

International Technological University

Course Catalog

2010 - 2011

This publication is an announcement of the current programs and course offerings of International Technological University. It is intended for information purposes only and is subject to change without notice. Courses, faculty assignment, prerequisites, graduation or completion requirements, standards, tuition and fees, and programs may be changed from time to time. Courses are not necessarily offered each term or each year.

International Technological University retains the exclusive right to judge academic proficiency and may decline to award any degree, certificate, or other evidence of successful completion of a program, curriculum, or course of instruction based thereupon. While some academic programs described herein are designed for the purposes of qualifying students for registration or certification, successful completion of any such program in no way assures registration or certification by any agency.

State of California Department of Consumer Affairs Private Post Secondary and Vocational Educational Information approved International Technological University to offer the programs listed in the catalog in accordance with the provisions of California Education Code(s) 94900 and 94915. ITU obtained its re-approval by the State of California Department of Consumer Affairs on January 1st, 2006, effective to December 31 2009.

International Technological University has applied for Eligibility from the Senior College Commission of the Western Association of Schools and Colleges. WASC has reviewed the application and determined that International Technological University is eligible to proceed with an application for Candidacy for Accreditation. A determination of Eligibility is not a formal status with the Accrediting Commission, nor does it assure eventual accreditation; it is a preliminary finding that the institution can be potentially accredited and can precede within three years of its Eligibility determination to be reviewed for Candidacy status with the Accrediting Commission. Questions about Eligibility may be directed to the institution or to WASC at wascsr@wascsenior.org or 510.748.9001.

**International Technological University
Catalog
2010-2011**

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A Message from the President

Today, interdependency among nations is a working reality. Global developments in communications and technology mark the dynamic, changing nature of socioeconomic and political relations among nations. International cooperation is now a prerequisite of any large-scale business operation, and absolutely necessary to maintain competitiveness and survivability. Individuals educated to think and work with an international consciousness are best equipped to lead in our new global neighborhood.

We should have a greater understanding of this new global network. It is in the spirit of global vision combined with the recognition that modern technology is the bonding power among nations. Hence, I present to you a model for the future of international education. Combining this cooperative vision with the latest research in science, technology and management, **International Technological University** (ITU) will continue to make major contributions to the fields of development, environmental protection and international cooperation.

The location of ITU is unique. The state of California combines the richest resources with the most congenial conditions available in the United States. Silicon Valley is the capital of the world's hi-tech industry. Stretching along the south shores of the San Francisco Bay, it is blessed with a superb climate, major universities, and a rich cultural and historical heritage. It is a hub of the

American West, an international trade center, and a gateway to the Pacific and the world.

The United States created and is the present leader in the high-technology revolution. However, there is no guarantee that the U.S. will maintain dominance in this field. In recent years, Asia and particularly China has emerged as a major contributor in the modern world of high technology. If the U.S. is determined to maintain its present position, it must take the lead in harnessing the technological developments overseas as well as create a new hi-tech culture that fosters the exchange of technological development for the benefit of all citizens of our world. With this understanding, China will be a major partner and beneficiary of ITU's research, development, and production. Furthermore, in their efforts to market technology, Asian countries will find in ITU a vital resource for their continued development and modernization.

We are now in the new millennium with the challenge of solving contemporary problems while achieving the unfinished agenda of the future. Modern society must engage in a constant search for the good in its quest for the better. International Technological University is dedicated to excellence in global education and leadership for the twenty-first century.

Professor Shu-Park Chan, Ph.D.
Founder and President

Philosophy & Vision

ITU Global Vision

International Technological University is a materialization of the educational ideals of the 21st century. ITU embraces the belief that technological advances in communication, transportation, and trade have made cross-cultural interaction and cooperation inevitable and desirable. The University plays a special international role by attracting international talent (students, professors, industry innovators and entrepreneurs), identifying their particular cultural strengths and needs, and matching those elements together into optimally functional teams to push forward technological advancement on a global basis.

Silicon Valley Leader

Silicon Valley has changed the face of the world with technological innovation married with startup funding. We are the world's capital for microelectronics, software development, internet & computing industries, biotechnology as well as the financing of these entrepreneurial ventures. Now with the exploding growth of the \$20 billion world-wide game development industry and the establishment of Lucas Films in San Francisco, Hollywood-styled media entertainment and game creation are powerful forces injected into Silicon Valley's landscape. ITU's founders, executive team and faculty are the pioneers and top innovators in all of these fields. These technology, business, media and venture capital leaders have gathered together with a shared vision for globalization and created ITU, a model of educational excellence that defines the hi-tech, media and business future for the Silicon Valley and the rest of the world.

Innovative Education

ITU recognizes that the engineering profession has outgrown the existing model of academic education. The present academic model is based on the classical science curriculum. This model sets a solid foundation of theoretical knowledge, but it is slow to innovate and lacking in practical application. Classical academic curriculum requires only a limited exposure to laboratory work. However, like biotech research, medicine and law, engineering is a profession requiring a significant level of hands-on experience for competence. In the industry, engineers are very often confronted

with problems characterized by a lack of complete information, as opposed to the neatly defined textbook problems taught in schools.

Application Oriented Training

There is a “relevance gap” between the theory taught in present day engineering education and the practical realities of industry. As a result, the tremendous resources typically found in educational institutions – intellectual excellence, a virtual “think-tank” research environment, an abundance of low-cost and highly innovative talent, a captive “test-bed” population of students – is wasted. Thus, a new model for engineering and business education is required, where a marriage between theory and practice is achieved. ITU has introduced this model based on a flexible, cross-disciplinary curriculum designed to meet the needs of top-caliber engineering, business and digital arts students interested in the hi-tech entrepreneurial environment.

Consilience: The Convergence of Disciplines

The Silicon Valley has observed the merger of expertise across engineering fields and seemingly unrelated industries. No hardware chip is created today without absolute dependence on CAD software programs. The best hardware development companies are thus housed with electrical engineers who possess a deep understanding of the nature of software design. Similarly, biotech and pharmaceutical companies now invent drugs and new molecules using computer-based bioinformatics programs that efficiently replace the test-tube process of laboratory experimentation. Life science students interested in a career in biology are therefore best served with at least a minimal dose of software engineering theory and application. The film entertainment field, well-known for flashy special effects, has pushed the envelope of computer simulation technology, crossing over to pioneer real-time, non-intrusive 3D heart modeling for cardiac hospital patients. Heart attacks are now prevented and lives saved by discoveries made by Hollywood special effects engineers and artists. These dramatic developments reflect the consilience of knowledge across disciplines in the new world in which we now live.

Cross Disciplinary Curriculum

ITU’s founders pioneer these changes, both in academic research and in the hi-tech startup creation of the Silicon Valley. ITU’s curriculum therefore actively promotes cross-disciplinary

study for all students. Business students are encouraged to take computer engineering courses (like IT Security), furnishing the knowledge base every corporate business must have to “secure” their bottom line. Electrical Engineering students are encouraged to take performance art courses (like acting) to raise their communication skills. These “soft skills” are absolutely essential to their future success in breaking into management positions from their technical engineering roots. In Silicon Valley, the failure of most startup hi-tech companies is due to a lack of effective marketing expertise, despite advanced proprietary technology. At ITU, our hi-tech entrepreneurial MBA program offers a focus in multimedia marketing, which includes optional production classes in animation, digital film and e-commerce production. By combining the best of modern application technology and the newest thinking in consilience science, the structure of ITU’s curriculum facilitates cross-fertilization between engineering, business marketing, media production and individual performance excellence.

Silicon Valley Based China Focus

The Silicon Valley sits on the Pacific Rim and has long served as America’s window to China and other Asian countries. Many of the founding members of ITU are hi-tech entrepreneurs with Chinese origins who continue to influence and do business in Asia. ITU thus has a natural connection and strong desire to bring the most advanced technology and the American educational model to benefit China’s emerging culture and economy. Within the next few years, ITU will expand its program offerings in China and contribute to the quickly changing educational infrastructure there, reflecting the best of both the Chinese and American traditions. With this open invitation, we invite you to join ITU in this noble and exciting mission.

ITU Nondiscrimination Policy

ITU is a non-profit organization incorporated in the State of California under International Technological University Foundation. It is treated as a publicly supported organization and is governed by its Board of Trustees. ITU does not discriminate on the basis of race, color, national and/or ethnic origin, sex, marital status, sexual orientation, handicap/disability, religion, veteran’s status, or age in the administration of any of its educational policies, admission policies and programs, as well as employment-related policies and activities.

Statement of Mission, Purpose, and Outcomes

Mission

The *mission* of International Technological University (ITU) is to provide superior graduate education programs in the fields of engineering, business administration, media/entertainment, interdisciplinary sciences, health and individual performance.

Purpose

ITU provides graduate degree programs at the master's level (M.S.) in Software/Computer Engineering (SE/CE), Electrical Engineering (EE), Digital Arts, Engineering Management, and Bio-Pharmaceutical Sciences. ITU also offers the Master's of Business Administration (MBA) with concentrations in areas of: Accounting, Finance, Human Resources Management, Information Systems Management, International Business, Management, Marketing, Hospitality & Tourism Management, Bio-Management, Health Care Management, and Industrial Management. ITU also offers a General MBA, a Green MBA and an Executive MBA. The University offers a Ph.D. program in Electrical Engineering. Ph.D. Programs in Computer Science and Interdisciplinary Sciences are in the developmental stages as is a Doctorate of Business Administration Program. ITU provides English as a Second Language (ESL) for students who require additional language training.

Institutional Learning Outcomes

1. Close linkages between ITU's offerings and the current needs and technologies of industry through active involvement with Silicon Valley leaders.
2. Courses are created at the speed of technological innovation in the Silicon Valley with special emphasis on strong application for students to achieve competency in their respective fields of study.

3. Proficiency in public speaking, technical writing, and critical thinking are integral parts of degree requirements.
4. That the curriculum emphasizes technologies and studies pertaining to sustainability and environmental protection.
5. Promotion of international exchange of scholars and students from locations around the globe.

University Location

International Technological University's Silicon Valley location provides access to one of the most well-known hubs for entrepreneurial activity. The innovative atmosphere of Silicon Valley and the wider San Francisco Bay Area provides students with a unique environment from which to draw inspiration. The excitement, innovation and opportunity of the Silicon Valley is dispensed into the classrooms through our reputable faculty members, and class sessions. The energy of technology, entrepreneurship, and commerce is all around.

International Technological University is located in the heart of Silicon Valley, about 50 miles south of San Francisco, seven miles north of San Jose, and in the center of the world's greatest concentration of hi-tech, professional and scientific activity. Some of the many leading firms within five miles of ITU include: HP, Apple, INTEL, Microsoft, Yahoo! Google, AMD, ATMEL, Juniper Networks, Symantec, Cypress Semiconductor, SUN, NASA, Cisco, Applied Materials, Silicon Graphics, Adobe Systems, Altera, Adaptec, Cadence, Electronic Arts, Oak Technology, Brocade, Radius, Nvidia, Synopsis and IBM.

San Francisco, Marin County, Berkeley, Oakland, and the Santa Cruz beaches are all an hour away by bus, train, or car. The Monterey Peninsula, Carmel and the famous Napa Valley wine country are all less than two hours away. San Jose International Airport is about nine miles from campus.

University Address: 756 San Aleso Avenue

Sunnyvale, California 94085
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Fax:(408) 331-1026

Map



1. Admissions

It is advised that applicants submit all required materials no later than a month prior to the start of desired semester. Applicants can send necessary documents to the following address:

**Admissions Office
International Technological University
756 San Aleso Avenue
Sunnyvale, CA 94085**

Academic Scheduling

Trimester Admissions:

Applicants may apply for admissions into any of the three Trimester Terms each year.

On-Demand Admissions:

Applicants taking advantage of ITU's convenient On-Demand course scheduling program may apply for admissions any time throughout the year. On-Demand Admissions is useful for students that want to take specific courses or training that are available outside of the traditional Trimester (Spring, Summer or Fall).

