to a second master’s degree.

b) A matriculated student who obtains the approval of his or her academic advisor to take graduate-level course work elsewhere while enrolled at Rensselaer at Hartford must apply for transfer of credit as soon as the credit has been earned.

c) It is the student’s responsibility to complete the Transfer of Credit Form; submit an official transcript indicating grade received, credit awarded; and any other documentation required by his or her advisor, such as a catalog description of the course and a (new or revised) Plan of Study. Courses taken elsewhere and approved for transfer to Rensselaer at Hartford as part of a degree program are not considered in computing the “B” average requirement. For additional information concerning the awarding of credit by transfer, contact the Office of the Registrar.

d) On the student’s official transcript, a transfer of credit will record only the course title and the credit hours, but not the grade of the transferred course. The credit hours of a transferred course compute into the cumulative earned hours, but do not affect the attempted hours column.

Waiver

A student whose prior academic preparation is substantially equivalent to the level and content of a required core course may petition the department for a waiver from the course. Waivers are granted at the discretion of the Lally School, which may waive a course outright, require that a replacement elective be sub-
stituted for the course, or that a waiver examination be taken. Thoughtful planning and curriculum design will benefit the student and the academic program. In addition, graduate students pursuing dual degrees may take advantage of the waiver provision to facilitate academic program planning.

**M.B.A. Program**
- Waivers for credit (without replacement) apply only to the M.B.A. degree and are limited to a maximum of 12 credit hours.
- M.B.A. students requesting waiver(s) must fill out a Plan of Study form and Request for Waiver with Credit form indicating the course or courses to be waived and include: 1) an unofficial transcript, 2) a catalog description of the course, and 3) a letter justifying the rationale for the waiver. These materials should be submitted to the advisor.

**M.S. Program**
- Courses required for M.S. degrees may be waived only with substitution of other appropriate courses.
- M.S. students requesting waiver(s) must fill out a Plan of Study form and Request for Waiver with Substitution form indicating the course or courses to be waived and include: 1) an unofficial transcript, 2) a catalog description of the course, and 3) a letter justifying the rationale for the waiver. These materials should be submitted to the advisor.
Course Descriptions

Computer and Information Sciences

The course numbering system is alphanumeric beginning with a four-letter department name followed by a dash, a three-digit course number, and a zero. All courses are 3 credit hours unless otherwise indicated. Below are the four-letter subject codes for Computer and Information Sciences.

**Acronyms**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL</td>
<td>Biology</td>
</tr>
<tr>
<td>CISH</td>
<td>Computer and Information Sciences Hartford</td>
</tr>
<tr>
<td>CSCI</td>
<td>Computer Science</td>
</tr>
</tbody>
</table>

**Suffix Numbers**

<table>
<thead>
<tr>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000-4990</td>
<td>Courses open for credit to both advanced undergraduate and graduate students</td>
</tr>
<tr>
<td>6000-6990</td>
<td>Courses designed for graduate credit</td>
</tr>
</tbody>
</table>

H = Hartford, G = Groton

NOTE: Asterisk (*) denotes an “immigration” course which will not count towards the M.S. in Computer Science, M.S. in Information Technology, or M.Eng. in Computer and Systems Engineering degrees. Such courses may count toward other degrees but consult with your advisor before registering.

**BIOL Biology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL-6410</td>
<td>Bioinformatics I: Sequence Analysis</td>
<td>This studio course covers concepts and methods related to information processing in biological systems. Concepts covered include homology, identity, and similarity; mechanisms and measure of molecular evolution; introduction to databases (e.g., GenBank, PDB); search algorithms (BLAST and FASTA); pairwise sequence alignment using dynamic programming (GAP, BestFit); progressive methods for multiple alignment (PILEUP, CLUSTAL W); and special topics in sequence analysis. Prerequisites: BIOL-1010, college-level math, or permission of the instructor. H and G, Fall term, annually.</td>
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<tr>
<td>BIOL-6420</td>
<td>Bioinformatics II: Molecular Modeling</td>
<td>This studio course covers use of homology to extract information about structure and function from amino acid sequences. Concepts covered include structural homology, structural motifs and databases, homology modeling of macromolecules, energy minimization and relaxation, water considerations, molecular docking, and molecular dynamics. Prerequisites: BIOL-6410, or permission of the instructor. H and G, Spring term, annually.</td>
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**CISH Computer and Information Sciences Hartford**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tr>
<td>CISH-4010</td>
<td>Discrete Mathematics and Computer Theory*</td>
<td>Course covers foundations of discrete mathematics and fundamentals of computer theory. Topics include propositional logic, truth tables, quantifiers, sets, set operations, sequences, complexity of algorithms, divisibility, matrix manipulations, proofs, induction, recursion, counting and the pigeonhole principle, permutations, combinations, repeated trials, expectation, relations (properties, representation, equivalence, Warshall’s algorithm), Boolean algebra, functions, logic gates, minimizing, Finite State Machines, Turing machines, Regular expressions, context free grammars, language recognizers, derivation trees, pushdown automata. H and G, Fall term annually; H, Spring and Summer term.</td>
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<tr>
<td>CISH-4020</td>
<td>Object Structures*</td>
<td>A study of object oriented software component design. This course introduces the object oriented paradigm and its use in organizing software structures including arrays, stack, queues, lists, trees, graphs, and recursion. Programming assignments require the use of an object oriented language. Prerequisite: CISH-4010 or equivalent and knowledge of an imperative programming language (C,</td>
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PASCAL, etc.). H and G, Spring term, annually; H, Fall, Summer term annually.

CISH-4030 Structured Computer Architecture*
Introduction to computer architecture; the structure and function of a computer system consisting of processors, memory, I/O modules, and its internal interconnections. Primary focus on the attributes of a system visible to an assembly level programmer. Topics include: digital logic, VLSI components, instruction sets, addressing schemes, memory hierarchy, cache and virtual memories, integer and floating point arithmetic, control structures, buses, RISC vs CISC, multiprocessor and vector processing (pipelining) organizations. Examples are drawn from contemporary (e.g. Intel Pentium, PowerPC) microcomputers. Prerequisite: CISH-4960H01. H, Fall and Spring term, annually; H and G, Summer term annually.

CISH-4940 Readings in Computer and Information Sciences
1 to 4 credit hours

CISH-4960 Topics in Computer and Information Sciences
1 to 4 credit hours

CISH-4961 Introduction to Computer Programming*
Presents a robust introduction to computer science with a strong emphasis on the discipline of computer programming. Students will use a high level language to complete a standard number of programming assignments which will be assigned for homework and as in-class workshops. Classroom lectures will focus on program design and efficiency techniques. Lectures will also present a survey of other major computer science topics including operating systems, object oriented programming and design, telecommunications, the Internet and intranets, database management and graphical user interfaces. Prerequisite: Basic PC literacy. H, Fall and Spring term, annually; G, offered on sufficient demand.

CISH-6010 Object Oriented Programming and Design
An introduction to the theory and practice of object oriented programming and design. Encapsulation, inheritance, genericity, dynamic binding, and polymorphism. Students use these concepts to design and implement a modest-sized system. One object oriented language (chosen by the instructor) is studied in detail and required for the project. Other languages are covered briefly. Prerequisite: CSCI-4210. H, Fall and Spring term, annually; G, offered on sufficient demand.

CISH-6020 Object Oriented Paradigm
A continuation of the topics and concepts covered in Object Oriented Programming and Design, which serves as a prerequisite. Students design and implement a modest system using an established OO design technique introduced in class and the language of their choice. In addition, students survey the current OO literature and produce an expository paper based on their research. Classroom presentations of designs and research may also be required. Prerequisite: CISH–6010. H and G, offered on sufficient demand.

CISH-6050 Software Engineering Management
Introduction to the current issues in software engineering. Topics include the origin of the software crisis, current state–of–the–practice, modeling the software engineering process, the relationship of methods and tools to process, software validation, risk mitigation, and software engineering economics. Prerequisite: CISH-4020. H and G, Summer term, annually.

CISH-6110 Object Oriented Database Systems
Presents concepts and architectures for support of objects in a database system. Emphasis is placed on DBMS issues rather than application issues with discussions of issues related to the object oriented view of data models, query languages, versioning evolution, authorization, transaction control, storage management, indexing techniques, distributed data. Current object oriented and object-relational database systems are reviewed and compared. A programming project or research paper may be required. Prerequisites: CSCI–4380 and the object oriented portion of either CISH-4020 or CISH–6010. H, Fall term, annually; G, offered on sufficient demand.

CISH-6120 Distributed Database Systems
Examines client/server DBMS and considers how a client–server architecture can be used to implement the requirements of a DDBMS. Topics include DDBMS taxonomies, case studies, design considerations, transaction management, and global query opti-
COURSE DESCRIPTIONS

CISH–6210 Computer Network Analysis and Design
Mathematics modeling and analysis of multiplexing and switching systems in computer communication networks. Topics include: queues and networks of queues. Multiplexing, CSMA and token passing techniques for LANs, protocols for congestion and flow control, and algorithms for routing and flow allocation. Prerequisite: ECSE-4670. H, Spring term annually; G, offered on sufficient demand.

CISH–6220 LANs, MANs, and Internetworking
Explores the current capabilities and trends in LANs and MANs with additional focus on issues of internetworking network systems or subsets. Topics include: Topologies and transmission media, Local and Metropolitan Area Network (LAN and MAN) architectures and performance. LAN standards IEEE 802.x, and ANSI Standard FDDI. Circuit switched local area networks, e.g., ATM, Fibre Channel. Internetworking alternatives, bridges, network switches, routers and gateways. General LAN management tools. Prerequisite: ECSE–4670 or equivalent. H, Fall term, annually; G, Fall term, odd years.

CISH–6230 Network Management
Introduction to methods, techniques and tools for the management of telecommunication systems and networks. Major topics covered in the course are: Simple Network Management Protocol (SNMPv2, SNMPv3), Remote Monitoring (RMON1, RMON2), Standard Management Information (MIBs), and Telecommunications Management (TMN, CMIS/SMIP); configuration and name management, fault and performance management, security, accounting management; and web-based network management. Prerequisite: ECSE–4670 or equivalent basic concept computer and communication networks course. H, Summer term, annually; G, offered on sufficient demand.

CISH–6510 Web Application Design and Development
Students will learn approaches to the design, development, and maintenance of Web sites. Students will study software and information architectures for the Web, design techniques for distributed Web-based applications, and methods and tools for the creation and maintenance of Web sites. Study will encompass the major components of a Web site including browsers and client applications, Internet protocols that link client to server, and server applications. Issues of performance, security, and usability will be examined. Prerequisite: CISH-4020 or CSCI-2300. Prior experience with HTML and Java. ECSE-4670 and CSCI-4380 recommended. H, Fall and Spring term, annually; G, offered on sufficient demand.

CISH–6900 Computer Science Seminar
For students following the Applied path, who are near the end of their program, a two-term course that meets once per month from September through March and one Saturday in April when students give their presentations. Registration is accepted during Fall registration only. Students are required to attend all eight meetings in order to fulfill the Seminar requirement. 1 credit hour. This course, combined with two additional graduate credit hours, will be the equivalent of one advanced three credit hour elective. H and G, Fall through Spring terms, annually.

CISH–6940 Readings in Computer and Information Sciences
1 to 3 credit hours

CISH–6960 Topics in Computer and Information Sciences
1 to 3 credit hours

CISH–6960H09 Research Methods
Course will review the major considerations and tasks involved in conducting scientific research, particularly in the area of computer science. It introduces the essential aspects of designing, supporting, and conducting a research project. Those who successfully complete the course will be able to: produce a well-developed research proposal; select an appropriate methodology with which to conduct the research and defend the methodology of their selection; understand the various tasks required to carry out the research; find the resources needed to guide them through the research process and the documentation of its findings. H, Fall and Spring term, annually; G, Fall term, annually.
CISH–6970 Professional Project
Active participation in a semester-long project, under the supervision of a faculty advisor. A Professional Project often serves as a culminating experience for a professional Master’s program but, with departmental or school approval, can be used to fulfill other program requirements. With approval, students may register for more than one Professional Project. Professional Projects must result in documentation established by each department or school but are not submitted to the Graduate School and are not archived in the library. Grades of A, B, C, or F are assigned by the faculty advisor at the end of the semester. If not completed on time, a formal Incomplete grade may be assigned by the faculty advisor, listing the work remaining to be completed and the time limit for completing this work.

CISH–6980 Master’s Project
Details may be obtained from the Department of Engineering and Science. 3 to 6 credit hours

CISH–6990 Master’s Thesis
Details may be obtained from the Department of Engineering and Science. 3 to 6 credit hours

CSCI Computer Science
CSCI–4210 Operating Systems
Discussion of various aspects of computer operating systems design and implementation. Topics include I/O programming, concurrent processes and synchronization problems, process management and scheduling of processes, virtual memory management, device management, file systems, deadlock problems, system calls, and interprocess communication. Programming projects are required. Prerequisite: CISH-4020 and CISH-4030. H, Fall and Spring term, annually; G, Fall term annually. 4 credit hours.

CSCI–4380 Database Systems
Discussion of the state of practice in modern database systems with an emphasis on relational systems. Topics include database design, database system architecture, SQL, normalization techniques, storage structures, query processing, concurrency control, recovery, security, and new direction such as object oriented and distributed database systems. Students gain hands-on experience with commercial database systems and interface building tools. Programming projects are required. Prerequisite: CISH-4020 or equivalent. H, Fall, Spring, Summer term annually; G, Spring term, annually. 4 credit hours

CSCI–4960 Topics in Computer and Information Sciences
Contact the Department of Engineering and Science for descriptions of recently offered special topic classes. 1 to 3 credit hours

CSCI–6050 Computability and Complexity
This course discusses modern concepts of computability and computational complexity theories. The Church-Turing thesis. Variations of Turing Machines; Algorithms; Decidability; the Halting Problem; Reducibility; the Recursion theorem; The Concept of Information; the Time and Space Complexity; Intractability; NP completeness and Cook’s theorem; Elements of Cryptography. Prerequisite: CISH-4010. H, Fall, Spring, Summer term, annually; G, Spring term, annually.

CSCI–6140 Computer Operating Systems
Topics include analysis of multiprogramming systems, virtual memory, computer system performance, and queuing theory. The course also discusses tools for synchronization of parallel programs and algorithms for mutual exclusion. Prerequisite: CSCI–4210 or permission of instructor. H, Fall term, odd years.

CSCI–6150 Artificial Intelligence and Heuristics
Survey of machine implementation of processes as foundation to thinking and perceiving. Modeling and representation of knowledge. AI systems and languages, reasoning and problem solving. Current literature is discussed. Applications are chosen from computer game playing programs, English dialogue, theorem proving, computer vision, robot implementation, and automatic programming. Limitations and performance of techniques. Certain topics are programmed. Prerequisite: CISH-4030. H and G, offered on sufficient demand.

CSCI–6160 VLSI Algorithms
Elementary VLSI physics and circuit features; fabrication overview; hierarchical design, design tool algorithms; data and control flow; parallelism, pipelining; systolic and data flow architectures;
processor element network models; fault tolerance. Applications to matrix operations, signal processing, pattern matching, databases, etc. Current literature, project work. H and G, offered on sufficient demand.

CSCI–6210 Design and Analysis of Algorithm
Theoretical and empirical analysis of algorithms; tools for on–line monitoring of the algorithm's performance. Advanced algorithms for polynomial problems; randomized heuristic and approximate algorithms. Problems include computation in discrete mathematics, number theory, linear algebra, graph theory, numerical and symbolic computing. It is suggested that students take CSCI–6050 before taking this course. H, Spring term, even years; G, offered on sufficient demand.

CSCI–6320 GUI Building
This course is targeted at the person who is going to implement rather than design the user interface. The focus is on software architectures for user interfaces and the tools and techniques required for programming those interfaces. The concepts of the course rely strongly on foundations from computer graphics and deals with issues of the model-view-controller class of problems. Special emphasis is put on software internationalization and code design techniques to meet those requirements. An object oriented language will be used as the course language. Prerequisite: Proficiency in Java and experience with Graphical User Interfaces are mandatory. H and G, Fall term, annually.

CSCI–6460 Advanced Database Management Topics
Continuation of CSCI–4380, presents a more theoretical approach to logical and physical database design. Algorithms for logical database design, primary and secondary indexing techniques, query processing and query optimization, and database security. Problems of interfacing a database system with an operating system, and some of the issues in implementing distributed database systems. Much of the material comes from recent research papers. A term paper may be required. Prerequisite: CSCI–4380. H, Fall term, annually; G, offered on sufficient demand.

CSCI–6470 Database Systems for Engineering Applications
A survey of traditional database systems is followed by an examination of differences between application of those systems and engineering applications. Database systems for engineering applications including the concepts of long transactions, version control, object oriented support and concurrent engineering. Perquisite: CSCI–4380 or equivalent. H and G, offered on sufficient demand.

CSCI–6480 Theory of Compiler Design
Use of language theory and automata theory in the design of compilers. Syntax–directed compilers. Lexical analysis, computer implementation and finite state machines. Syntax analysis, parsing versus restructuring. Top–down and bottom–up parsing algorithms. TD(k) and LR(k) grammars. The Younges algorithm. Syntax–directed transducers. Prerequisites: CSCI-4010 and CSCI 4210. Knowledge of PASCAL, C, or LISP. H, Spring term, even years; G, offered on sufficient demand.

CSCI–6900 Computer Science Seminar
1 credit hour

CSCI–6940 Readings in Computer Science
1 to 3 credit hours

CSCI–6960 Topics in Computer and Information Sciences
Contact the Department of Engineering and Science for descriptions of recently offered special topic classes. 1 to 3 credit hours

CSCI–6970 Professional Project
Active participation in a semester-long project, under the supervision of a faculty advisor. A Professional Project often serves as a culminating experience for a professional Master’s program but, with departmental or school approval, can be used to fulfill other program requirements. With approval, students may register for more than one Professional Project. Professional Projects must result in documentation established by each department or school but are not submitted to the Graduate School and are not archived in the library. Grades of A, B, C, or F are assigned by the faculty advisor at the end of the semester. If not completed on time, a formal Incomplete grade may be assigned.
by the faculty advisor, listing the work remaining to be completed and the time limit for completing this work. 3-4 credit hours

CSCI–6980 Master’s Project in Computer and Information Sciences
Details may be obtained from the Department of Engineering and Science. 3 to 6 credit hours

CSCI–6990 Master’s Thesis in Computer and Information Sciences
Details may be obtained from the Department of Engineering and Science. 3 to 6 credit hours

COMM-6420 Foundations of Human-Computer Interaction Usability
Issues, information sources, and methods used in the design, implementation, and evaluation of user interfaces, the parts of software systems designed to interact with people. The psychological capabilities of the human are investigated and accounted for in design. Emphasizes how the design of the user interface is incorporated into the software life cycle. H and G, Fall term, annually.

Engineering
The course numbering system is alphanumeric beginning with a four-letter department name followed by a dash, a three-digit course number, and a zero. All courses are 3 credit hours unless otherwise indicated. Below are the four-letter subject codes for Engineering.

Acronyms
DSES Decision Sciences and Engineering Systems
ECSE Electrical, Computer, and Systems Engineering
ESCI Engineering Science
MANE Mechanical, Aeronautical, Nuclear, and Engineering Physics (Formerly MANE)
MTLE Materials Science and Engineering

Suffix Numbers
4000-4990 Courses open for credit to both advanced undergraduate and graduate students
5000-5990 Courses offered only at Rensselaer at Hartford for graduate credit
6000-6990 Courses designed for graduate credit
7000-7990 Courses offered only at Rensselaer at Hartford for graduate credit

Groton courses are scheduled term by term in consultation with students.