General Application Requirements

All ITU Applications must include:

6. Completed ITU Application Form (online or hard copy)
7. Non-refundable Application Fee
(See website for updated International and Domestic Student Application Fees)
8. Evidence of academic background and/or relevant work experience

9. Transcripts from previously attended colleges, universities and/or training institutions (equivalent evaluation records keeping with the documentation practices of applicant's home country)
10. Non-native English speaking applicants must meet one of the following requirements before graduation:
 - i. Take the Test of English as a Foreign Language (TOEFL) within five years prior to admission, with minimum admission score of IBT 61, or CBT 173 respectively; or take the International English Language Testing System (IELTS) with minimum score of 6.0
 - ii. Completion of at least thirty credit hours of full-time study in a country with English language instruction within five years of enrollment
 - iii. Completion of required ESL courses at ITU or ITU approved institutions

ALL APPLICANTS: Please read the following information and send the appropriate materials based on your individual situation.

PLEASE NOTE: The term **International Students** refers to all students who need F1 status to attend ITU. The term **Domestic Students** refers to all students who do not need F1 status, including legal U.S. residents/citizens, and those in the U.S. on a non-F1 visa who are not applying for a Change of Status to F1.

Application Checklists:

First-time F1 Application Checklist:

- Completed and signed International Application Form (If a current ITU student referred you, please write their full name in the referral section of the application; ITU can only credit one student)
- \$80 Application Fee (checks are payable to ITU)
- TOEFL (IBT:61+/CBT:173+), or IELTS 6.0+

- Official transcripts from previous schools
- Bank statement (showing at least \$17,500 available)
- Letter of Affidavit (if someone else is funding your education)
- Passport copy (first and last pages)
- 2 Recommendation letters
- Statement of Purpose
- Resume/Curriculum Vitae
- Copy of Visa and I-94

Domestic Application Checklist:

- Completed and signed Domestic Application Form (if a current ITU student referred you to ITU, please write their full name in the referral section of the application; ITU can only credit one student)
- \$80 Application Fee (checks are payable to ITU)
- Official transcripts from previous schools
- Passport copy (first and last page) or other form of ID
- Local California address

Transfer Students on F1 Application Checklist:

- Completed and signed Domestic Application Form (if a current ITU student referred you to ITU, please write their full name in the referral section of the application; ITU can only credit one student)
- \$80 Application fee (checks are payable to ITU)
- Official transcripts from previous schools

- Bank statement (showing at least \$17,500 available)
- Letter of Affidavit (if someone else is funding your education)
- Passport copy (first and last page)
- Copy of Visa and I-94
- Local California address
- If you have been in the US for less than a year, please also send your TOEFL or IELTS score

Changing Status to F1 Application Checklist:

- Completed and signed Domestic Application Form (if a current ITU student referred you to ITU, please write their full name in the referral section of the application; ITU can only credit one student)
- \$80 Application fee (checks are payable to ITU)
- Official transcripts from previous schools
- Bank statement (showing at least \$17,500 available)
- Letter of Affidavit (if someone else is funding your education)
- Passport copy (first and last page)
- Copy of Visa and I-94
- Local California address

Admissions Requirements

Master Degree Admission Requirements:

- Evidence of baccalaureate degree or equivalent in keeping with documentation practices of applicants' home countries or demonstration of equivalent skills, training and experience as evaluated by Admissions Committee
- Students seeking credit transfer will be evaluated from the documents customarily maintained by their home countries' institutions and their individual, educational and experienced-based background as evaluated by the Graduate Admissions Committee
- The Graduate Record Examination (GRE) general test or GMAT for MBA applicants is preferred, but not required

Doctorate Degree Admission Requirements:

- GRE examination (can be waived according to applicants' applicable working experience or technical publications)
- 3.0 GPA or above
- Master of Science (MS) degree
- If an applicant has a bachelor's degree, s/he must concurrently enroll in a master's degree program to fulfill the credits requirement of a master's degree and then continue into the Ph.D. program
- Transfer of credits accepted from another master's program if the student has completed an equivalent class at another institution with a B or higher

Transfer Credits of Undergraduate or Graduate Degrees:

- Credit hours earned at other universities, colleges and educational institutions may be transferred into ITU up to 25% of the total number of credit hours needed to graduate or as evaluated by the Admissions Committee on a case-by-case basis
- Academic credits may be granted to students who demonstrate competency in a subject area based on their academic, occupational, or personal experiences as

evaluated by the Admissions Committee on an individual basis

2. Financial Information

Making Payments

We accept the following forms of payment:

- Personal Check
- Money Order
- Cashier's Check
- Demand Draft
- Traveler's Check
- Debit or Credit Card (contact accounting staff if paying with a card)

Please send all payments to the following address:

**Accounting Department
International Technological University
756 San Aleso Avenue
Sunnyvale, CA 94085**

Tuition and Fees per Trimester

Tuition and Fees	
Fee Description	Amount
Application fee (local) (one time fee, nonrefundable, sent with each application form)	\$80.00
Application fee (international students) one time fee, nonrefundable, submitting with each application)	\$80.00
Tuition for all ITU International Students(per unit in any major)	\$300.00
Tuition for ITU Domestic Students* listed below: Tuition for graduates (per unit for MBA)	\$300.00
Tuition for graduates (per unit for MSEE/SE/CE)	\$300.00
Tuition for Multimedia Focus (per unit for all courses)	\$300.00
Registration fee[1]	\$50.00
Early registration fee[1] (Trimester Scheduling only)	\$25.00
Late registration fee[1] (Trimester Scheduling only)	\$100.00
Student association membership (per term or equiv. month)	\$15.00
Late payment fee	\$20.00
Class Drop Fee	\$20.00
Class Add Fee	\$10.00
Fee for filing petition for Incomplete Grade	\$50.00
Fee for course examination under Challenge Test Option	\$100.00
Graduation fee (when filing for graduation request)	\$120.00
International Campus Graduation Fee \$ 120.00 Auditing fee (per graduate credit unit)	\$350.00
Academic transcript fee (per copy)	\$15.00
Returned check fee	\$100.00
Switching payment/Holding check	\$50.00
Defer I-20	\$30.00

Encumbrance of Registration and Records

Students who owe money to ITU will not be permitted to register and receive an official transcript of their credits or diplomas. Foreign students will not be entitled to receive certification for practical training until they pay off their debt.

Financial Obligations and Refunds

With the exception of the first term's tuition of International Students, ITU Domestic Students may formally withdraw from a class by completing a *Course Drop Form*. If a student withdraws from a course (i.e. drops the course by processing the withdraw form), s/he may be eligible to receive a refund. The last class date or lecture hour (whichever is later) before the *Course Drop Form* is received will be used to calculate the refund in accordance with the following schedule. The student must, however, return all checked out items such as library books and equipment prior to refund. This policy is effective as of Spring 2011. The detailed refund schedule for a typical 3 credit hour class is as follows:

Date of Withdrawal % of Tuition Refundable

Before the first day of a semester 100%

Before the 2nd meeting of class
or the 4th class hour 90%

Before the 3rd meeting of class
or the 7th class hour 75%

Before the 4th meeting of class
or the 10th class hour 60%

After 4th meeting of class
or the 12th class hour No Refund

Financial Aid

Source:

All ITU students are eligible to apply for the ITU Scholars Fund, which offers a limited number of tuition waiver scholarships and graduate assistantships each year. Various loan programs are also available for both graduate and undergraduate degree students.

Number:

The number of ITU scholarships varies from year to year. For fiscal year of 2007, ITU offered 15 teaching assistantships, one research assistantship, and two administrative assistantships. For fiscal year of 2008, ITU offered 50 teaching assistantships, three research assistantships, and 10 administrative assistantships. The number of such awards depends largely on the course offerings. Similar numbers are expected for fiscal years 2009 through 2010.

Terms and Conditions:

Assistantships are appointed either for a trimester or for an academic year consisting of two or three trimesters as specified by the individual appointment. Recipients are expected to devote 20 hours per week of services for a part-time (50%) appointment. For a part-time teaching, research, or administrative assistantship, the stipend is \$640 per month and a tuition fee waiver is not included. For tuition waiver scholarships, partial or full tuition fees waivers may be granted based on a combination of an individual applicant's potential to succeed, proven track record and/or financial need as evaluated by the Awards Committee.

Basis of Selection:

The ITU awards depend primarily on the academic promise, scholarly achievement and working accomplishment of the applicants. Items considered include student's achievement, work history, awards and accolades, GPA, letters of recommendation, transcript records, socio-economic and cultural background. Scholarships are not restricted to any particular field of study. Recipients of the awards can accept other part-time jobs.

Application Procedures:

Students can submit applications directly to the ITU Awards Committee, which makes final recommendation to the Academic Vice President. Recommendation letters are not required but highly suggested and will be considered when submitted. Recommendation letters must be sent directly to the Awards Committee. Application forms are available from the website.

Financial Aid Status for Probationary Students:

Students remain eligible for financial aid during the academic probation period. However, a student receiving aid whose cumulative GPA (CGPA) is less than 2.0 after attempting at ITU a total of 18 units, will no longer be eligible for financial aid and/or tuition waiver and will be dismissed, unless the student wishes to continue without being eligible for financial aid.

Students who reestablish satisfactory progress within the terms specified above will be removed from academic probation. Students not clearing their academic probation within three academic terms will be dismissed.

Students on academic probation who change programs or seek additional degrees will remain on academic probation and their previous ITU academic record will be used in determining satisfactory academic progress.

3. Registration Information

Adding and Dropping Courses

Students may not add a course after the fourth week of instruction in the trimester scheduling system unless otherwise determined by the Academic Committee. The deadline for dropping a course is no later than the fourth week of the term. Dropping a course after the fourth week of instruction will result in a grade of WP or WF (W=Withdraw, P=Pass, F=Fail), depending on whether or not the student was passing or failing the course at the time of dropping it. Tuition refund will be issued for a dropped course according to the fee schedule stated in the Financial Obligations and Refunds section.

The deadline for dropping an On-Demand course is before the 12th instructional hour of class (or its equivalent in lab hours, practicum hours, or a combination thereof). Tuition refund will be issued for a dropped On-Demand course according to the fee schedule stated in the Financial Obligations and Refunds section. Holders of fellowships, assistantships, tuition and fee waivers, and student visas must maintain the required number of credit hours or risk loss of their tuition and fee waiver for the term. Students who lose their waivers will be billed the full cost of tuition and fees.

Scheduling

ITU courses are offered in two scheduling formats:

1. On-Demand Scheduling
2. Traditional Trimester Scheduling

On-Demand Scheduling

“On-Demand” courses provide maximum flexibility and are scheduled according to students’ individual needs. On-Demand course scheduling is determined per course and approved by the Academic Committee and the ITU Instructor facilitating that particular course. Heavy consideration goes toward scheduling for student convenience.

On-Demand Scheduling Process:

- Students express interest in taking an ITU course, which is communicated to the ITU Registrar.
- The ITU Registrar notifies all students after minimum student enrollment numbers are reached.
- Students coordinate with ITU Faculty to schedule class meetings.

- Convenient and non-traditional class meetings times are scheduled to serve students' schedules and match instructor availability. Classes are structured to ensure sufficient opportunity for preparation, reflection, and analysis.

Traditional Trimester Scheduling

Traditional Trimester Scheduling consists of an Academic Calendar of Spring, Summer and Fall Semesters that span the calendar year. Applicants may apply for admissions into any of the three Trimester Terms each year.

4. University Policies & Regulations

Academic Regulations

Academic Grievance Procedures

An academic grievance procedure defines an administrative process through which students or employees may seek resolution of complaints or grievances arising from a decision made about them.

Informal Procedure

A student or employee who has a complaint or request is expected to first resolve it informally. The effort must include discussions with the specific faculty member, teaching assistant or staff member involved. A demonstrated lack of good faith by any party attempting to resolve complaints informally may be considered with all other factors to reach an ultimate decision on the merits of any grievance.

Formal Procedure

If all reasonable informal efforts to resolve a complaint fail, a student or employee may formalize it as a grievance. A formal grievance must be filed within 45 days from the time the student believes, or reasonably should have known, that an occurrence has effected his/her status. This period of 45 days includes all informal efforts to resolve the grievance.