DSES Decision Sciences and Engineering Systems

DSES-6110 Introduction to Applied Statistics
A graduate course in basic statistics. It stresses common tasks such as summarizing large databases, making quick estimates, establishing relationships among variables, forecasting, and evaluating alternatives. Topics include probability; common, discrete, and continuous distributions; sampling; confidence intervals; hypothesis tests; contingency tables; statistical process control; and multiple regression analysis. It involves extensive use of computers for the analysis of data sets.

DSES-6170 Management of Quality, Processes, and Reliability
Definitions; corporate, economic, and government environments; international considerations; business processes and physical processes in manufacturing and services; control and enhancement of processes; organizing for and effecting change; experimental design for design and change; information systems; Deming approach; product and processes development; capital investment; empowerment of workers; people make it happen.

DSES-6230 Quality Control and Reliability
Emphasizes the statistical approach to quality and the managerial implications and responsibilities in implementing the statistical approach. This course
covers control charts, Taguchi methods, and statistical distributions.

**DSES-6610 Applied Operations Research**
An introduction to the application of deterministic and stochastic operations research. Emphasis is given to linear programming and simulation. You will learn how to apply common optimization methods to problem formulation, computer solution, and analysis of results. Case studies and examples are solved using a microcomputer software package.

**DSES-6620 Simulation Modeling and Analysis**
Stresses a thorough development of a simulation language to progress through a series of increasingly sophisticated applications of computer simulation. Projects cover a wide range of topics including production systems, inventory, finance, transportation, public systems, and health systems. The course includes model development, statistical analysis of simulation input/output data, validation planning, and managing simulation projects.

**ECSE Electrical, Computer, and Systems Engineering**

**ECSE-4440 Control Systems Engineering**
Application of linear feedback theory to the analysis of large-scale, integrated control systems. Derivation of complex mathematical models of physical systems. Synthesis thesis of appropriate control laws to provide stability of these plants. Simulation of complex control systems on digital computers. Fall term, alternate years.

**ECSE-4490 Fundamentals of Robotics**
A survey of the fundamental issues necessary for the design, analysis, control and implementation of robotic systems. The mathematical description of robot manipulators in terms of kinematics and dynamics. Hardware components of a typical robot arm. Path following, control, and sensing. Examples of several currently available manipulators. Electrical and Mechanical Engineering majors at Rensselaer in Troy have taken this course. Prerequisite: ECSE-2410. Summer term, alternate years.

**ECSE-4500 Probability for Engineering Applications**
Axioms of probability, joint and conditional probability, random variables, probability density and distribution functions, functions of random variables, statistical average, and Markov chains. Applications to such areas as sampling, reliability, statistical physics, and information theory. Fall Term, annually.

**ECSE-4510 Discrete Time Systems**
Mathematical tools used in analysis and synthesis of discrete systems, including uniform and non-uniform sampling, quantization, z-transforms. Applications to communications (digital transmission, digital filters), controls (sampled data systems), and computers (digital logic systems, errors, digital circuits). Offered on sufficient demand.

**ECSE-4520 Communication Systems**
Introduction to signals and noise in electrical communication systems. Spectral analysis and filtering, including random signals. Modulation theory and techniques. System performance in the presence of noise. Other topics include: television and radar systems, digital communication, receiver noise, and information theory. Offered on sufficient demand.

**ECSE-4670 Computer Communication Networks**
Problems, solutions, and limitations associated with interconnecting computers by communication networks. The seven layer ISO reference model of open systems interconnection (OSI) serves as a framework. Topics include: physical layer standards, data link protocols, queuing models, routing, satellite communications, local area networks, multiplexing, coding, and network configurations. Prerequisite: CISH-4010 or equivalent. Fall and Spring terms annually.

**ECSE-4750 Computer Graphics**

**ECSE-4790 Microprocessor Systems**
Hardware and software design of microprocessor-based digital systems. Basic concepts of microprocessor components and fundamental machine
instructions as related to functional performance in digital systems. Logical characteristics of the devices are considered with the architectures and software efficiency of component families. Both 16- and 32-bit machines are discussed. Exercises in programming microprocessors and an individual design project are required. Spring term, alternate years.

ECSE-5010 Instrumentation and Measurement
Complete survey of current instrumentation technology. Mathematical development of ideal first- and second-order instruments. Expands to cover temperature, pressure, flow, and motion measurements. Basic measurement statistical and error analysis techniques. Prerequisite: Knowledge of differential equations and Fourier Transforms. Spring term, alternate years.

ECSE-6230 Semiconductor Devices and Models I
Physical operation of modern semiconductor devices; determination and internal parameters. Devices include diodes, unipolar and bipolar transistors, and metal-oxide-semiconductor devices. Emphasis on fundamental mechanisms that contribute to device performance. Interrelationship between device parameters and circuit performance. Fall term, alternate years.

ECSE-6260 Semiconductor Power Devices
Special problems of semiconductor devices operating at high-voltage and high-current levels. Devices include p-n diodes, p-i-n diodes, transistors, and thyristors. Topics include space charge limited current flow, microplasmas, avalanche breakdown, surface contouring, cylindrical junctions and field plates, high-level injection, emitter crowding, gain and gain-bandwidth product at high-current levels, double injection, lateral thermal instability, second breakdown, triggering mechanisms, plasma propagation, switching and recovery characteristics, and device fabrication technology. Prerequisite: ECSE-6230. Spring term, alternate years.

ECSE-6270 Optoelectronics

ECSE-6400 Systems Analysis Techniques

ECSE-6410 Robotics and Automation Systems

ECSE-6420 Nonlinear Control Systems

ECSE-6430 Optimization Methods
Introduction to linear programming, nonlinear programming, iterative methods, and dynamic programming. Development of optimality criteria, optimal problem statement, and computer solution methods. Optimization problems include: discrete and continuous optimal regulators, minimum energy problems, linear tracking problems, output regulators, minimum, time problems. Offered on sufficient demand.

ECSE-6440 Optimal Control Theory
Optimal control from the Calculus of Variations point of view. Continuous and discrete variational calculus, discrete and continuous minimum principle. Other topics include: singular control, minimum fuel problems, numerical methods for non-linear optimal control, solutions to Riccati equations, sensitivity in optimal control, and observers. Prerequisite: ECSE-6400. Spring term, alternate years.
ECSE-6460 Multivariable Control Systems
Advanced course in the synthesis and analysis of linear multivariable control systems. Topics include: output feedback, reduced-order modeling and control, disturbance accommodation and counteraction pole-zero relocation via feedback, decoupling, vector frequency domain methods, decentralized control, numerical methods for controller syntheses. Emphasizes contemporary approaches to feedback controller design and connections between time and frequency domain methods. Material from technical journals and textbooks. Computer design problems. Prerequisite: ECSE-6400 or permission of instructor. Summer term, alternate years.

ECSE-6560 Digital Communications Engineering
Functional characterization of digital signals and transmission facilities, band-limited and duration-limited signals, modulation and demodulation techniques for digital signals, error probability, intersymbol interference and its effects, equalization and optimization of baseband binary and M-ary signalling systems, error control coding techniques, digital filtering current practices in modern design. Introduction to communication networks and switched systems, store-and-forward communication systems, broadband communication techniques, channel protocol, current developments in digital communication systems design and operation. Prerequisite: background in Probability. Fall term, alternate years.

ECSE-6620 Digital Signal Processing
Comprehensive treatment of the theory, design, and implementation of digital signal processing structures. Sampling, quantization and reconstruction process. Design of digital filters in both time and frequency domains. Analysis of finite word length effects. Theory and applications of discrete Fourier transforms and the FFT algorithm. Applications from the communication, control, and radar signal processing areas. Spring term, alternate years.

ECSE-6630 Digital Image and Video Processing
Theory of multidimensional signal processing and its application to digital image and video processing. The first half will cover signals and systems, Fourier transform, z-transform, discrete Fourier transform, FIR and IIR filters and their design. The emphasis will be on the unexpected and important differences from the one-dimensional case. The second half consists of applications in image and video signal processing, e.g., compression coding, noise reduction, motion estimation, deblurring, and restoration. Prerequisites: ECSE-6510, ECSE-6620. Spring term, alternate years.

ECSE-6640 Digital Picture Processing

ECSE-6650 Computer Vision
Image formation and visual perception. Images, line structures and line drawings. Preprocessing, boundary detection, texture, and region growing. Image representation in terms of boundaries, regions, and shape. Three-dimensional structures and their projections. Analysis, manipulation, and classification of image data. Knowledge-based approaches to image understanding. Applications from fields of robot vision, biomedical-image analysis, and satellite and aerial image interpretation. Prerequisite: knowledge of a higher level language. Recommended prior exposure to probability, stochastic processes, and advanced calculus. Offered on sufficient demand.

ECSE-6660 Broadband Networks
An investigation of the ethical issues and principles in the design of high data rate, integrated services networks that must provide global access to a wide range of services such as video on demand, multimedia, and virtual reality. The Broadband Integrated Services Digital Networks (B-ISDN) reference model and Asynchronous Transfer Mode (ATM) are described in detail. Topics include high-
speed switching architectures, network management and control, and molding and analysis of high-speed networks. Prerequisite: ECSE-4500, ECSE-4670. Fall term, alternate years.

ECSE-6710 Fuzzy Sets and Expert Systems
Introduction to fuzzy set theory and fuzzy logics: basic concepts, fuzzy logics operations. Semantic manipulation applied to case studies in approximate reasoning linguistic, modeling, decision theory, and cluster analysis. Expert systems architecture and applications. Symbolic manipulation knowledge representation, control structure, and explanation capabilities. Analysis of expert systems such as MYCIN, PROSPECTOR, OPS5, DELTA. Prerequisite: expertise in a high-level programming language, some knowledge of probability. Offered on sufficient demand.

ECSE-6770 Software Engineering I
Engineering approach to the development of large programming projects. Successive steps of requirements analysis, specification, design (e.g., -down modularization), coding (e.g., structured programming), debugging, testing, maintenance, and thorough documentation, as illustrated by examples and papers from current literature. Team project is required. Prerequisites: CISH-4020. Fall and Spring terms, annually.

ECSE-6780 Software Engineering II
(Continuation of ECSE-6770)
Current techniques in software engineering with topics selected from portability, security, public key cryptosystems, legal protection of software, reliable software, management of large projects, charging for computing resources, and source-to-source transformations for optimization. Prerequisite: ECSE-6770. Spring term, annually.

ECSE-6960 Topics in Electrical Engineering

ECSE-6980 Master’s Project in Electrical Engineering
Details may be obtained from the Department of Engineering and Science. 3 to 6 credit hours

ECSE-6990 Master’s Thesis in Electrical Engineering
Details may be obtained from the Department of Engineering and Science. 6 credit hours

ECSE-7010 Optical Fiber Communications
Review of the state-of-the-art in optical fibers, light sources, and photodetectors. Topics include: propagation, coupling, dispersion, loss and cut off characteristics of guided wave models in optical fibers, structural and operating parameters of various types of hetrostructure lasers and light-emitting diodes and quantum efficiency, response time and noise characteristics of silicon PAD and PIN diodes. Digital and analog transmission over optical fibers. DWDM systems. Optical amplifiers. Optical networks. Fall term, alternate years.

ECSE-7100 Real-Time Programming and Applications
Hardware and software characteristics of real-time systems for analysis and control. Real-time programming techniques, standard interfaces and busses, sensors, data smoothing, digital filtering, and digital control. Prerequisite: CISH-4030 (or ECSE-4730) and CSCI-4210. Spring term, annually.

ECSE-7260 Computer Arithmetic and Computations
Processor architecture, data-operations unit design and hardware realization of arithmetic logical functions associated with modern digital computer systems. Machine arithmetic theories, algorithms and designs of high-speed/cost-effective fixed and floating point adder/subtracters, multipliers, and dividers. Binary and decimal computations. Microprogramming and writable-control-store applications. Prerequisite: ECSE-4730 or CISH-4010. Offered on sufficient demand.

ESCI Engineering Science

ESCI-696x Clean Technology Analysis
Emphasizes the development and application of engineering tools for the analysis of technological cleanliness. Offered on sufficient demand.

ESCI-696x Environmental Risk Assessment
Presents a comprehensive view of managing hazardous materials and wastes. It includes risk assessment and risk analysis from regulatory, technical and financial perspectives. Offered on sufficient demand.

ESCI-696x Design for Hazard Prevention and Control
Examines clean design principles and practices. The
goal is to develop skills in the development and application of analytical methods for environmentally conscious product and process design. Offered on sufficient demand.

**MANE Mechanical, Aeronautical, Nuclear, and Engineering Physics**

**MANE-4170 Machine Dynamics**
The principles of dynamics applied to the analysis of the accelerations and dynamic forces in machines and machine components such as linkages, cams, and gears. The effect these dynamic forces have on the dynamic balance and operation of the machines and the attending stresses in the individual components of the machines. Fall term, even years.

**MANE-4240 Introduction to Finite Elements**
Introductory course in the Finite Element Method (FEM) beginning with the “direct method” for discrete systems such as springs, trusses, elastic frames, and pipe networks. FEM is then applied to continua, considering one-dimensional problems in fluid mechanics, heat transfer, and elasticity using variational and weighted residual methods. Algorithms for the construction and solution of the governing equations. Prerequisite: MANE-4320. Fall, odd years.

**MANE-4300 Aeroelasticity**
General operator equations of aeroelasticity. Static aeroelastic phenomena. Presentation of transient motion and/or dynamic instability phenomena by developing a current topic in aeroelasticity. Prerequisite: MANE-4310. Fall term, odd years.

**MANE-4310 Theory of Structures**
Normal and shear stresses in beams of nonsymmetric solid and thin-walled cross section subjected to bending and torsion. The principle of virtual displacements and Castigliano’s theorems. Calculation of the stresses in statically determinate and indeterminate trusses, beams, frames, and rings. Structural stability. Summer, even years.

**MANE-4320 Elements of Elasticity**

**MANE-4420 Mechanisms**
The displacement, velocity, and acceleration analysis of planar mechanisms, four bar linkages, slider, cranks, cams, and gear systems. Some synthesis techniques. Explore the use of existing large and small computer graphics programs. Offered on sufficient demand.

**MANE-4610 Vibrations**

**MANE-4650 Fracture Mechanics**

**MANE-4710 Advanced Heat Transfer**
Comprehensive treatment of conduction, convection (including boiling and condensation), and radiation heat transfer. Thermal system design and performance (including heat exchangers). Emphasis is on physical and mathematical modeling of engineering systems for application of modern analytical and computational solution methods. Fall, odd years.

**MANE-4730 Theory of Propulsion**

**MANE-4800 Boundary Layers and Heat Transfer**
Navier-Stokes equations and boundary layer approximations. Exact solutions and integral methods for incompressible boundary layers. Transition; turbulence. Convective heat transfer in laminar and
turbulent flow. Special problems at high temperature. Fall, even years.

MANE-4961 Numerical Analysis for Engineering
Errors in computation, interpolation, numerical differentiation and integration, initial value problems for ordinary differential equations, algebraic systems of equations (direct and iterative methods; linear and non-linear systems), approximation theory, boundary value problems and solution of partial differential equations. Spring and Fall, even years; Summer, odd years.

MANE-5020 Combustion Engines
Analysis of the ideal and actual process involved in combustion engines. Optimization of particular cycles for criteria such as maximum performance and efficiency and minimum pollution. Sources of energy for combustion engines such as fuels, oxidants, and propellants. Fall, even years.

MANE-5040 Gas Turbine Performance Analysis
Thermodynamic cycle and force-momentum principles applied to power plant performance analysis; operating performance characteristics of gas turbine components are developed from engineering fundamentals; power plants analyzed as integrated systems in various applications; emphasis on jet propulsion. Spring, odd years.

MANE-5060 Introduction to Compressible Flow

MANE-5080 Turbomachinery
Representation of performance of turbomachines; mechanism of energy transfer; factors limiting design and performance including surge, choking, and cavitation; two- and three-dimensional flow phenomena; performance analysis including multistage effects and off-design performance. Spring, even years.

MANE-6180 Mechanics of Composite Materials
Mechanics of elastic heterogeneous solids and thermoplastic behavior. Mechanics of distributed damage. Mechanical behavior. Fall, odd years.

MANE-6200 Plates and Shells

MANE-6210 Structural Stability
Concepts of stability pertaining to structural and mechanical systems. Static and dynamic theories of stability. Configurations include bars, plates, and shells. Numerical solutions. Prerequisite: MANE-4320. Spring, odd years.

MANE-6250 Continuum Mechanics

MANE-6310 Nonlinear Vibrations
A fundamental course in nonlinear vibrations and stability. Basic concepts about linear and nonlinear systems, Routh-Hurwitz and Lyapunov’s stability criteria; systems with periodic coefficients and Floquet theory; effects of nonlinearities; limit cycles, jump, saturation, nonlinear resonances, modal energy exchange, etc. Perturbation methods: straightforward perturbations, Lindstedt-Poincare, harmonic balancing, multiple time scales; steady-state and transient responses of nonlinear-systems. Applications to discrete and structural systems. Use of symbolic manipulation to analyze problems. Spring, odd years.

MANE-6400 Analytical Dynamics
Advanced course in kinematics and dynamics of systems of particles and rigid bodies. General dynamic systems, general principles of dynamics, Hamilton’s equations of motion, transformation theory of dynamics. Spring, even years.

MANE-6410 Celestial Mechanics
Introduction to celestial mechanics, orbits and per-
turbations, exterior ballistics, powered flight trajectories, space flight trajectories. Summer, odd years.

**MANE-6420 Multibody Dynamics**
Analytical and numerical analysis of dynamic behavior of multibody mechanical systems. Emphasis on understanding all aspects of modeling and analysis process associated with real (spacecraft, automotive, biomechanical, etc.) systems. Review of traditional dynamic analysis methods (Newtonian-Euler, Lagrange, etc.), presentation of more efficient, powerful, recently developed methods (including Kane’s method). Comparison of the different formulations and their applicability to computer simulation. Treatment of constraints, extraction of data from equations of motion, and computational issues. Spring, odd years.

**MANE-6460 Mechanical Behavior of Materials II**
Time-dependent deformation and fracture behavior of materials. Formulation of constitutive equations from experimental information and theoretical principles. Application to creep of metals and concrete; cyclic plastic deformation. Fall, even years.

**MANE-6490 Plasticity**

**MANE-6510 Theory of Potential Flow**
Review of vector operations applied to fluid mechanics, integral theorems, equations of motion, momentum theorem, energy relations. Two-dimensional motion velocity and stream potentials. Complex variables with theorem applications, Cauchy’s theorem mapping, conformal representation. Streaming motions, circle theorem. Fall, odd years.

**MANE-6530 Turbulence**
Navier-Stokes and energy equations, exact solution, weighted residuals methods, linearized viscous flow, inner and outer solutions, boundary layer theory, existence and uniqueness, higher order approximations, transition, mathematical models of turbulent flow, applications. Prerequisite: MANE-4800 or equivalent. Fall, even years.

**MANE-6540 Advanced Thermodynamics**

**MANE-6550 Theory of Compressible Flow**
General equations of compressible flow. Specialization to inviscid flows in two space dimensions. Linearized solutions in subsonic and supersonic flow. Characteristic equations for supersonic flow with applications in external and internal flow. One dimensional non-steady compressible flow. Fall, odd years.

**MANE-6630 Conduction Heat Transfer**
Analytical, finite difference and finite element solutions of steady and transient heat conduction problems. Spring, even years.

**MANE-6640 Radiation Heat Transfer**
Introduction to radiation heat transfer in diathermanous media and participating media. Selected applications from spacecraft design, furnace design, meteorology, temperature measurement, environmental control. Summer, even years.