The student must submit the grievance in writing to the Administration Office. A proper administrator will conduct an investigation of the grievance and may interview the student for further clarification. After the investigation, the administrator may either grant or deny the redress sought or provide remedies. The decision will be issued no later than 14 days following receipt of the written grievance. If the administrator does not grant redress satisfactory to the student, the student has 14 days to appeal the decision to the University President upon written receipt of the appeal. The President has 14 days to notify the student of his decision, either grant or deny the redress sought or provide other remedies. The president's decision is final. The student will be

further advised that any unresolved grievances may be directed to the following:

**Bureau for Private Postsecondary and Vocational Education,
1027 Tenth Street, 4F
Sacramento, CA 95814-3517**

Academic Integrity

ITU is dedicated to learning and research, and hence is committed to truth and accuracy. Integrity and intellectual honesty in scholarship and scientific investigation are, therefore, of paramount importance. These standards require intellectual honesty in conducting research, writing of research results and relations with colleagues. Academic misconduct includes cheating, plagiarism, falsification of data, etc.

Advising

All students must have an academic advisor. This advisor assists in planning a program of study that fits the needs of the student and satisfies program requirements. **Advisor approval with signature is required for registration every semester.**

Attendance Policy

ITU students are required to attend all assigned classes regularly. If a student has a medical or other emergency s/he should, if possible, contact the instructor about his/her absence ahead of time. ITU encourages instructors to include attendance and class participation in their grading structure.

Auditing Privileges

Auditing classes is permitted, provided a form bearing the approval of the instructor is filed with the Office of Admissions and Records.

Challenge Test Option

At instructor discretion and with Academic Committee approval, ITU offers a *Challenge Test Option* for students with course deficiencies to see if s/he has the proper background and

prerequisites for the advanced courses. If a student fails this test, s/he cannot retake the test for this course again and must enroll and pass the corresponding course.

Class Attendance Policy

The class attendance is not waved. All courses conducted at ITU main campus have a mandatory in-class final examination or presentation. Any student who fails to be present for the final examination or presentation will receive an Incomplete (I) grade regardless. However, s/he may request a make-up examination with reasonable justifications, subject to the approval from the Office of Student Affairs. **International students who fail to comply with this attendance policy may violate their student VISA status.**

Class Hours

Most ITU classes meet one day per week between 10 a.m. and 10 p.m., Monday through Friday. (Please consult the department office for details - some classes meet on weekends). On-Demand courses can be scheduled anytime convenient for students, with the fulfillment of a minimal student enrollment number, instructor availability and Academic Committee approval.

Confidentiality of Student Records

ITU fully complies with the Faculty Educational Rights and Privacy Act of 1974. This means ITU may release directory information, including name, address, phone number, and major field of study to any person on request unless a student requests in writing that directory information be kept confidential. ITU will safely keep student records for an indefinite period. Law from inspection excludes certain records: those created or maintained by a physician, psychiatrist, or psychologist in connection with student treatment or counseling. Students may inspect their records in the Office of Admissions and Records and direct academic record complaints to the Registrar.

Continuation and Probation Rules

Students are considered to be in good standing upon adherence of following conditions:

- Meet all admissions requirements
- Are not on academic probation
- Are making satisfactory progress towards degree requirements, including a project or thesis if required

Course Credit hours

Academic credits are measured in terms of credit hours. One credit hour is equivalent to one trimester term hour, where one trimester credit hour equals 15 hours of classroom lectures.

One semester credit hour equals 30 laboratory hours and one semester credit hour equals 45 practicum hours.

Course Load

Masters/Doctorate students must be enrolled in 9 - 12 credit hours per semester to be considered a full-time student.

International Students: For purposes of enrollment certification to the Bureau of Citizenship and Immigration Services in the U.S. Department of Homeland Security, ITU considers a foreign student to be full-time if s/he registers full-time for the Fall, Spring and/or Summer Semesters.

Financial Aid Status for Probationary Students

Students remain eligible for financial aid during the academic probation period. However, a student receiving aid whose cumulative GPA (CGPA) is less than 2.0 after attempting at ITU a total of 18 units, will no longer be eligible for financial aid and/or tuition waiver and will be dismissed, unless the student wishes to continue without being eligible for financial aid.

Students who reestablish satisfactory progress within the terms specified above will be removed from academic probation. Students not clearing their academic probation within three academic terms will be dismissed.

Students on academic probation who change programs or seek additional degrees will remain on academic probation and their previous ITU academic record will be used in determining satisfactory academic progress.

Grading System

The following grades are used:

A	=	4.0 grade points per credit hour
A-	=	3.7 grade points per credit hour
B+	=	3.3 grade points per credit hour
B	=	3.0 grade points per credit hour
B-	=	2.7 grade points per credit hour
C+	=	2.3 grade points per credit hour
C	=	2.0 grade points per credit hour
C-	=	1.7 grade points per credit hour
D+	=	1.3 grade points per credit hour
D	=	1.0 grade points per credit hour
D-	=	0.7 grade points per credit hour
F	=	0 (failure; not accepted as degree credit hour)
I	=	Incomplete. Used only for reasons beyond student's control. An 'I' that is not removed will remain on the student's record as an 'I', with no credit hours earned, and is not computed in the GPA.
P/NP-	=	Pass or No Pass. Used as an alternative grading option for students. P/NP option is not available for required core courses. Passing mark earns grade points towards graduation, but is not calculated in the GPA. No grade points are

earned for the NP mark, and the grade is not computed in the GPA.

- AUD - Auditing. No grade points are earned and the grade is not computed in the GPA.
- NR - Used by the Office of Admissions and Records to indicate no grade was reported.
- WF - Failed the course at the time of withdrawal. No grade points are earned and the grade is not computed in the GPA.
- WP - Passed the course at the time of withdrawal. No grade points are earned and the grade is not computed in the GPA.

Only courses a student has earned at least a grade of C- and P are counted towards the master's degree. All registered credit hours are counted as attempted credit hours, and all grades except I, P, NP, WP, WF, AUD and NR are used in GPA computation. A student must earn a cumulative 3.0 GPA to be eligible for the master's degree.

All courses require letter grades, except those specifically designated otherwise. For deficiency courses, a letter grade should be given, although not counted in the student's overall GPA. A grade of C- or better constitutes a passing grade for a deficiency course. All deficiency courses can be completed at any accredited institution.

Petitions

Students may petition in writing for exceptions to any of the university's regulations directly to the Academic Committee. They may only do so, however, after consulting with their advisor, whose recommendations must appear on the petition. Petition forms may be obtained from the website or the Office of Admissions and Records. Petitions must be accompanied by full explanation of the circumstances, and any appropriate forms required for processing a requested change. *Petitions must be filed*

within 30 days from the time an individual knows, or reasonably should have known, that an occurrence has affected his/her status.

Policy for Incomplete Grade

If a student has passed the deadline for dropping a course and wishes to take an Incomplete grade I, the student must file a petition with the Registrar prior to the final examination, if possible, and only after obtaining written approval from the instructor of each course. The incomplete grade is used only for reasons beyond the student's control. An I that is not removed will remain on the student's record as an I, with no credit earned, and not be computed in the GPA. The student has 12 months to complete the course with a standard letter grade evaluation. After 12 months, the incomplete remains on the transcript and the course must be repeated if required for degree matriculation.

Probation

ITU monitors student academic progress at the end of each semester. Academic probation is ITU's mechanism for warning students that their GPA has fallen below the minimum standard.

A graduate student will be put on academic probation if the student's GPA is less than 2.65. This evaluation is conducted at the end of each semester. The student will be dismissed if his/her GPA is less than 3.0 after reaching 100% of maximum time frame or is on probation for three consecutive semesters.

Students will be notified in writing of their probationary status. They have two semesters of enrollment to remove themselves from probation. Students who leave ITU while on probation, whether through formal withdrawal or through failing to meet registration requirements, will still be on probation if they are later readmitted to the same program. Readmission as an ITU student is not guaranteed.

Students who fail to raise their average to 3.0, or otherwise fail to fulfill the terms of their probation within the deadline will be dismissed from the university. Students will be informed in writing of their probation and dismissal. Failure to receive notice of either probation or dismissal, however, will not change the student's probation or dismissal status, or the schedule their status

is processed during. Students are expected to monitor their own progress in light of university policies.

To address mediation mitigating or special circumstances, students may appeal any of the Academic Committee decisions by petitioning consideration to ITU in writing.

Registration

Registration procedures and class offerings are published in the Class Schedule each semester. Students are responsible for the complete and accurate processing of their registration according to the guidelines published therein. New students may register during the designated period at the beginning of their first term or during the late registration period. Currently enrolled students should register during the pre-registration period, in the previous term or the registration period of the current term. Continuing students who wait to register at late registration will owe a late registration fee.

Repetition of Courses

If a student takes a course in which a grade of D, F, WF or WP is received, the student can elect to take the course again. The course can be repeated only once and counted only once toward degree requirements. The original grade, except grades WF and WP, continue to be included in the cumulative GPA computation.

Under certain exceptional circumstances, a student earning a grade of D, F, WF or WP, can petition the Academic Committee to retake the course for a one-time exception. If written consent is obtained from the Academic Committee, the student may elect to retake the course and drop the lower grade for the higher of the two. This "GPA Amnesty" may be exercised only once in any degree program.

Time Limits

All candidates for master's degrees must complete all the matriculation requirements within six calendar years after initial registration at ITU.

Transfer Credit Limits

The specific number of credit hours accepted for transfer is determined on an individual basis. No transfer is automatic. No more than 25 percent of the credit hours (including courses taken as a non-degree student) can be transferred unless otherwise determined by the Academic Committee on a case-by-case basis.

Nonacademic Regulations

Nondiscrimination Policy

ITU is committed to the most fundamental principles of academic freedom, equality of opportunity, and human dignity. This requires that decisions involving students and employees be based on individual merit and free from invidious discrimination of all forms, whether or not legally prohibited.

ITU's policy is to fully comply with applicable federal and state nondiscrimination and equal opportunity laws, orders and regulations. ITU will not discriminate in programs and activities against any person because of race, color, religion, sex, national origin, ancestry, age, marital status, handicap, unfavorable discharge from the military, or status as disabled veteran or veteran of Vietnam era. This nondiscrimination policy applies to admission, employment, access to and treatment in University programs and activities.

Complaints of invidious discrimination prohibited by university policy shall be resolved exclusively within existing ITU procedures.

Sexual Harassment Policy

Sexual harassment is legally defined to include any unwanted sexual gesture, physical contact, or statement that is offensive, humiliating, or interfering with required tasks or career opportunities at ITU. Sexual harassment is prohibited under federal and state discrimination laws and the regulations of the Equal Employment Opportunity Commission.

ITU will not tolerate sexual harassment of students or employees and will take action to provide remedies when such harassment is discovered. The University environment must be free of sexual harassment in work and study. Appropriate sanctions will be

imposed on offenders in a case-by-case manner to ensure ITU is free of sexual harassment. ITU will respond to every reported sexual harassment complaint.

5. Degree Programs & Requirements

Graduate/Masters Degree Titles and Specialization

Business Administration Department:

Degree Title: Master of Business Administration in Bio-Management

Major: Bio-Management

Department: Business Administration

Specializations: Clinical Research Management, Legal, Regulatory and Bioethics, Leadership

Degree Title: Master of Business Administration - Green MBA

Major: Green MBA

Department: Business Administration

Specializations: Environmental Management, Green Behavior, Biofuels, Solar Energy, Wind Power, Bioenergy, Energy Efficiency, Hydrology Source

Degree Title: Master of Science in Health Care Management

Major: Health Care Management

Specializations: Service Delivery, Health Sector Innovation, Healthcare Company/Industry Structure

Degree Title: Master of Business Administration - Business Education

Major: Business Administration

Specializations: Teaching Business Education, Coordination Techniques, Vocational Education, Techniques of Assessment, Curriculum Design, Technology Education, Cooperative Learning Techniques.