**MANE-6650 Convective Heat Transfer**
Fundamental study of convection heat transfer in laminar and turbulent, internal and external flows. Unsteady flows, combined heat and mass transfer, conjugated unsteady heat transfer and buoyancy induced convection. Selected applications from aeronautics and heat exchanger design. Prerequisite: MANE-4800 or equivalent. Spring, odd years.

**MANE-6660 Fundamentals of Finite Elements**
This graduate-level course covers the fundamental concepts and technologies underlying finite element methods for the numerical solution of continuum problems. The course emphasizes the construction of integral weak forms for elliptic partial differential equations and the construction of the elemental level matrices using multi-dimensional shape functions, element level mappings, and numerical integration. The basic convergence properties of the finite element method will be given. This course serves as preparation for students working on finite element methods. Fall, even years.
MANE-6670 Nonlinear Finite Element Methods
The formulations and solution strategies for finite element analysis of nonlinear problems are developed. Topics include the sources of nonlinear behavior (geometric, constitutive, boundary condition), derivation of the governing discrete equations for nonlinear systems such as large displacement, nonlinear elasticity, rate independent and dependent plasticity and other nonlinear constitutive laws, solution strategies for nonlinear problems (e.g., incrementation, iteration), and computational procedures for large systems of nonlinear algebraic equations. Prerequisite: MANE-6660. Offered on sufficient demand.

MANE-6680 Finite Element Programming
Examines the implementation of finite element methods. Consideration is first given to the techniques used in classic finite element programs. Attention then focuses on development of a general geometry-based code which effectively supports higher order adaptive technique. Technical areas covered include: effective construction of element matrices for p-version finite elements, ordering of unknowns, automatic mesh generation, adaptive techniques on parallel computers is also covered (Cross listed as CIVL-6680. Students cannot obtain credit for both this course and CIVL-6680). Prerequisite: MANE-6660 or CSCI-6860. Offered on sufficient demand.

MANE-6720 Computational Fluid Dynamics
Course focuses on computational approaches to solve the Navier-Stokes equations. Course assumes knowledge of numerical methods and therefore directly attacks the obstacles to applying these methods to the Navier-Stokes equations. Issues concerning implementation of finite difference methods (FDM), finite volume methods (FVM) and finite element methods (FEM) will be discussed. These issues include: the discrete formulation, non-linear equation iterator (steady)/marcher (time-accurate), linear equation formation, boundary condition prescription and linear equation solution. Prerequisite: MANE-6660 or equivalent. Spring, even years.

MANE-6730 Tribology
A basic course in tribology that covers both the fundamental and applied aspects of the subject. Content includes viscometry, the Reynolds equation, thrust and journal bearings (including design), thermal effects, dynamic loading and instability of bearings, rolling contact bearings, dry bearings, and theories of wear. This course includes design principles and data and is basic to other courses offered in tribology. Offered on sufficient demand.

MANE-6840 - An Introduction to Multiphase Flow and Heat Transfer I
This course is intended to give students a state-of-the-art understanding about single and multicomponent boiling and condensation heat transfer phenomena. Applications include the analysis of nuclear reactors, oil wells, and chemical process equipment. Students satisfactorily completing this course are expected to thoroughly understand the current thermal-hydraulics literature on multiphase heat and mass transfer and be able to conduct independent research in this field. Prerequisite: A working knowledge of fluid mechanics and heat transfer. Summer, odd years.

MANE-6890 Mechanical Diagnostics
A comprehensive introduction to mechanical fault detection, isolation, and severity assessment. Topics include mechanical fault signature generating mechanism, advanced mechanical signal processing including time domain processing, frequency domain processing and time-frequency distribution; system identification and model-based diagnostics; pattern classification techniques and diagnostic algorithms for mechanical components including rolling bearings, gears and cutting tools. Prerequisite: knowledge of Laplace Transforms. Offered on sufficient demand.

MANE-6960 Topics in Mechanical Engineering
MANE-696x Advanced Propulsion
Generalized theory of propulsion, with applications to aeronautical and astronautical propulsion. Special topics for discussion selected from air-breathing and rocket thrust generators, steadys. Nonsteady flow, and chemical, laser nuclear and solar energy sources. Summer, even years.

MANE-696x Advanced Topics in Finite Element Methods
Summer, odd years.
MANE-6980 Master's Project in Mechanical Engineering
Details may be obtained from the Department of Engineering and Science. 3 to 6 credit hours

MANE-6990 Master's Thesis in Mechanical Engineering
Details may be obtained from the Department of Engineering and Science. 6 credit hours

MANE-7010 Math of Engineering and Science

MANE-7020 Combustion and Reacting Flows
Fundamental study of reacting flows with emphasis on the mutual relationship of fluid mechanics, heat transfer, mass transfer, and chemistry in combustion problems. Detonation and deflagration, spontaneous ignition, flame extinction, laminar and turbulent diffusion flames, and droplet and particle combustion. Prerequisite: permission of instructor. Spring, odd years.

**MTLE Materials Science and Engineering**

MTLE-4260 High-Temperature Alloys
Basic characteristics of nickel, cobalt, and iron-base superalloys, and refractory metals such as columbium, tantalum, tungsten, and molybdenum for gas turbine, steam turbine, and space power applications. Characterization of systems, relationship of mechanical properties to microstructure, processing by casting and working, joining and heat treatment, oxidation and protection of alloys, applications and future trends, invited lectures. Spring term, annually.

MTLE-6960 Topics in Materials Engineering

MTLE-696x High-Temperature Coatings Engineering
Background and working knowledge about the oxidation and hot corrosion behavior of high-temperature materials (primarily nickel-cobalt-iron-based alloys and the protective coatings for application from about 1000°F to 2200°F. The course includes detailed discussion of types of coating, processing methods, characterization, properties, and evaluation techniques. Upon completion of this course a student will have a familiarity with and be able to make informed judgements on the selection of coatings for high-temperature service. Summer, annually.

MTLE-7020 Creep and Fatigue in Metals
Elements of high-temperature behavior of materials, description of test methods, and development of standard methods of data presentation. Parametric representation of creep rupture data. Effects of corrosion, microstructural stability, and grain boundaries on creep and fracture. Thermal, low-cycle and high-cycle fatigue at elevated temperatures. Compliments MTLE-4260 by using steels, titanium, nickel-base, cobalt-base, aluminum, and magnesium alloys to illustrate the metallurgical features of elevated temperature failure. Offered on sufficient demand.

MTLE-7040 Engineering Materials
Graduate level introduction to materials engineering. Includes discussions of metals, ceramics, plastics and composites. No prior materials background required. Offered on sufficient demand.

MTLE-7061 Casting and Joining Processes

MTLE-7100 Strengthening Mechanisms in Solids
Management and Technology

The course numbering system is alphanumeric beginning with a four-letter department name followed by a dash, a three-digit course number, and a zero. All courses are 3 credit hours unless otherwise indicated. Below is the four-letter subject code for Management and Technology.

**Acronym**
MGMT Management

**Suffix Numbers**
- 6000-6990 Courses designed for advanced graduate credit
- 7000-7990 Graduate-level courses offered in Hartford and Groton

**CAPSTONE Courses**
Asterisk (*) denotes courses that satisfy the CAPSTONE requirement for the M.S. in Management programs.

**Schedule of Course Offerings**
Course availability is presented at end of each course description and coded as follows: H-F/Sp/Su (Hartford-Fall/Spring/Summer). Groton course schedule is provided separately. Course availability may change. Check the Hartford and Groton course schedule at: www.rh.edu/publications/course_sched/current/ for the latest information.

Contact your faculty advisor for guidance in creating your Plan of Study. Plan of Study forms can be found at: www.rh.edu/registrar/.

MGMT-6100 Statistics for Managerial Decision Making
An introduction to deterministic and probabilistic methods for business applications and particularly quantitative approaches applied to managerial problem solving and decision-making. Topics include basic descriptive and inferential statistics, probability distributions, hypothesis testing, analysis of variance and regression analysis. Extensive use of computers allows students to explore the various quantitative techniques for analyzing, interpreting and communicating a wide range of business-related quantitative data and information. H-F/Sp/Su.

MGMT-6110 Quantitative Methods for Managerial Decision Making
Continues the study of collection, analysis, and use of information in a technologically advanced setting. This course shifts focus from statistical methods to other problem solving approaches including regression analysis, linear programming, network models, queuing systems, and simulation. The emphasis is on integration of analysis techniques to address the management issues at hand, with application drawn from production, finance, project management, and system design. Prerequisite: MGMT-6100. H-F/Sp/Su.

MGMT-6140 Information Systems for Management
Analyzes the use of information and communications technology to improve performance and to achieve organizational goals. Examines information systems in sales, marketing, finance, and operations. Provides a framework for understanding and evaluating IS contributions to product services and managerial effectiveness. Focuses upon implementation of information technology as a strategic weapon for productivity and competitive advantage. Lectures, case discussion, projects, and technical supplements. H-F/Sp.

MGMT-6170 Advanced Systems Analysis and Design
An advanced course in systems analysis and design that presents conceptual material about both traditional approaches to systems development such as process-oriented and data-oriented methodologies and evolving approaches such as object-oriented development methods. Key stages of the systems development life cycle including planning, analysis and design are the focus of this course. Models and procedures for understanding and modeling an organization’s existing and planned information systems are presented. Computer-Aided Software
Engineering tools are used to provide hands-on experience in designing information systems. A case-based approach is used to provide students an opportunity to apply the analytical and design techniques covered in the course. In addition, students are expected to do a real-life systems development project. The course also focuses on the issues and challenges in managing systems development. Prerequisite: MGMT-6140. H-F/Sp/Su.

MGMT-6180 Strategic Information Systems Management
Information technology (IT) is a strategic asset that is being used to mold competitive strategies and change organizational processes. As IT and its uses become more complex, developing strategies and systems to deliver the technology has become more difficult. The net result is a growing need for guidance on the issues, strategies, and tactics for managing the use of information technology. This course is designed to partially fulfill this need and to enable students to integrate concepts and theories learned in previous IT courses. Prerequisite: MGMT-6140 or permission of instructor. H-F/Sp/Su.

MGMT-6190 Financial and Managerial Accounting
The nature and role of finance; the financial system; accounting for financial activities; valuation concepts and the balance sheet; revenue recognition, cost determinants, and the income statement; financial planning and budgeting; the cash budget, statement of sources and uses of funds, and pro forma statements; capital budgeting under certainty, project evaluation, and selection; profit planning and break-even analysis; fund accounting for governmental and nonprofit organizations. Note: MGMT-6190 should be taken within a year of MGMT-6190. H-F/Sp/Su.

MGMT-6210 Manufacturing Accounting and Control Systems
Focuses upon the analysis, control, and prediction of manufacturing technology, process, and product costs. Topics include standard costing and variance analysis, joint manufacturing costs, quality costs, performance measures for JIT and CIM/FMS environments, divisional performance measures, and cost justification of new technologies. Prerequisite: MGMT-6190. H-Su.

MGMT-6290 Macroeconomics and International Environments of Business
This course identifies major forces acting on the enterprise from the macroeconomic and international environment. Key factors include national income and output, interest rates, economic growth and business cycles, international trade and balance of payment, exchange rates, monetary and fiscal policy. Factors are analyzed in terms of their impact on the economic and technological decisions of the enterprise. H-Su.

MGMT-6300 Business Economics
An introduction to the economic environment in which a manager operates. Elements of this environment include the concepts of marginality and the trade-offs among conflicting goals. Microeconomic dimensions include cost and production theory, demand theory, and market theory. The macroeconomic elements of importance include the relations among gross output, income, and employment, and the effect of governmental economic policy on the operations of the firm. Prerequisites: MGMT-6100 and MGMT-6110. H-F/Sp/Su.

MGMT-6310 Financial Management and Valuation of Firms
Develops a working understanding of the major investment and financial decisions of the firm with emphasis on the role of technological change in financial decision making. Topics include net present value and its application, capital budgeting, corporate financing decisions, venture capital financing, debt policy and the interaction of investment and financing decisions, portfolio theory and capital asset pricing, capital budgeting (uncertainty), options and their application to technological choice. Prerequisite: MGMT-6190. H-F/Sp/Su.

MGMT-6320 Investment Analysis I
Introduction to investment instruments and modern methods of pricing them. Basic components of viable investment programs are outlined. Topics include expected utility theory and risk aversion, modern portfolio theory, equilibrium in capital markets (CAPM, APT), index models, futures and options, theory of active portfolio management. Prerequisite: MGMT-6310. H-F/Sp/Su.
MGMT-6330 Investment Analysis II
Advanced study in investment analysis, decision making, and practice. Emphasis on bond market analysis and bond portfolio management, including asset-backed securities, high-yield bonds, venture capital, and derivative securities. Topics include bond pricing, the term structure and risk structure of interest rates, duration concepts and immunization strategies, analysis of embedded options in fixed income securities. Application of strategies to real data set. Prerequisite: MGMT-6320 or permission of instructor H-F/Sp/Su.

MGMT-6340 Financial Markets and Institutions
Focus on U.S. and international banking and financial markets, new instruments and techniques for financing, risk management and its application to financial institutions. Overview of U.S. financial system, including the Federal Reserve System, bank supervision, and monetary policy - and its counterparts in other countries. Emphasis on impact of technology on securities markets and banks. Discussion of current issues in securities markets and banking, such as securitization, financial derivatives, junk bonds, bank failures, mergers and acquisitions, and international banking. Prerequisite: MGMT-6310. H-F/Sp.

MGMT-6350 International Business
An integrated course on the international aspects of the modern corporation emphasizing the basic principles of international trade, investment decisions, and the operational management of an established multinational enterprise. The strategies necessary for competing in global markets. The course will provide students with an understanding of business decision making in a global environment. Prerequisites: MGMT-6310. H-F/Sp/Su.

MGMT-6360 International Finance I
The modern tools and techniques for measurement and management of foreign exchange risk and exposure, with emphasis on business applications (i.e., hedging rather than speculation). The international currency markets, including the the history of international financial systems (Bretton Woods, European Monetary Integration, dollarization, etc.). On the basis of the relevant theories and research in economics and finance, as well as the modern practice of corporations and banks, intuitive and mathematical approaches are developed to the analysis of traded and over-the-counter derivatives appropriate for corporate hedging, especially currency forwards, futures, options, and swaps. Prerequisites: MGMT-6310 H-F/Su.

MGMT-6380 Advanced Corporate Finance
The overall objective of this course is to study advanced corporate finance issues and test empirically the stock market reaction to financing decisions and the issuance of securities. Corporate finance topics include shareholder value and economic value added concepts, as well as corporate governance issues. Financing decisions include venture capital and initial public offerings, seasoned equity offerings, stock splits, corporate bonds and bank loans, stock listings on foreign exchanges. Other topics are mergers and acquisitions, pension fund management, financial analysis and planning. Real stock prices and case studies are used to apply the theoretical concepts. Prerequisite: MGMT-6310. H-F/Sp.

MGMT-6450 Manufacturing Systems Management
An overview of how product and service requirements are translated into manufacturing facilities, procedures, and organizations. The control systems considered include demand forecasting, inventory planning, production scheduling, quality control, MRP, and project control. In addition, a management perspective is used to examine decisions having a long-term manufacturing impact: capacity planning, location, and distribution, manufacturing processes, factory layout and factory focus. The course concludes with an introduction to manufacturing policy. H-F/Sp/Su.

MGMT-6470 Management of Quality, Processes, and Reliability
Definitions; corporate, economic, and government environments; international considerations; business processes and physical processes in manufacturing and services; control and enhancement of processes; organizing for and effecting change; experimental design for design and change; information systems; Deming approach; product and processes development; capital investment; empow-
MGMT-6480 Service Operations Management
Discusses the role of services in an economy, managing services for competitive advantage, structuring the service enterprise, managing service operations, service productivity, quality, and growth. Prerequisite: permission of instructor. H-Sp.

MGMT-6490 Competitive Advantage and Operations Strategy*
Includes topics such as manufacturing as a competitive weapon; management of quality; manufacturing technology implementation; strategic impact of advanced manufacturing technologies; and manufacturing’s role in new product development. Prerequisite: MGMT-6450 or permission of instructor. H-Sp.

MGMT-6540 Marketing Communication and Promotion Strategy
Advanced study of the promotion management process including market situation analysis, media selection, spending plans, copy strategy, and advertising research methods. The focus is on integrating promotion strategies with buyer needs, product conceptualization, distribution strategies, and new communication technologies. Prerequisite: MGMT-7100 or permission of instructor. H-F/Sp.

MGMT-6550 Marketing Research
Marketing strategy decisions are developed in the framework of many case studies. Marketing research techniques, including questionnaire development and data analysis, are introduced and utilized in a team project. Prerequisites: MGMT-6100 and MGMT-7100. H-Sp.

MGMT-6560 Managing New Product Development
Focuses on the basics of new product development. Using multimedia and interactive learning materials and simulations, students get an understanding of the importance of the integration of design, manufacturing, and marketing. H-F/Sp/Su.

MGMT-6600 Research and Development Management
The course deals with the responsibilities of, and operating problems faced by managers of research and development. The following areas are included: technology forecasting, technology planning, selection and evaluation of R&D projects, resource allocation, planning and control, measuring results of R&D. Particular attention is given to creative problem solving, motivating and managing creative individuals, barriers to innovation, and organization alternatives for R&D, including matrix and project organizations. Prerequisite: MGMT-6190. H-Sp.

MGMT-6610 Global Strategic Management of Technological Innovation
Helps develop an understanding of and the method for managing technology as a strategic resource of the firm. In doing so, an understanding of the process, roles, and rewards of technological innovation are developed. Integrating the strategic relationship of technology with strategic planning, marketing, finance, engineering, and manufacturing are covered. Governmental, societal, and international issues are briefly covered. The course uses a variety of cases, readings, reports, and lectures. H-F/Sp/Su.

MGMT-6620 Principles of Technological Entrepreneurship
An introductory graduate course in initiating new technology-based business ventures and developing them into self-sustaining and profitable enterprises. Examines the process whereby a person decides to become an entrepreneur, screens opportunities, selects an appropriate product/market target, and obtains the necessary resources. Provides the theoretical and practical knowledge for the preparation of formal business plans. Prerequisite: MGMT-6310. H-F.

MGMT-6630 Starting Up A New Venture
An understanding of the critical issues related to starting up a new business is gained through team-based experiential learning. Small teams of students develop a comprehensive business plan that can be used to raise money for a new or relatively new venture. The experiential learning process is enhanced through team meetings with faculty and/or course advisors, and through oral presentations to the entire class. Prerequisite: MGMT-6620. H-Sp.

MGMT-6650 Technology and Competitive Advantage
A capstone sequence in policy and strategy aimed...
at developing students’ understanding of the relationship between business strategy and technology. The process of converting technological opportunity into competitive advantage is viewed from the perspective of both large, established companies and new ventures. Prerequisite: course is taken towards the end of the M.B.A. program. FOR M.B.A. STUDENTS ONLY. H-F/Sp/Su.

MGMT-6660 Strategy, Technology, and Entrepreneurship
Part two of the two-course sequence that begins with MGMT-6650. This course is about strategy implementation and fundamental concepts in implementing strategy both at the corporate level and the business unit level. Prerequisite: MGMT-6650. FOR M.B.A. STUDENTS ONLY. H-F/Sp/Su.

MGMT-6680 Strategy, Technology, and Global Competitive Advantage*
This course emphasizes the linkage between technology, strategy, and achieving global competitive advantage. Develops the concept and practical tools of strategy, strategic planning, and implementation of both at the business unit and corporate levels. The strategies of technology-intensive international companies are compared. FOR M.S. STUDENTS ONLY. H-F/Sp.