Degree Title: Master of Business Administration

Major: Business Administration

Specializations: Accounting, Finance, Human Resources, Information Systems Management, International Business, Management, Marketing, General MBA, Executive Master of Business Administration (EMBA)

Computer Science Department:

Degree Title: Master of Science in Computer Engineering
Major: Computer Engineering
Department: Computer Science
Specializations: IT Security, Computer Networking, Digital Systems

Degree Title: Master of Science in Software Engineering
Major: Software Engineering
Department: Computer Science
Specializations: IT Security, Software Testing, and Software Tools, Systems

Digital Arts Department:

Degree Title: Master of Science in Digital Arts
Major: Digital Arts
Specializations: Digital Filmmaking, Animation, Game Design, Acting, Performance, Business Marketing

Electrical Engineering Department:

Degree Title: Master of Science in Electrical Engineering
Major: Electrical Engineering
Department: Electrical Engineering
Specializations: VLSI, Digital Signal Processing, Circuits and Systems, Wireless Communication, Digital Communications

Engineering Management Department:

Degree Title: Master of Science in Engineering Management
Major: Engineering Management
Department: Engineering Management

Specializations: Managing Professionals, Product Strategy, Outsourcing Management, Product Marketing

Degree Title: Master of Science in Industrial Management

Major: Industrial Management

Specialization: Integrated Manufacturing, Engineering Economy, Applied Ergonomics, Production Control, Product Testing, Industrial Safety, Industrial Hygiene

Doctorate Degree Titles and Specialization

Degree Title: Doctor of Philosophy in Electrical Engineering

Major: Electrical Engineering

Specializations: VLSI Design, Digital Communication, Wireless Communications

Degree Title: Doctor of Philosophy in Software Engineering

Major: Software Engineering

Specializations: Artificial Intelligence, Complex Digital Systems, Computer Algorithms

Degree Title: Doctor of Business Administration

Major: Business Administration

Specialization: Accounting and Financial Management, Applied Computer Science, Business Administration, Global Management, International Business, Management Information Systems, Marketing, Public Administration

Specialized Curriculum:

Degree Title: English as Second Language (ESL)

Major: English

Specializations: Grammar, Vocabulary and Pronunciation

Changes in Degree Requirements

ITU policies and requirements change periodically and may not be immediately reflected in campus publications. New degree requirements, however, are not imposed retroactively on continuing students unless agreed upon by the student. If degree requirements are changed, continuing students may complete their degree programs under the requirements in effect at the time of their initial enrollment. They have the option of electing to be governed by the new requirements if they so desire, provided all requirements of one catalog are met.

Business Administration Programs: Masters of Business Administration in Bio- Management

The Masters in Business Administration Bio Management focused program is to provide students with the skills and knowledge essential in Medical and Pharmaceutical field. This curriculum developed to introduce the students into structure, organisation, and marketing of companies in a scientifically profound and practice oriented way, with emphasis on the peculiar conditions found in the various countries. The working group has to develop for this course that the students will be prepared and qualified for everyday tasks in small and middle-sized companies with biotechnological focus (hospitals, pharmaceutical companies etc.), but also for large scale enterprises like the chemical industry. Students will learn to understand and judge economical problems and questions concerning management in the context of everyday business and will therefore be capable of focused and pragmatic decision making, also in difficult and complex situations. At the end of the course the students should be fit for starting their own business.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to find and solve common ethical and moral issues regarding clinical research.

- Understand various aspects of Bio Management environment, including legal, regulatory, political, social, and technical.
- Be able to write financial reporting and conduct Clinical Trials.
- Understand the protocol Development and Scientific Writing
- Understand the professional/leadership role in Bio environments.
- Know one's own professional values, potential career pathways, and Bio management role.
- Understand human behavior in Bio organizations, including the ability to lead and work in teams.
- Be able to effectively demonstrate verbal and written communication skills.
- Be able to apply and evaluate problem-solving methods and performance improvement techniques.
- Be able to demonstrate awareness of factors affecting Bio environment.
- Be able to apply knowledge from multidisciplinary resources to critically analyze current Bio management issues.
- Know the components of an Electronic Health Record, and other uses of Information Technology in Healthcare.

MBA - Bio-Management Requirements

The completion of at least 36 semester credit hours of graduate courses in the major field, 3 credit hours of Joint Seminar and/or thesis or project, including:

- 18 credit hours in MBA Bio-management, courses: BIOM 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 920, or other approved courses.
- 3 credit hours in joint seminars: GRN 597
- 15 credit hours from ITU MBA program, project or thesis upon approval by the advisor: ACTN 900, 910, CONS 900, EBUS 910, ECON 920, FINN 933, GRN 511, 599, 921, 922, 923, MBAN 998, 999, MGTN 901, 930, 942, 945, 945W, 949, MISY 915, MKTN 958 or other approved courses.

Masters of Business Administration - Green MBA

The Green MBA program offers the students the skills required for social behavior, economical decisions making while keeping environment in mind. The program recognizes that a company's success is measured by organization, environment, and economics. The Green MBA emphasizes balancing a company's financial health as well as environmental sustainability.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to deal with everything from phasing foam cups out of the cafeteria to setting company-wide carbon reduction goals.
- Be familiar with the responsibility for developing the sustainability and environmental strategy.
- Understand and ensure compliance with all relevant contractual and Legal requirements for Environment and Sustainability.
- Be able to get tax benefits/ tax reduction on clean energy.
- Know how to make financial decisions in a transition more towards going green.
- Understand human behavior in organizations, including the ability to lead and work in teams.
- Be able to effectively demonstrate verbal and written communication skills.
- Understand and be able to apply a unique and powerful model of human behavior that is based upon how our brains are wired to interact socially.
- Be able to work more effectively as a manager, team member, and employee by the application of sound behavioral principles.
- Be able to achieve greater health, wellbeing, and happiness through better understanding and application of fundamental principles of behavior and motivation.

Green MBA Requirements

The completion of at least 36 semester credit hours of graduate courses, 3 credit hours of Joint Seminar and/or thesis or project, including:

- 18 credit hours in Green MBA courses: EEN 977, GMBA 900, 901, 902, 903, 904, 905, 906, 907, 910, 911, 912, 913, 914, 920, 921, 922, 930, 931, 940, 950, 960, 970, 971, or other approved courses.
- 3 credit hours in joint seminars: GRN 597.
- 15 credit hours from ITU MBA management courses: ACTN 900, FINN 932, MGTN 901, 930, 941, 942, 943, 945, 945W, 946, 948, 949, 954, or other approved courses.

PLEASE NOTE: Only one course from any ITU programs will be counted in the curriculum of the Green MBA Program

Master of Business Administration in Healthcare Management

The Healthcare Management Program targets students who are considering a career in the healthcare industry. The program's core purpose is to educate, prepare, and motivate the students to competitively apply and succeed in a career in healthcare management. The healthcare profession offers a unique combination of job satisfaction and rapidly growing demand.

Program Learning outcomes:

Upon completion of this program, graduates will:

- Be able to make ethical decisions about healthcare issues.
- Understand various aspects of a healthcare environment, including legal, regulatory, political, social and technical.
- Understand the professional/leadership role in health environments to improve the quality of health.
- Know the healthcare laws and regulations in order to proactively follow them.
- Know one's own professional values, potential career pathways, and healthcare role development opportunities.
- Understand the structure of healthcare delivery and finances.
- Understand the human behavior in healthcare organizations, including the ability to lead and work in teams.
- Be able to effectively demonstrate verbal and written communication skills.
- Be able to apply and evaluate problem-solving methods and performance improvement techniques.

- Be able to demonstrate awareness of factors affecting health, including culture, age, gender and socio-economic status.
- Be able to assume a professional/leadership role.
- Be able to apply knowledge from multidisciplinary resource to critically analyze current healthcare issues.
- Know the components of an Electronic Health Record, and other uses of Information Technology in Healthcare.

MBA - Healthcare Management Requirements:

The completion of at least 36 semester credit hours of graduate courses and/or thesis or project, includes:

- 18 credit hours in MBA Healthcare core courses: HCM 901, 906, 907, 908, 909, 910, 911, 915, 930, 931, 932, 933, 934, 970, and 980, or other approved courses.
- 3 credit hours in joint seminars: GRN 597.
- 15 credit hours in MBA Healthcare elective and management concentration courses, project or thesis upon approval by the advisor. Healthcare Elective courses: BIOM 905, CTR 900, HCM 902, 903, 904, 905, 912, 913, 914, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925. Management Concentration courses: ACTN 900, 910, CONS 900, EBUS 910, ECON 920, FINN 933, GRN 511, 599, 921, 922, 923, MBAN 998, 999, MGTN 901, 930, 942, 945, 945W, 959, MISY 915, MKTN 958; or you can choose a project or these. All courses, projects, or theses can be selected upon approval by the advisor.

Master of Business Education

The Bus Ed program includes emphasis on both education and Business expertise. Students engaged in the ITU Bus Ed program will obtain their degree by taking classes through the core MBA subjects rounded out by learning in educational technology, program assessment/review, research techniques, vocational, occupational training and more.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Understand core business practices involving management, finance, business communication and product marketing.

- Be familiar with various aspects of a business environment, including legal, regulatory, political, social, and technical.
- Know the theoretical and practical skills required to use and teach with education technology-based tools.
 - Understand how to conduct a needs assessment for training or teaching.
 - Understand how to create a curriculum project that includes technology (media, internet, e-learning, or computer-based tools)
 - Understand about individuals' different learning pathways
 - Understand the principles behind instructional design.
 - Be able to effectively demonstrate excellent communication skills such as good speaking, writing and presenting of information.
 - Be able to apply quantitative and qualitative analysis.
 - Know about research methods in education.
 - Be able to demonstrate five aspects of education: design, development, utilization, management and evaluation.
 - Be able to demonstrate multicultural awareness.
 - Be able to assume a leadership role.

Master of Business Education Requirements

The completion of at least 36 semester credit hours of graduate courses, 3 credit hours of Joint Seminar and/or thesis or project, including:

- 9 credit hours in courses: ACTN 900, 910, DBA 915, FINN 933, GRN 500, 511, 597, 599, MGTN 901, 951, 953, MKTN 958, or other approved courses.
- 3 credit hours in joint seminars: GRN 597.
- 6 credit hours core courses: EDBS 900, 901, 902, 903.
- 18 credit hours Professional Education courses: EDBS 910, 911, 912, 913, 914, 915, 916, 920, 922, 923, 924, or other approved courses.

PLEASE NOTE: Only one course from any ITU programs will be counted in the curriculum of the Business Education Program

Master of Business Administration

The program provides the students a solid foundation in Accounting, Economics, Finance, International Business, Management, and Marketing that will be as valuable ten years from

now as it is today. The University's location in the heart of Silicon Valley provides its MBA students with exposure to the unique entrepreneurial success in this region. The MBA faculty has many years of experience in starting companies, managing corporations, directing advanced product development, and consulting for major companies.

The MBA program requires successful completion of 36 semester-credits. The program offers concentrations in different disciplines, such as Accounting, Finance, Human Resources, Management Information Systems, International Business, Management, Marketing, in addition to the Executive Master of Business Administration (EMBA), and General MBA. Concentration and elective courses provide flexibility in customizing the program to meet professional and personal goals.

To be admitted to the MBA program, the students should possess an undergraduate degree. If the undergraduate degree is in the area of business administration or a related field then a minimum grade point average of 3.0 is required for the last half of courses taken that count for the degree. If the undergraduate degree is in a different field then the minimum grade point average required for all courses in that degree is 3.0. Exceptions to these requirements can be made by the academic council.

Students who don't have an undergraduate degree, or have a degree from a discipline other than business, but are otherwise qualified may be admitted as unclassified. The students must complete the missing necessary coursework to become candidates. During this time they are officially considered graduate students in the University.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to make ethical decisions in a business context.
- Understand various aspects of a business environment, including legal, regulatory, political, social, and technical.
- Be able to write financial reporting and conduct market analyses.