MGMT-6710 Designing, Developing, and Staffing High-Performance Organizations
Course is concerned with different ways organizations change and learn, in response to and utilizing technology. Taking a systems approach, implications on the organization and on people are considered with topics such as team building, motivation, communication, decision making, organizational design, staffing and selection, compensation, reward systems, evaluation, labor relations, and job design. The interface of initiatives such as business process redesign, continuous improvement, and information systems with people systems are themes of the course. H-F/Sp/Su.

MGMT-6720 Designing, Developing, and Staffing High-Performance Organizations II
A continuation of the sequence that begins with MGMT-6710. Prerequisite: MGMT-6710. Offered on sufficient demand.

MGMT-6730 Technological Change and International Competitiveness*
Analysis of the differences among technical systems and interactions with industrial growth is undertaken with regard to nation states, industrial sectors, and companies. To develop tools of analysis regarding technological change, industrial policy, and corporate performance. The impact of technological change on industrial growth and competitiveness is viewed from three perspectives: the general manager, the technical professional, and the public official. Prerequisite: MGMT-6350. H-F/Sp.

MGMT-6740 Technology and Organization
This course explores our current understanding of the relationship between technological and organizational change. It draws on current research in management, engineering, science, and the humanities and social sciences to examine the diverse ways in which technology affects the character of organizational life and structure. H-Sp.

MGMT-6750 Legal Aspects of E-Business and Information Technology
Legal, regulatory, and public issues related to E-Commerce/E-Business, the Internet, and Information Technology are explored through an analytic, critical thinking approach. Topics include: e-contracts, digital signatures, B2B and B2C agreements; ownership, protection, and exploitation of intellectual capital including patents, trademarks, copyrights, and trade secrets; regulatory issues; ISP and web site liability including defamation; copyright infringement, securities regulation, and criminal acts; policy issues including privacy, security and encryption, and obscene materials. Global E-Commerce will be explored. H-F/Sp.

MGMT-6800 Ethical, Political, and Legal Context of Business
with the various constituencies of the business firm. H-F/S.

MGMT-6810 Management of Technical Projects
Enables the technically oriented manager to select projects of value to the organization, develop a project plan including staffing, perform a risk analysis on the project, and successfully execute the project. Students, working alone or in teams, practice the project management process by planning a current project in the area of new product development, process reengineering, information systems or any other project with business implementation. H-F/Sp/Su.

MGMT-6820 Communications in Organizations
Covers the skills and techniques in effective communications in organizations, including defining the problem and purpose of the communications, the audience, and the intended result. Introductory communications theory is covered; the focus is primarily on written communications, but limited coverage is given to oral techniques, visual representations, and the like. Students prepare and are critiqued on various forms of communications in organizations. H-F/Sp.

MGMT-6940 Independent Study
1 to 6 credit hours. H-F/Sp/Su.

MGMT-6960 Topics in Management
3 credit hours

MGMT-7xxx Seminar in Management
Advanced study of selected topics in a particular field. May be taken more than once if subjects are sufficiently different. May be designed as fulfilling the CAPSTONE requirement. Always has one or more prerequisites.

MGMT-7100 Marketing and Product Management
Examines tasks required to manage products and services in U.S. and global marketplaces to maximize revenue and profits. These include customer acquisition and retention, pricing, product redesign or repositioning, communications management, analysis and prediction of competitor responses, and distribution logistics. Each class session provides students with one or more applications of quantitative methods and/or information technologies to marketing. H-F/Sp/Su.

MGMT-7110 Buyer Behavior
Focuses on current models of buyer behavior, identifying key variables influencing consumer and organizational buyer decision-making processes. Analysis of persuasion techniques, adoption process, purchasing, buyer satisfaction, reinforcement techniques, effective promotion and advertising programs to maximize appropriate buying behavior. Applications to industrial products, consumer goods, insurance and financial services marketing situation. Prerequisite: MGMT-7100 or permission of instructor. H-Sp.

MGMT-7120 International Marketing
Advanced study of the world marketing environment, cultural dynamics, business customs and practice in world markets; marketing analysis including researching international markets, multinational markets, strategic implications and competition. Case study analysis and current international issues. Prerequisites: MGMT-6350 and MGMT-7100. H-Sp.

MGMT-7130 Marketing of Services
Examines the special problems of managing the product offering and other elements of the marketing program of for-profit and not-for-profit service organizations; such as, financial services, hospitality and travel, education, entertainment and the arts, personal services, professional services and healthcare. The course will also examine the growing importance of the service component of physical goods offerings. Prerequisites: MGMT-7100. H-F.

MGMT-7140 Marketing Strategy*
Examines the process of marketing strategy formulation for new and existing products and markets. Topics include: marketing methods of conserving and building business value; selecting and articulating the marketing vision and values, and anticipating and responding to competitors’ marketing strategies. The course includes a project and may be used to satisfy the Practicum requirement. Prerequisites: MGMT-7100 plus one other marketing elective or permission of instructor. H-F/Sp.
MGMT-7210 Acquisition and Venture Analysis*
Recent years have seen an accelerated commitment to growth and asset reallocation through acquisitions and corporate restructurings. Indeed the accounting profession is taking a fresh look at how these deals are accounted for in the firms’ financial statements. The rate of deals is exponential and covers the full spectrum from established industries to high technology, computer, biotechnology, and internet firms. Topics covered in this course are reasons for acquisitions, valuing, and structuring a transaction. Determining the currency to be used, achieving strategic and organizational alignment, takeover defenses, and post-deal integration. Students study a recent transaction of their own choosing and prepare an oral and written report focusing on those aspects that made the deal successful. Prerequisite: MGMT-6310 or permission of instructor. H-Sp.

MGMT-7400 Business Data Communications
An introduction of network fundamentals and the leading-edge technologies essential to information communications in the business environment. Topics include: voice, data, image and video communications, traditional client/server LAN networks, high-speed LANs and WANs, TCP/IP protocol suite and distributed applications, WWW and Intranet computing, network management and security. Prerequisites: College algebra/calculus and MGMT-6140. H-F/Sp.

MGMT-7410 Database For Managers
Provides students with an introduction to database systems, focusing on data access and operational issues. Upon successful completion of this course, students will understand the general operation of a DBMS and how it might serve workgroups and the enterprise as a whole. Although emphasis is placed on relational systems, other technologies will be discussed to provide a greater appreciation of database systems. Through lectures, workshops, and projects, students will become acquainted with topics such as database analysis and design, data retrieval from a relational database through SL, backup and recovery procedures, client/server and middleware—accessing a database from a client system, and future directions of database systems. H-F/Sp.

MGMT-7500 Managing Supply Networks
An overview of the key concepts related to the flow of information, goods, and services, from product or service design, through production to end-use customer. Focuses on the planning, data, analysis, evaluation, and decision-making processes used to manage supply networks in order to gain competitive advantage and improve customer satisfaction. Compares and contrasts supply strategies and methods based on batch-and-queue and Lean principles and practices. Emphasis is on business-to-business relationships, the application of practices that eliminate waste, and inter-organizational capability building. Prerequisites: MGMT-6190 and MGMT-6710. Recommend MGMT-6450. H-F/Sp.

MGMT-7520 Management of Electronic Commerce
Focuses on the business-to-business electronic commerce segment by taking the student through select texts, readings, and real-world case studies. The primary objective is to examine how the rapidly evolving electronic business medium is used as a strategic weapon to develop a deeply integrated supply chain management system. Explores the decision-making challenges posed to and implications for business managers implementing an electronic commerce business model/process. Examines the effects of electronic commerce on conventional management and control functions including transaction payment and security, manufacturing and distribution, human resources, finance, law, sales and marketing ethics, supplier/customer service, and corporate governance. H-F/Sp.

MGMT-7540 Leadership and Organizational Improvement
(formerly Transformational Leadership)*
An advanced course in leadership that closely examines the relationship between operating practices and behaviors. Comparisons are made between leadership behaviors, business metrics, and decisions that are results-focused versus those that are processes-focused and designed to eliminate waste. The impact of the different types of waste on leadership effectiveness, credibility, organizational capability building, stakeholder buy-in, and financial results are critically examined. The framework for this course is the application of Lean principles and practices to a

MGMT-7700 International Negotiations
Examines international negotiation techniques, practice, and styles. Students are given an in-depth profile questionnaire to assess individual strengths and weaknesses in international negotiations. Profiles of international negotiators are examined. Negotiation sessions and group presentations are videotaped and analyzed. Prerequisite: MGMT-6350. H-F/Sp/Su.

MGMT-7710 Cultural Environment of International Business
The emerging role of the multinational manager, cultural impact of international management, managing culture shock, organizational responsibilities and cultural differences. Foreign deployment, cultural specifics for managerial effectiveness, cultural themes and patterns, American macro- and microcultures, working in the global market environment. Prerequisite: MGMT-6350. H-F/Sp.

MGMT-7720 International Finance II*
Theory and practice, with emphasis on practice, of several aspects of international finance transactions: foreign direct (equity) investment strategy, international borrowing and bond issues, international banking and financial intermediation, the regulation of international banks, international bank strategy and credit decisions and swaps. Seminar, including case analysis and term paper. Prerequisite: MGMT-6360 (which may be taken concurrently) or the permission of the instructor. H-Sp.

MGMT-7980 CAPSTONE Project Course (formerly called “CULEX”)
Independent research project. Student must meet with a full-time faculty member to determine the independent study topic. The independent research should result in a high-quality research paper that is suitable for publication in a journal. Such efforts are to be separate and independent of course work used to satisfy other M.S. program requirements. For more information on how to complete MGMT-7980, visit: www.rh.edu/publications/catalog/0203/capstone.html. H-F/Sp/Su.
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Professional Development Programs

Director: Alan C. Eckbreth, Vice President and Dean, Rensselaer at Hartford

Professional Development Programs (PDP) are all of the noncredit, educational, and training offerings of Rensselaer. The programs are designed to address the challenges an individual faces in the workplace or in organizational advancement. Programs are offered in the areas of Computer and Information Technology, Technical and Professional Development, and Leadership and Executive Development.

Program Areas

Computer and Information Technology
PDP’s computer information technology programs focus on a broad range of IT subjects and development areas. The educational experience involves skill-oriented development with the support of state-of-the-art computer labs for interactive learning. Workshops and programs are available in the following areas:

- Internet
- E-Commerce
- Object-Oriented Concepts
- Programming Languages - C, C++, JAVA, Visual Basic
- UNIX, Shell, Perl
- Help Desk Management and Training

Technical and Professional Development
PDP offers many workshops that generally range from one to three days in length. The workshops cover various subjects in management and technology.

- Understanding Corporate Finance
- APICS
- Business Communications
- Leading and Managing Successful Teams
- Collaborative Requirements Gathering for Technical Professionals
- Internal Consulting Skills for Technical Professionals
- Client Relationship Management

Leadership and Executive Development

Center for Creative Leadership Programs
PDP is a licensed Network Associate of the nationally recognized Center for Creative Leadership (CCL). Through the license arrangement, PDP offers two separate CCL Leadership Programs designed to assess the leadership qualities of emerging leaders, managers, and senior-level managers. Both programs are designed to give participants the opportunity to step back and assess where they are now and where they want to be.
Corporate Training Solutions
At Rensselaer, lifelong learning is our passion and we are committed to serving your educational needs throughout your entire career. PDP supports its commitment with the following services:

- A regular schedule of programs open to all working professionals
- Private contract programs custom designed to meet the unique needs of a particular organization
- Executive coaching for one-on-one development
- Educational consulting to help organizations understand their training needs
- Flexible delivery options, including the ability to offer programs to a remote location, or multiple locations simultaneously, using video-conferencing
- Expanded offerings of “signature” programs based on Rensselaer’s unique academic and research strengths and taught by Rensselaer faculty

Connecticut Quality Council
Executive Director: Lynn LaChance
Home Page: www.ctqualitycouncil.org

The Connecticut Quality Council (CQC) is a private, nonprofit coalition of business, government, education, and labor that promotes the philosophy and principles of Total Quality and Continuous Improvement as a sound business operating strategy for all organizations. In the Fall of 1990, Rensselaer at Hartford, as the only representative from the educational community, joined with twenty-seven business leaders in the founding of CQC.

CQC’s membership and diversity (in both size and industry) increase daily thereby enhancing the opportunities to benefit from the “stars and scars” of peers and competitors alike. Membership is organizational rather than individual in recognition of the need to involve the entire organization—people, culture, change—in the effort to focus on continuous improvement in services, processes and/or products that satisfy customer needs.

CQC has become a respected and valued resource for high-caliber, low-cost Total Quality education and training (both experiential and traditional) as well as for professional networking and information sharing with fellow practitioners.

Rensselaer and CQC believe that their mission, vision, and goals are complementary. Together they strive to work for a fully developed coalition of business, government, labor, education, and community. For further information, please call Lynn LaChance at (860) 548-7861 or e-mail: cqc-info@rh.edu.
Faculty

Department of Engineering and Science

Computer Science - Full-time Faculty
Brown, Roger H. Clinical Assistant Professor; M.S.E.E. (University of Illinois)
DeNoia, Lynn A. Clinical Professor; Ph.D. (Brown University)
Ellis, Heidi J. C. Clinical Associate Professor; Ph.D. (University of Connecticut)
Hartley, Timothy J. Clinical Associate Professor; M.S. (University of Connecticut)
Martyn, Timothy O. Clinical Associate Professor; Ed.D. (University of Massachusetts)
McKim, James C., Jr. Chair (Interim) and Clinical Professor; Ph.D. (University of Iowa)
Smith, Susan M.E. Clinical Assistant Professor; Ph.D. (Rensselaer Polytechnic Institute)
Younessi, Houman Clinical Professor; Ph.D. (Swinburne University of Technology, Australia)

Computer Science - Adjunct Faculty
Blough, R. Thomas Adjunct Lecturer; M.S. (Rensselaer Polytechnic Institute)
Clarke, David L. Adjunct Associate Professor; M.S. (Rensselaer Polytechnic Institute)
Exley, Gerard Adjunct Assistant Professor; Ph.D. (University of Connecticut)
Kline, Gary L. Adjunct Lecturer; M.S. (Rensselaer Polytechnic Institute)
Kousen, Kenneth A. Adjunct Assistant Professor; Ph.D. (Princeton University)
LaBarre, Robert E. Adjunct Assistant Professor; Ph.D. (University of Connecticut)
Languedoc, Robert M. Adjunct Lecturer; M.S. (Rensselaer Polytechnic Institute)
McCabe, Patricia A. Adjunct Lecturer; M.S. (Rensselaer Polytechnic Institute)
McCarthy, Charles F. Adjunct Lecturer; M.S. (Rensselaer Polytechnic Institute)
Myers, Mark R. Adjunct Assistant Professor; Ph.D. (Cornell University)
Oakes, George Adjunct Lecturer; M.S. (Rensselaer Polytechnic Institute)
Sharlow, John Adjunct Assistant Professor; Ed.D. (SUNY, Albany)
Skrabacz, Steven D. Adjunct Assistant Professor; M.S. (Rensselaer Polytechnic Institute)
Weatherby, Gerard Adjunct Lecturer; M.S. (Rensselaer Polytechnic Institute)

Engineering - Full-time Faculty
Brown, Roger H. Clinical Assistant Professor; M.S.E.E. (University of Illinois)
Gutierrez-Miravete, Ernesto Associate Chair (Interim) and Clinical Associate Professor; Ph.D. (Massachusetts Institute of Technology)
Hodges, James L. Clinical Professor of Engineering; Ph.D. (Stevens Institute of Technology)
Mesinya, Mohammed F. Clinical Associate Professor; Ph.D. (Queen's University, Canada)

Engineering - Adjunct Faculty
Annigeri, Balkrishna S. Adjunct Associate Professor; Sc.D. (Massachusetts Institute of Technology)
Bose, Sudha Adjunct Assistant Professor; Ph.D. (University of California at Berkeley)
Boucher, Kenneth Adjunct Lecturer; M.S. (Rensselaer Polytechnic Institute)
Brown, Kenneth W. Adjunct Associate Professor; Ph.D. (Rensselaer Polytechnic Institute)
Bui, Chinh T. Adjunct Lecturer; M.S.E.E. (Rensselaer Polytechnic Institute)
Cassenti, Brice N. Adjunct Associate Professor; Ph.D. (Polytechnic Institute of Brooklyn)
Dennis, Anthony J. Adjunct Professor; Ph.D. (University of Connecticut)
Donachie, Matthew J., Jr. Adjunct Professor; Sc.D. (Massachusetts Institute of Technology)

LaBarre, Robert E. Adjunct Assistant Professor; Ph.D. (University of Connecticut)

Lemnios, Andrew Z. Adjunct Professor; Ph.D. (University of Connecticut)

Lewis, John H., III Adjunct Associate Professor; M.S.M.E. (Rensselaer Polytechnic Institute)

Marcin, John J. Adjunct Lecturer; M.S. (Rensselaer Polytechnic Institute)

Quinn, Joseph W. Adjunct Lecturer; M.S. (Trinity College)

Rajagopalan, Ramesh Adjunct Associate Professor; Ph.D. (Concordia University of Canada)

Tew, David E. Adjunct Assistant Professor; Ph.D. (Massachusetts Institute of Technology)

Wagner, Timothy C. Adjunct Associate Professor; Ph.D. (Virginia Polytechnic Institute and State University)

Lally School of Management and Technology

Full-Time Faculty

Albright, Robert Clinical Associate Professor; Ph.D. (University of Pittsburgh)

Arnheiter, Edward D. Clinical Assistant Professor; Ph.D. (University of Massachusetts)

Bragaw, Louis K., Jr. Clinical Professor; D.B.A. (George Washington University)

Chase, Robin Clinical Assistant Professor; Ph.D. (University of Southern California)

Emiliani, Mario L. Clinical Professor; Ph.D. (Brown University)

Fransson, Martha C. Clinical Associate Professor; M.B.A. (Dartmouth College)

Gingerella, Louis W., Jr. Clinical Associate Professor; M.B.A. (Rensselaer Polytechnic Institute)

Ilovici, Irina Clinical Assistant Professor; Ph.D. (University of Connecticut)

Jenkins, Frank C. Clinical Associate Professor; M.B.A. (University of Pennsylvania)

Kelly, Leonard J. Clinical Professor; Ph.D. (University of Connecticut)

Klein, Hans E. Clinical Associate Professor; D.B.A. (University of Kentucky)

LaPlaca, Peter J. Clinical Professor; Ph.D., (Rensselaer Polytechnic Institute)

Luddy, William J., Jr. Clinical Professor; J.D. (University of Connecticut)

Maleyeff, John Clinical Associate Professor; Ph.D. (University of Massachusetts)

Petersos, Randall G. Clinical Assistant Professor; J.D. (Western New England College School of Law)

Rainey, David L. Chair, Clinical Associate Professor; Ph.D. (Rensselaer Polytechnic Institute)

Siroth, Peter W. Clinical Professor; S.J.D. (University of Michigan)

Slangen, Guido H. Associate Chair, Clinical Professor; Ed.D. (University of Massachusetts)

Stodder, James P. Clinical Associate Professor; Ph.D. (Yale University)

Adjunct Faculty

Escalera, Miguel A., Jr. Adjunct Assistant Professor; LL.M. (Judge Advocate General’s School)

Hurley, Michael W. Adjunct Professor; Ph.D. (Rensselaer Polytechnic Institute)

Johnson, Wesley H. Adjunct Assistant Professor; M.B.A. (University of Connecticut)

Marconi, Robert L. Adjunct Assistant Professor; J.D. (University of Connecticut)

Osterndorf, Warren H. Adjunct Assistant Professor; M.S. (University of Connecticut)
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