- Be able to survey the evidence and the psychology to examine theories of financial markets with an eye towards identifying boundaries and opportunities for new research.
- Know how to operate a business in the international arena with awareness and sensitivity to foreign cultures.
- Understand the creation and distribution of goods and services.
- Understand human behavior in organizations, including the ability to lead and work in teams.
- Be able to effectively demonstrate verbal and written communication skills.
- Be able to apply quantitative and qualitative analysis.
- Be familiar with current technologies.
- Be able to demonstrate multicultural awareness.
- Be able to assume a leadership role.
- Know integrative and cross-functional pedagogy, linking business theory with business practice, to critically analyze current problems.
- Know how to customize SAP on business modules.

MBA Requirements:

- Unclassified students must complete 27 credit hours in the following business courses: BUS 400, 410, 411, 412, 413, 414, 415, 416, and 417, or other approved courses.
- 6 credit hours in core courses: ACTN 900, 910, ECON 920, FINN 932 or other approved courses.
- 6 or 12 credit hours from area of concentration:
 - Accounting – ACTN 920, 921, 923, 924, 925, 927;
 - Finance – FINN 920, 930, 933, 934, 935, 936;
 - Human Resource Management – HRMG 940, 941, 942, 943, 944, 945;
 - Information System Management – MISY 910, 911, 912, 914, 915, 926;
 - International Business – INBS 910, 911, 912, 913, 914, 915;
 - Management – MGTN 942, 943, 944, 946, 948, 949;
 - Marketing – MKTN 950, 951, 952, 954, 958, 960
 - *Or other approved courses.*
- 3 credit hours in joint seminars: GRN 597.
- 15 or 21 credit hours in elective courses, ACTN 926, 928 A/B, 929, 930, 940, (ACTN 991, 992, 993, 994), CONS 900, ECON 921, 923, FINN 916, 917, 918, 931, GRN 500, 511,

513, 514, 515, 599, 920, 921, 922, 923, HRMG 946, 947, 948, INBS 921, MBAN 996, 997, 998, 999, MGTN 901, 922, 930, 941, 945, 945W, 951, 952, 953, 954, MISY 913, 920, 925, 930, MKTN 953, 955, 957, 959, 961, 965, and SEN 911, or other approved courses.

Curriculum of General MBA:

- 6 credit hours in core courses,
- 3 credit hours in joint seminars,
- 27 credit hours from Major concentrations, or Elective courses.

Curriculum of Executive MBA:

- 6 credit hours in core courses,
- 3 credit hours in joint seminars,
- 21 credit hours from concentration courses: EBUS 910, 911, 912, 913, 914, 915, 916, 917, 918, or other approved courses.
- 6 credit hours in MBA elective courses.

Doctor of Business Administration

The degree of Doctor of Business Administration (DBA), offered by the International Technological University (ITU), is a research doctorate that focuses upon business practice. The DBA is a professional doctoral program intended for Executives, Managers, Consultants, and Instructors of business who want to expand their knowledge, and skills. The program develops the skills to analyze, practice, and research to equip the students with an understanding of both management practices, and of real-world business principles and thoughts. As an international business school, ITU bridges the gap between learning and its application.

ITU offers the DBA in 10 distinct topic areas including:

Accounting and Financial Management
Applied Computer Science
Business Administration
Global Business Sustainability
Management
Management Information Systems
Marketing
Organizational Behavior
Public Administration

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Understand research design and methods necessary to undertake a doctoral-level research project.
- Be able to design, implement, and evaluate a major research project dealing with business and managerial issues in the context of effectively managing technology, innovation and change in a business environment.
- Be able to demonstrate the capacity to conduct original research and to apply, test, and/or examine ideas, whether they're own or those of others.
- Understand the relationship between own research theme, associated literature and business knowledge.
- Be able to achieve a greater level of effectiveness as a professional practitioner in managing technology, innovation and related organizational change.
- Be able to perform an academic research, leading to publication of work in refereed journals.
- Understand the research methodology, and data gathering process.
- Understand the research and writing skills with high-level of responsibility in the academic and business environments.

Advisory Committee

To guide students through the first phase of the degree program, an advisory committee of at least three faculty members with appropriate terminal degrees will be assigned. The advisory committee also may serve as the Dissertation Committee.

DBA Admission Requirements:

- Resume,
- Completed application form,
- A two personal statements,
- MBA or a relevant Masters Degree and work experience
- Official transcripts of graduate and undergraduate degrees
- GMAT or GRE examination: you are required to take the GMAT or GRE examination (within 10 years prior to application to the program) and have the test score results

sent to the university (exceptions to this examination can be made by the academic quality control committee),

- English language proficiency: If your native language is not English, you must supply evidence of English language proficiency, such as score of 550 or higher on the TOEFL or other evidence (exceptions to this requirement can be made by academic quality control committee),
- **Recommendations** Three letters of evaluation attesting your ability to succeed in a doctoral program are required,
- **Statement of purpose** A statement of purpose of approximately 1,000 words is required. This statement should address your reasons for seeking the doctoral degree and how the doctorate will advance your personal and career goals,
- The DBA may not be completed in less than three years. The maximum time allowed is seven years, during which the candidate works under a supervisor, who is also a member of the jury before which the candidate will defend his or her dissertation,
- Candidates are expected to have a cumulative grade point average (GPA) of 3.0 or higher in a relevant, accredited master's program.

DBA Requirements

The completion of at least 42 credit hours of graduate courses in the major field of study, 18 credit hours of dissertation, including:

Curriculum for Doctor of Business Administration:

- 9 credit hours in core courses: DBA 900, 901, 902, or other approved courses
- 15 credit hours in business core courses: DBA 910, 911, 912, 913, 914, 915, 920, 930, 940, 950, or other approved courses
- Qualifying Examination
- 18 credit hours from the elective courses: DBA 810, 811, 812, 813, 814, 815, 816, 817, 820, 821, 822, 823, 824, 825, 830, 831, 832, 833, 834, 835, 836, 840, 841, 842, 843, 844, 845, 846, 847, 850, 851, 852, 853, or other approved courses.
- 18 credit hours of dissertation research projects, including 3 credit hours of dissertation defense: DBA 990.

Computer Science Programs: Masters of Science in Computer Engineering

Many societies around the world experience a rapidly growing need for computer engineers. Modern computer engineers' work centers around the design of modern computerized electronics, embedded systems, microprocessors, ever smaller and more powerful computers, and "hardware-close" programming. Depending on which individual courses students choose within this curriculum, the outcomes of their studies may show variety in detail, but will definitely fulfill the key elements considered necessary for successful computer engineer work.

Computer engineering combines elements of electrical engineering and computer science. Many students consider an MS in computer engineering worth earning because the knowledge used in the design and application of computers is well beyond the scope of an undergraduate degree. Computer engineering is one of the three disciplines with the highest starting salaries in the United States.

Program Learning Outcomes:

Upon completion of this program, graduates will be able to:

- Design analog and digital circuits
- Write "hardware-close" programs
- Understand digital signal processing and digital circuits
- Understand computer architecture and organization, hardware/software integration, and human/computer interaction
- Understand computer operating systems and embedded systems
- Understand Unix operating system
- Understand the nature and behavior of algorithms
- Apply programming and software engineering fundamentals
- Be familiar the database system
- Have awareness of societal impacts and professional responsibilities

MSCE Requirements

The completion of at least 36 semester credit hours of graduate courses in the major core field, 3 credit hours of Joint Seminar and/or thesis or project, includes:

- 6 credit hours in computer engineering related courses: SEN 909, 920, CEN 911, 911, 951, and 910 or other approved courses
- 27 credit hours of electives, project or thesis upon advisor approval
- 3 credit hours in joint seminars: GRN 997

Masters of Science in Software Engineering

The Software Engineering masters degree program focuses on three major areas: *IT Security, Software Development, Testing and Tools and Systems*. Its purpose is to prepare students for careers in software engineering education, research and industry development.

As new developments in the software engineering field continue to unfold, it becomes a necessity to provide students with the essential tools to work within this seemingly endless industry of programming languages, platforms, integrated applications, and other related topics. By having a solid foundation of software engineering principles, students will be prepared to successfully launch themselves into a successful career as a software engineer.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to apply SWEBOK principles and methodologies.
- Be able to apply object-oriented methodology for software design and other programming paradigms, such as aspect-oriented methodology, functional decomposition, etc.
- Understand the software life cycle.
- Understand the importance of requirements-gathering and clear requirements-specification.
- Understand the importance of developer/customer interaction.

- Be able to choose a proper software development model (e.g., agile development, extreme programming, RAD, etc.).
- Be able to master at least one design language (e.g., UML).
- Be able to apply various testing strategies (e.g., white box, black box, integration testing, etc.).
- Know how to avoid software development pitfalls.
- Be able to apply important management principles in the context of software development (i.e., leadership, managing human resources, managing the project and the process as a whole).
- Know one or more important programming languages (e.g., C++, Java, PHP, Python, Ruby, etc.).
- Know essential computer science topics, such as searching, sorting, hashing, trees, B-trees, lists, stacks, queues, and RSA encryption.
- Understand computational complexity (e.g., Big-O runtime order, NP-completeness, etc.).
- Know the inner-workings of a relational database.
- Be able to design, program, and manage a database.
- Understand the essential requirements of a user-friendly graphical user interface (GUI).
- Be able to design a user-friendly GUI.
- Understand 3-D graphics concepts.

MSSE Requirements

The completion of at least 36 semester credit hours of graduate courses in the major field, 3 credit hours of Joint Seminar and/or thesis or project, including:

- 6 credit hours in software courses: SEN 909, 920, 980, 990, CEN 951, and 959 or other approved courses
- 3 credit hours in joint seminars: GRN 597
- 27 credit hours of technical electives, project or thesis upon the approval of the advisor. All non-required software engineering courses are acceptable. Recommended courses include: SEN 956, 992, 909, 930, and 963

Doctor of Philosophy in Software Engineering

The Doctor of Philosophy in software engineering is an academic/research degree that prepares students for careers in

research and teaching of software engineering methods. This program incorporates courses from the departments of software engineering and computer engineering. Prior to entering this program, students must pass a qualifying examination on software engineering theory. Finally, candidates will write and defend a dissertation, in which they develop new results in software engineering.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to explain, apply, and extend basic software engineering methodologies.
- Be able to teach software engineering theory and methodology, and advise doctoral students.
- Be able to apply advanced software engineering methodologies in industrial, governmental, and university research organizations.
- Be able to develop new software engineering methodologies.
- Be able to serve as research collaborators, consultants, and team leaders.
- Be able to demonstrate proficiency in software architecture design, software engineering management, requirement analysis, and the interpretation of software-quality matrices.
- Be able to demonstrate awareness of the problems involved in software development and engineering management.
- Be able to initiate a new software engineering project and apply software engineering methodology to the project life cycle.
- Be able to demonstrate proficiency in presentation and publication of software engineering research findings.

Ph.D. in Software Engineering Requirements

The completion of at least 30 semester credit hours of graduate courses in the major field of study, 18 credit hours of thesis, includes:

- 12 credit hours of required Software engineering courses SEN 920, 985, or other approved courses
- 6 credit hours in applied mathematics selected from the following:

AMN, 912, 920, 921, 930 and 940 or other approved courses

- 12 credit hours of electives from SEN 980,984, 992 or other approved courses.
- 18 credit hours of thesis.

Digital Arts Programs:

Masters of Science in Digital Arts

The Master of Science in digital arts program is a well-rounded, project-based learning program geared to give students practical skills creating digital projects for the market – from conception and production to packaging and marketing.

Students will learn all the concepts and skills necessary for taking a project from conception to production, including story creation, visualization & design, animation, filmmaking, business marketing, and the scripting and authorship of web-based promotion. These skills are acquired via practical execution of the creation, production and promotion of various structured projects, designed for the mastery of skills in the digital arts field.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to create digital projects for the market - from conception and production to packaging and marketing.
- Understand how to deliver production; including story creation, visualization, and design by acquiring structured digital production skills.
- Be able to develop animation, film, and web design, having completed a minimum of three projects.
- Be familiar with the filmmaking industry by learning the production pipeline for digital production and gaining valuable practical work experience as a team member within the pipeline.
- Know business marketing via traditional methods and web-based promotion.

MS Digital Arts Requirements

The completion of at least 36 semester credit hours of graduate courses in the major field, 3 credit hours of Joint Seminar and thesis or project, including:

- 6 credit hours in Digital Arts: MMM 901, 903, 905, 911, 925 or other approved courses
- 3 credit hours in joint seminars: GRN 997
- 27 credit hours of technical electives, project or thesis upon the approval of the advisor. All non-required digital arts courses are acceptable.

Electrical Engineering Programs: Masters of Science in Electrical Engineering

The Electrical Engineering degree program currently focuses in the following areas: *VLSI Design, Analog & RF IC Design, Digital Signal Processing & Communications, Computer Network & Systems Engineering*, leading to the degree of Master of Science in Electrical Engineering (MSEE). Its purpose is to prepare students for career in industry, research or education.

Program Student Learning Outcomes:

Upon completion of this program, graduates will be able to:

- Understand fundamentals of mathematics, science and engineering
- Understand design specifications to analyze and solve engineering problems
- Implement a design specification toward a complete engineering solution by applying mathematics, science, and engineering knowledge
- Have professional and ethical responsibility in the accomplishment of engineering tasks
- Apply economic engineering solutions
- Communicate significant technical information in a clear, concise manner
- Understand and identify various customer needs
- Work productively and successfully in teams

- Enhance engineering skills through experimentation, discovery, and verification of ideas and concepts

MSEE Requirements

The completion of at least 36 semester credit hours of graduate courses in the major field of study, including:

- Minimum **6** credit hours of core courses:

VLSI Design

EEN 902, 910

Analog & RF IC Design

EEN901 Fundamentals of Semiconductor Physics

EEN 915 Analog Circuit Design

DSP & Communication

EEN906 (974) Electromagnetic Fields and Waves

EEN941 Digital Signal Processing

EEN961 Fundamentals of Communication Systems

Computer Network & System Engineering

EEN908 Scientific Computing

EEN948 (966) Computer Network Systems

Or other approved courses

- Minimum **12** credit hours of courses in specified field:

VLSI Design

EEN904 Integrated Circuit Manufacture Processing

EEN905 Digital Design in HDL

EEN911 VLSI Design I – Circuit Design

EEN912 VLSI Design II – Memory Design

EEN913 Microprocessor Design

EEN920 (954) ASIC Design Practice I

EEN921 (958) FPGA Design

EEN922 Design Verification

EEN923 Design Analysis of Integrated Circuit

EEN924 (922) Design for Testability

EEN925 (955) ASIC Design Practice II

EEN927 VLSI Design to Silicon

EEN928 (919) Low Power IC Design

EEN929 (914) VLSI System Design (SOC) Design

EEN938 (924) Signal Integrity of High-Speed Digital Circuits

Or other approved courses

Analog & RF IC Design

EEN903 Semiconductor Devices and Modeling

EEN916 Mixed Signal IC Design
EEN917 Advanced Analog IC Design
EEN918 RF IC Design
EEN919 Advanced RF IC Design
EEN930 (950) Quantum Devices
EEN931 Nanotechnology I
EEN932 Nanotechnology II
EEN933 (962) Circuit Network Analysis
EEN934 (964) Computer-Aided Simulation of Electronic
Circuits EEN935 (925) Introduction to MEMS Design
EEN936 Advanced MEMS Design
Or other approved courses

DSP & Communication

EEN946 Design of Embedded Systems
EEN962 (965) Applied Linear Systems
EEN963 Advanced Communication Systems
EEN970 Introduction to Microwave Engineering
EEN971 Introduction to Wireless Communication Systems
EEN972 Wireless Communication Networks
EEN973 Wireless Communication Development
EEN974 Advanced Wireless Communications
EEN975 High Speed Digital Systems
Or other approved courses

Computer Network & System Engineering

EEN940 Introduction to Computer Vision
EEN942 Digital Image Processing I
EEN943 Digital Image Processing II
EEN951 Computer Control Engineering
EEN952 Digital System Design
EEN953 Machine Learning
EEN958 Advanced System Design Using FPGA
EEN960 Parallel Computing
EEN964 Introduction to Medical Image Systems
EEN966 Network Storage Systems
CEN940 Network Security Techniques
CEN935 Internet Architectures
Or other approved courses

- Minimum 6 credit hours of mathematics:
AMN912 Applied Mathematics Methods I
AMN920 Optimization Techniques I
AMN921 Optimization Techniques II
AMN922 Applied Mathematics Methods II
AMN930 Numerical Analysis
AMN940 Discrete Mathematics

AMN950 Fast Fourier Transformation & Applications
AMN952 Probability & Statistics for Engineers
Or other approved courses

- **3** credit hours of
GRN997 Joint Seminars
GRN599 Writing and Composition
- Minimum **12** credit hours of electives, project or thesis upon the approval of an advisor

Doctor of Philosophy in Electrical Engineering

The Doctor of Philosophy in electrical engineering is an academic/research degree that prepares students for careers in research and teaching of electrical engineering. This program is administered through the Engineering School of Graduate Studies.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to demonstrate high professional ethics and mastery of fundamental concepts of electrical engineering.
- Be able to identify, investigate, formulate, and solve new problems of interest, conduct independent scholarly research, and contribute new ideas and engineering concepts to society.
- Be able to think analytically and demonstrate knowledge and language skills to serve in positions of technical leadership.
- Be able to demonstrate independence and assume major professional and ethical responsibilities in their careers.
- Understand business and engineering economics.
- Be able to clearly and effectively communicate difficult technical concepts.
- Understand and identify various needs of customers.
- Be able to work as a team member productively and successfully.
- Be able to demonstrate a high level of academic skills in education, technical creativity, leadership, and management

Ph. D. in Electrical Engineering Requirements:

The completion of at least 30 semester credit hours of graduate courses in the major field of study, 30 credit hours of thesis, includes:

- 12 credit hours at least of required engineering courses EEN 902, 913, 914, 917, 918, 928, 932, 943, 953, 960, 961, 963, 971 and 995, CEN 922 and 973, SEN 920, or other approved courses
- 12 credit hours at least of elective engineering courses EEN 903, 916, 919, 922 to 925, 931, 941, 942, 946, 950, 952, 964, 965, 972, 977 and 996, CEN 940, 960 and 9965, SEN 959, 980, 984 and 992, GRN500 and 597, or other approved courses
- 6 credit hours at least in applied mathematics courses AMN 912, 920, 921, 922, 930, 940, 950 and 952, or other approved courses
- 30 credit hours of thesis

Engineering Management Programs: Masters of Science in Engineering Management

The Engineering Management program is specifically designed to prepare students to become effective managers in today's technology related fields. The management of technology is much different than other forms of management. Engineering managers need a much broader ranges of skills that are both technical and managerial. This program offers a hybrid of both technical and management related classes designed to prepare students with the necessary skill set to be successful with the unique challenges faced by today's high-tech Engineering Managers. The program emphasis is on continuing to build stronger technical and communication skills while developing the management background and foundation skill set required for most Engineering Management positions. The program is designed for students who have earned a bachelors degree in engineering, science, mathematics, computer science, or a closely related field.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to apply skills pertinent to the entrepreneurial and entrepreneurial management of both existing and emerging technologies.
- Understand engineering safety, strategies, and life cycle properties of a project.
- Be able to estimate and control engineering cost, including planning and scheduling, labor productivity, alternative methods for project delivery, and computer applications, such as e-business solutions.

MS Engineering Management Requirements

The completion of at least 36 semester credit hours of graduate courses in the major field, 3 credit hours of Joint Seminar and/or thesis or project, includes:

- 3 credit hours in general math courses: AMN 912, 922, 952, or other approved courses
- 3 credit hours in joint seminars: GRN 597
- 15 credit hours in Engineering courses: EEN 910, CEN 560, 910, 940, 942, 960, 965, 966, 968, 998, 999, SEN 909, 911, 920, 930, 932, 934, 935, 936, 941, 942, 951, 952, 956, 960, 962, 963, 964, 974, 982, 985, 991, 992, 996, SEM 906, or other approved courses
- 15 credit hours in MBA courses, project or thesis upon approval by the advisor: ACTN 900, 910, CONS 900, EBUS 910, ECON 920, FINN 933, GRN 511, 599, 921, 922, 923, MBAN 998, 999, MGTN 901, 920, 930, 942, 945, 945W, 948, 949, 958, and all Information Systems Management courses or other approved courses.

Master of Science in Industrial Management

The purpose of the Industrial Management program is the advance competencies achieved at the Bachelors level and the preparation of the students to presume leadership role in the technical fields of the manufacturing industries.

Curriculum for MSIM

To complete this program each student must complete a total of 36 units. The 36 units are required as follows:

- 8 courses from the Industrial Management Courses – 24 units
- 4 courses from the MBA Management courses – 12units:

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Understand the production planning and control, using an enterprise resource planning software package: SAP.
- Be familiar with the management, organizational leadership and quantitative analysis of industrial and business problems solving.
- Understand the scientific techniques for quality control, assurance, and management of production.
- Be able to show and perform supervisory duties required in manufacturing industries for maximizing production efficiencies and effectiveness regarding time, materials, machine, and human resources.
- Be able to develop and express a work ethic reliable with industrial management practices and techniques.
- Be familiar with the human resource management skills such as communication, motivation, teamwork, cooperation, and coordination.
- Understand the safe work-practices and explain their value to the industrial work environment.
- Be able to explain the significance of the utilization of new technology to increase efficiency and productivity.

MSIM Course Requirements:

- 24 credit hours in Industrial Management courses: AMN 912, 922, 952, INMG 900, 901, 902, 903, 904, 905, 910, 911, 912, 913, 914, 915, 916, 917, 918, 920, 921, 922, 923, 924, 925, 926, 927, 928, 930, 931, SAP 910, 911, or other approved courses.
- 3 credit hours in joint seminars: GRN 597
- 9 credit hours from ITU Business Management courses, project or thesis upon approval by the advisor: ACTN 900, 910, EBUS 910, ECON 920, FINN 933, GRN 511, 599, 921, 922, 923, MBAN 998, 999, MGTN 901, 920, 930, 942, 943,

945, 945W, 948, 949, 951, 954, MKTN 958, and all Information Systems Management courses, or other approved courses.

Specialized Curriculum: SAP ERP Training Program

SAP (Systems, Applications and Products) ERP is an enterprise resource planning software application produced by SAP AG that designed for any midsize and large organizations. This training program provides knowledge of business processes involved in various industries such as financial and public services, manufacturing, and other services.

All SAP courses can count towards electives for the following majors (programs):

- Computer Engineering
- Electrical Engineering
- Software Engineering
- Business Administration
- Engineering Management
- Computer Science

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to work the Application Programming, Business Analysis, System Analysis, Data Base Administration, and Documentation Development environments with the appropriate SAP tools.
- Understand and work with Master Data.
- Know how to customize SAP reports.
- Be able to create basic procurement reports.
- Understand how projects work in SAP.
- Be able to learn about SAP solutions, and implementation of the solutions.
- Be familiar with the configuration steps that must be considered when the SAP FI (Financials) CO (Controlling) Module is implemented.
- Understand the end-to-end implementation of functionality related to the Sales and Distribution (SD) Module.

- Be familiar with the basic overview of the HR Module, the advanced knowledge of configuration and testing.
- Understand all tasks of the SAP MM, including supply chain, vendor evaluation, invoice verification, inventory and warehouse management.
- Understand the principles of the SAP APO / SCM (Advanced Planning Optimizer / Supply Chain Management) system to judge the possibility of business requirements and procedures.
- Know the SAP NetWeaver module which allows students to combine information and practices from geographically dispersed locations using various technologies, including Microsoft's .NET, IBM's WebSphere and Sun's Java technologies.
- Understand the components of the SAP CRM (customer relationship management), which include acquiring and holding customers, improving customer loyalty, and implementing customer strategies.
- Be familiar with the activities of the SAP SRM (Supplier Relationship Management) such as spending analysis, category management, demanding, sourcing, operational contracts, invoicing, and supplier management.
- Understand the SAP ABAP (Advanced Business Application Programming), including language basics, report-writing, and transaction-writing, making screens and window lines, creating dictionary definitions, producing library tasks, and designing client/server functions.

ITU offers certificates for all the SAP courses.

Curriculum

SAP Certification is available in the following categories

- Financials (FI, CO & SEM): SAP 912, 908,
- Human Resource (HR): SAP 911,
- Operations (SD, MM, WM): SAP 910, 913, 915,
- Product Lifecycle Management (PS, PM, CS, QM): SAP 916, 917,
- Supply Chain Management (PP, APO): SAP 914, 908,
- SAP Additional Courses: SAP 901, 902, 903, 904, 905, 906, and 907.

English as Second Language (ESL):

English as a Second Language Program is designed to provide and enhance the non-native English speaker the opportunity to enroll in specific course tailored to promote fluency in the English language. Students will be given a standardized Academic English test, and scores from their TOEFL or IELTS will also be considered before placement into this program. Each ESL Program class focuses on the skills needed to help non-native speakers achieve advanced English language proficiency. A variety of topics and methodology are offered in support of our student-centered philosophy. Students who have already enrolled in an academic program may choose to enroll in one of these courses, but must have satisfactory test scores and approval of the English/ESL department chair, or academic advisor.

Program Learning Outcomes:

Upon completion of this program, graduates will:

- Be able to promote fluency in the English language.
- Be able to read, write, listen, and speak to achieve advanced proficiency language.
- Know the basic grammar and its functionality.
- Understand a variety of topics and methodology in support of student-centered philosophy.
- Be familiar with all the academic skills.
- Understand global communication technology

ESL Requirements:

- Student needs to meet admission requirement,
- Classes offered in 15-week semesters,
- Beginning, Intermediate and advanced English instruction,
- Courses in: Reading, Writing, Listening, Speaking, Grammar, and Academic Skills
- TOEFL preparation classes

Initial Requirements:

- Students should take English Placement Test,
- Achieve a cumulative grade point average of at least 2.00,
- English Test Requirement for Acceptance: Take the Test of English as a Foreign Language (TOEFL) within five years

prior to admission. The minimum admission score is 213 on new grading system,

- For ESL in English as a Second Language Program need to successfully complete a total of at least 36 credit hours, of which 21 credits of concentration courses and 15 credits of elective courses. Students with a lack of English proficiency should complete the 12 credits foundation courses before taking concentration or elective courses.

6. Course Descriptions

A descriptor followed by a number identifies a course. The descriptors are AMN (applied mathematics), CSN (computer science), MMN (multimedia), CEN (computer engineering), EEN (electrical engineering), SEN (software engineering), MBAN (Master of Business Administration), ACTN (accounting), ECON (economics), DISN (decision and information science), FINN (finance), FINA (Fine Arts), MGTN (management), and MKTN (marketing) MISY (Management Information System), HRMG (Human Resource Management), BUS (Business), . The graduate courses are assigned the course numbers at the 500, 600, 700, 800 & 900 levels. All 500, 600 & 700 block courses have 2 credit unit awards and the same course title with an 800 or 900 block awards 3 credit hours. All 500, 600, & 700 block courses therefore have an 800 & 900 equivalent, and visa versa. The doctorate courses are assigned 800 and 900 numbers. This number system is generated for the same course (with differing credit hours) to preserve the preexisting database of courses taken from previously enrolled students.

Prerequisite Requirements

All courses listing a prerequisite requirement can be petitioned by the student for waiver and evaluated by the Academic Committee on a case-by-case basis.

APPLIED MATHEMATICS (AMN)

AMN 910 Integral Transformations (3 credit hours)

Laplace transform and its application in ordinary and partial differential equations, Fourier analysis, Fourier integral, Fourier transformation and its applications in partial differential equations.

Prerequisites: AMN 302 and AMN 301

AMN 912 Applied Partial Differential Equations (3 credit hours)

This course is designed to provide computer/electrical engineering graduate students with problem solving analytical capabilities in Semiconductor Device Modeling, Electromagnetic Fields & Waves, Quantum Mechanics, and Transport Phenomena. The course

contents covers topics of analytic methods to solve linear and non-linear partial equations, such as Method of Characteristics, Separation of Variables, Eigen Function Expansion Methods, Green's Functions Methods, Perturbation and Asymptotic Methods, Similarity Method and Inverse Scattering Methods. Stability and Bifurcation will also be discussed.

Prerequisite: Undergraduate course in differential equations or engineering mathematics

AMN 920 Optimization Techniques I (3 credit hours)

Basic concepts, unconstrained optimization, linear programming, simplex method, degeneracy, multidimensional optimization problems involving equality or inequality constraints by gradient and non gradient methods.

Prerequisite: AMN 930

AMN 921 Optimization Techniques II (3 credit hours)

Combinatorial optimization, Hopfield neural network model, Simulated Annealing and Stochastic machines, mean field annealing, genetic algorithms. Applications to: Tab search, traveling salesman problems, telecommunications problems, quadratic 0-1 & quadratic assignment problems, graph partition and graph bipartition problems, point pattern matching problems, multiprocessor scheduling problems.

Prerequisite: AMN 920

AMN 930 Numerical Analysis (3 credit hours)

Numerical solution of linear system of equations by direct method and iterative method, numerical least square problem, Eigen value problem, numerical solution of non-linear systems of equations and optimization problems.

Prerequisites: AMN 301, AMN 302 and AMN 310

AMN 940 Discrete Mathematics (3 credit hours)

This course covers topics that are important in the development of computer algorithms and data structures, such as mathematical induction, asymptotic notations, recurrences, infinite series summations, graphs, digraphs, trees and counting combinatorial, discrete probabilities analysis and statistical quality control.

Prerequisite: AMN340

AMN 950 Fast Fourier Transformations and Applications (3 credit hours)

This course is designed to provide electrical/computer engineering and applied mathematics graduate students with the background knowledge of Fourier Transformations (FT), Discrete Fourier Transformations (DFT) and Fast Fourier Transformations (FFT). The applications of FFT in Filter Design, Signal Processing and Image Processing are also included in this course.

Prerequisite: AMN 510

AMN 952 Probability and Statistics for Engineers (3 credit hours)

Treatment of data, probability, probability distribution, probability density, sampling distribution, inferences concerning means and variance, non-parametric tests.

Prerequisites: AMN 301 and AMN 302

AMN 996 Independent Study (3 credit hours)

By arrangement with instructor. Independent study of topics of special interest in applied mathematics under the direction of a knowledgeable instructor in the field. It may consist of reading, homework, tests, presentations and projects determined by the instructor.

Prerequisite: Graduate standing

COMPUTER SCIENCE (CSN)

CSN 800 Software Engineering I (3 credit hours)

Requirements specification techniques, software design techniques and tools, implementation issues, software engineering and programming languages.

Prerequisite: CSN 382

CSN 810 Digital Design I (3 credit hours)

Switching algebras, combinational circuits, minimization techniques, and sequential circuits. Analysis of synchronous sequential circuits, counters, shift registers, use of CAD tools.

Prerequisite: CSN 321

CSN 822 Introduction to Computer Architecture (3 credit hours)

Overview of computer systems, CPU design, computer arithmetic, microprogramming techniques, design of main memory, memory hierarchies and management, input/output subsystem

organization, interrupt handling and DMA channels. Lab projects include design and implementation of a CPU based on a bit-slice microprocessor.

Prerequisites: CSN 321, CSN 324

CSN 830 Software Testing & Quality Engineering (3 credit hours)

Modern testing techniques based on black box or behavior testing, control flow and data flow testing, transaction based and finite state testing, domain testing, reliability testing, software reliability models, tools and automation.

Prerequisites: CSN 364, 374 and 464

CSN 835 Internet Architectures (3 credit hours)

The goal of this course is to provide students with a broad and deep understanding of the Internet. The topics include unicast routing, protocols, multicast routing protocols, Transport Protocols, Traffic Engineering, Multiprotocol Label Switching (MPLS), Generalized MPLS, Quality of Services, Queuing in Packet Switches, Switch Fabrics, Packet Processing, VPNs, and Mobile IP. The course also provides students with an opportunity to design and write networking programs.

Prerequisite: None

CSN 850 Modern Physics for Engineers (3 credit hours)

The material covered in this course is concerned with fundamental topics in modern physics with extensive applications in science and engineering. Topics covered are as follows: the particle nature of matter, matter waves, quantum mechanics in one dimension and three dimensions, tunneling phenomena, crystal structure, statistical physics, and semiconductor theory and devices.

Prerequisites: AMN 301, AMN 302 & College Physics

CSN 851 PERL Programming (3 credit hours)

An acronym for "Practical Extraction and Report Language", PERL gained attention in the explosion of Internet as a quick and effective way to create applications that provide much of the web's interactivity. Now, PERL is an industry standard and popularly interpreted programming language known for its power and flexibility. It combines the familiar syntax of C, C++, and scripting languages into a tool that is more powerful than the separate pieces used together. PERL is available on virtually every computer platform, and is used in all types of applications, including Web and Internet applications, generic software testing script writing for

automating tests, system administration and many other fields of applications. This course will teach basic PERL data structures, flow control, basic I/O, operators, strings, arrays, regular expressions and subroutines.

Prerequisites: Any programming language knowledge is helpful, but not required. UNIX experience is helpful.

CSN 853 Microelectronic and Integrated Circuit Engineering (3 credit hours)

Analysis and design of passive devices, resistors, capacitors, diode, MOSFETS and BJT, their principles, fabrication technology and small signal modeling. Inverters, static and dynamic CMOS logic gates. SPICE simulation of circuits. Device layout and RC extraction.

Prerequisite: CSN 321

CSN 860 Introduction to Communication Systems (3 credit hours)

This course provides an introduction to both digital and analog communications systems. Topics covered include signal representation in communication systems, principles underlying major components of digital and analog communication systems with an emphasis on modulation and demodulation methods. It intends to provide necessary background and technical skills to work professionally in communication systems.

Prerequisite: None

CSN 861 Bluetooth Implementation and Wireless LAN (3 credit hours)

Bluetooth is a global specification for wireless connectivity that allows phones, PDAs and other portable devices to connect to each other and transmit voice and data by radio in open air rather than cables. 802.11 is a wireless LAN protocol that is increasingly gaining industry support. This course provides an overview of each of these technologies, their unique capabilities, advantages and disadvantages. Students will understand protocol concepts, and do hands-on programming projects about software implementation. Software components including protocol stack design, MAC layer firmware design, performance issues, power management and application development are addressed.

Prerequisite: CSN 381

CSN 864 Java Programming (3 credit hours)

Introduction to Java, Application versus Applet, installing Java, variables, types, expressions, control constructs, java.lang, strings, vectors, Hash tables, File I/O, The Java AWT, components, events, layout managers, improved GUI libraries, threads, synchronization, Java intervals, Sockets, writing a server and a client.

Prerequisites: CSN 381 and CSN 481

CSN 866 Routing in the Computer Network (3 credit hours)

This course introduces different routing protocols (RIP, IGRP, EIGRP, OSPF, IS-IS and BGP) as well as new developments (multicasting and MPLS). Students will learn interior and exterior routing protocols that are currently being used in the Internet. In addition, they will study multicast routing and multi-protocol layer switching (MPLS).

Prerequisite: CSN 360

CSN 869 Optical Networking (3 credit hours)

This course is designed to provide computer science/computer engineering graduate students fundamental knowledge in optical communication and networking methods and enabling technologies. The course introduces students to optical fiber characteristics, optical networking components, physical layer systems: 10M/100M/1GE/10GE Ethernet, OC-3/OC-12/OC-48/OC-192 SONET Rings and ADMs, Ethernet, L. Bridges and switches.

Prerequisites: A basic course in Telecommunication

CSN 881 Introduction to C++ Programming Language (3 credit hours)

This course introduces the student to Object Oriented Programming through general C++. No IDE (MS Visual C++, Borland OWL, etc.) will be taught. It covers specification and implementation of classes; access modifiers to support information hiding; constructors, destructors and memory management; class inheritance, virtual functions and runtime binding; overloaded operators, isopteran library. Not covered are exception-handling, templates, STL, and iterations.

Prerequisite: CSN 381

CSN 882 Oracle Database Architecture and Administration I (3 credit hours)

The course is composed of two parts: Oracle architecture and administration. The first part gives a comprehensive picture of Oracle architecture and discusses the concept of Oracle database

and instance. The second part shows students how to create an Oracle database, allocating system storage and planning for future storage requirements, creating and modifying database storage structure and objects, and controlling and monitoring user access to the database.

Prerequisite: CSN 378

CSN 884 UNIX Networking Programming (3 credit hours)

The course will cover in detail the different interposes communication (IPC) facilities available under the Unix operating system to develop distributed applications in a network environment. Distributed application components can be executed on the same machine, or on different machines, or a combination. These IPC facilities have two main attributes: the IPC interface and the network protocol. The course covers in detail the following interfaces: pipes, FIFO, shared memory, message queues, semaphores, sockets, system V Transport Layer Interface (TLI), and Remote Procedure Calls (RPC). In addition, we cover a useful set of network routines that simplifies distributed programming.

Prerequisites: CSN 381, CSN 382 and SEN 556

CSN 885 Introduction to Linux/Unix Operating System (3 credit hours)

Linux operating system is a multi-user, multi-tasking operating system that runs on many platforms, including Intel Pentium, Intel Strong/Arm, Motorola MC68K, and Power PC processors. It implements a superset of the POSIX standard. Linux interoperates with other operating systems, including those of Microsoft, Apple, and Novell. In addition, Linux supports a wide range of software including X-windows; TCP/IP networking (including SLIP, PPP, and ISDN) protocols etc. It has been one of the fastest growing operating systems with over 10 million users and/or systems installed world wide, and is one of the major emerging operating systems.

Prerequisite: None

CSN 886 Software Design Using Unified Modeling Language (UML) (3 credit hours)

This course is an introduction to object-oriented principles of software design using the Unified Modeling Language (UML). Object oriented systems offer the promise of constructing highly modular and reusable software components. In this course we will discuss what is meant by object oriented design from analysis,

through system design to programming implementation. The course will focus on building the object-oriented (OO) analysis model for software engineering. Then it defines in depth principles of object orientation reviewing the characteristics that actually comprise a true object. The course covers the gathering of requirements for software design, software project organization & management, the role of design, use-case analysis, object modeling in software engineering and an introduction to design patterns. UML is presented in context throughout the discussion with emphasis on the practical application of OO principles and techniques, including the use of UML to solve real-world problems. Students are expected to write a detailed description of the design for each of the programs, incorporating UML models where appropriate. Students will implement their programs in the Java programming language.

Prerequisites: CSN 374, CSN 382. Students should be familiar with Java, C++ or other language, some web programming as well as basic data structure concepts and some UNIX.

CSN 892 Computer Graphics (3 credit hours)

Historical development of computer graphics, black and white graphics programming, color raster graphics, resolution and memory requirements, look-up tables, vector graphics and matrices, surfaces, rotation and scaling, graphics primitive, and transformation.

Prerequisite: AMN 340

CSN 896 Independent Study (3 credit hours)

By arrangement with instructor. Independent study of topics of special interest in computer science under the direction of an instructor. It may consist of reading, homework, tests, presentations and projects determined by the instructor.

Prerequisite: None

COMPUTER ENGINEERING (CEN)

CEN 910 Digital Design I (3 credit hours)

Analysis and synthesis of combinatorial and sequential digital circuits with attention to static, dynamic, and essential hazards. Algorithmic techniques for logic minimization, state reductions, and state assignments. Decomposition of state machine, algorithmic state machine. Design for test concepts.

CEN 911 VLSI Design Fundamentals (3 credit hours)

Fault simulation and testing of VLSI circuits, symbolic layout, yield analysis and advanced topics, place & route, VLSI CAD tools, programmable arrays, and ASIC concepts.

Prerequisite: CEN 911

CEN 932 Network Management (3 credit hours)

Basic principles and functionality of network management systems, introduction to network management protocols, i.e., Simple Network Management Protocol (SNMP), remote monitor functionality and network security, and future trends in network management tools and technologies.

Prerequisite: CSN 382 and CSN 360

CEN 933 Digital Signal Processing I (3 credit hours)

Discrete time signals, systems and properties, analysis of discrete time systems, structures for discrete time systems, properties of analog filters and frequency transformations.

Prerequisite: AMN 620

CEN 935 Internet Architectures (3 credit hours)

The goal of this course is to provide students with a broad and deep understanding of the Internet. The topics include Unicast Routing Protocols, Multicast Routing Protocols, Transport Protocols, Traffic Engineering, Multiprotocol Label Switching (MPLS), Generalized MPLS, Quality of Services, Queueing in Packet Switches, Switch Fabrics, Packet Processing VPNs, and Mobile IP. The course also provides students the opportunity to design and write networking programs.

Prerequisite: None

CEN 940 Network Security Techniques (3 credit hours)

Network security plays a key role in today's network computing environment. This course is designed to familiarize the students with fundamentals of network security issues, techniques, and applications. Topics include: introduction to computer networks, cryptography, secret and public key algorithms, authentication systems, digital signature, and secured e-mail systems. Some current hot topics, such as Internet security, e-commerce, and Virtual Private Network (VPN) will also be briefly covered.

Prerequisite: None

CEN 950 FPGA Design (3 credit hours)

The fast growing FPGA (Field Programmable Gate Array) provides a quick prototyping and flexible design choice in digital system. This course offers a balanced study between academic and practical approaches. It covers the basic concept of PFPGA such as architecture, design flow and its advantages vs. limitations. By working on a mini-project, students can develop a solid understanding and hands-on experience in this exciting digital design area.

Prerequisite: CEN 910 and ood understanding of digital design principle. Knowledge of HDL (Hardware Description Language), such as VERILOG or VHDL, is not required but very helpful.

CEN 951 Computer Architecture I (3 credit hours)

Instruction set design, processing unit, control unit, microprogramming, memory, and input/output subsystem.

Prerequisite: None

CEN 952 Digital Design with Verilog HDL (3 credit hours)

Hardware description language, algorithmic approach to digital design, design specification, synthesis, designs with gate arrays, simulation of digital design, and CAD tools and lab.

Prerequisite: CEN 951

CEN 954 ASIC Design Modeling (3 credit hours)

The goal of this course is to provide students a broad and practical understanding of the ASIC design process and issues. The topics include design techniques, design for test, design methodology, design verification and various tools used in the design process.

Prerequisites: CEN 910 and familiarity with digital design and electronic circuits. Prior knowledge of Verilog or other programming language is not required but highly recommended.

CEN 959 Operating Systems I (3 credit hours)

Process management, memory management, scheduling, concurrent processing, synchronization mechanisms, resource allocation, resources, deadlock, and file systems.

Prerequisite: CSN 382

CEN 960 Computer Communication Networks, TCP/IP (3 credit hours)

The course covers a detailed analysis for network topology, connectivity and routing design issues. An overview of graph theory algorithms used for the design of computer networks.

Introduction to queuing theory techniques for the calculation of network delays. Network backbone design, local access design, basic protocol modeling and verification.

Prerequisite: None

CEN 961 Bluetooth Implementation and Wireless LAN (3 credit hours)

Bluetooth is a global specification for wireless connectivity that allows phones, PDAs and other portable devices to connect to each other and transmit voice and data by radio in open air rather than cables. 802.11 is a wireless LAN protocol that is increasingly gaining industry support. This course provides an overview of each of these technologies, their unique capabilities, advantages and disadvantages. Students will understand protocol concepts, and do hands-on programming projects about software implementation. Software components including protocol stack design, MAC layer firmware design, performance issues, power management and application development are addressed.

Prerequisite: CSN 381

CEN 962 Design of Embedded Computing Systems (3 credit hours)

This course provides an overview and hands-on experience of the different phases of the design process of the embedded computing systems. The design phases span the process spectrum from requirements through manufacturing phases. The alternatives and choices available to the designer in every phase are studied together with the rationale for choosing one alternative over the other. The student will become familiar with the phases involved in an embedded computing system design project, and will be familiar with some of the tools and choices available at every phase. The student will also be able to decide which alternatives better suit that project's specific requirements.

Prerequisites: CSN 321 and CSN 324

CEN 963 Switching in Computer Networks (3 credit hours)

This course focuses on switching theory in computer networks. The course covers LAN switching techniques, including bridging, VLANs and trunking. The course also covers different switch fabrics, including input-buffered/input-output-buffered switches, shared-memory switches, banyan switches, knockout switches, abacus switches, cross point-buffered switches, Clos-Network switches and wireless ATM switches. Furthermore, this course

studies IP switching, in particular MPLS technology, including MPLS traffic engineering and MPLS/VPN.

Prerequisite: CSN 360

CEN 964 Computer Interface and Firmware Engineering (3 credit hours)

As computers have been widely used almost everywhere, from intranet to Internet, from personal uses to large-scale business applications, there are strong, increasing demands for computer-based industrial automation and instrument control. This is often referred to as computer interface, the bridge between hardware and software. This course is designed to overview various hardware interfaces that are practically used in industries as well as software that can communicate through these interfaces. Specifically it introduces communications through the serial and parallel ports, RS232 and GPIB interfaces, I/O buses, and device drivers written in C/C++. This course will also discuss microprocessor embedded systems and high-level graphical user interface (GUI) programming. Experimental examples are presented in the class and students are given practical projects to solving real-world problems.

Prerequisites: CSN 381, SEN 909, CEN 0 and CEN 951

CEN 965 Local Area Networks (3 credit hours)

CEN 966 Routing in Computer Networks (3 credit hours)

This course introduces different routing protocols (RIP, IGRP, EIGRP, OSPF, IS-IS and BGP) as well as new developments (multicasting and MPLS). Students will learn interior and exterior routing protocols that are currently being used in the Internet. In addition, they will study multicast routing and multi-protocol layer switching (MPLS).

Prerequisite: CSN 360

CEN 968 Design and Maintenance of Commercial Websites (3 credit hours)

This course focuses on the basic concepts of setting up, designing and maintaining commercial websites. It introduces both the principles and skills of building websites that people will visit, use, bookmark and revisit. It covers the entire website building process from server setup and site planning to the designs of both the server-side storage and the client-side presentation. This course

represents 45 contact hours of instruction required for 3 semester units or credits

CEN 969 Optical Networking (3 credit hours)

This course is designed to provide computer science and computer engineering graduate students fundamental knowledge in optical communication and networking methods and enabling technologies. The course is an introduction to optical fiber characteristics, optical networking components, physical layer systems: 10M/100M/1GE/10GE Ethernet, OC-3/OC-12/OC-48/OC-192 SONET Rings and ADMs, Ethernet, L. Bridges and switches.

Prerequisite: A basic course in Telecommunication

CEN 971 Storage Area Network (SAN) Implementation (3 credit hours)

In this comprehensive, practical course, the instructor will cover all aspects of storage networking. First, the theory of how a SAN can help consolidate conventional server storage onto networks will be explained. Understanding includes how a SAN can help make applications highly available no matter how much data is stored, which, in turn, makes data access and management faster and easier. The course will provide students practical advice on the design and implementation of this new technology and how it works to make deciding to adopt storage networking easier. Students will understand the theory of SAN technology, and appreciate its benefits. This course provides a detailed up-to-date coverage on the following topics: the evolution of computing in data centers leading to SANs, killer applications for SAN technology, storage networking theory, its meaning to an enterprise information processing architecture, software components required to implement, and practical issues in SAN implementation and management.

Prerequisite: CEN 963

CEN 973 Neural Networks I (3 credit hours)

Neuronal activity and mathematical models, perception type machines and learning, cerebellar models (work by Marr, Albus, Pellionisz and Llinas), parallel distributed processing (work by Hopfield, Grossberg McClelland and Rumelhart), and feedforward and feedback networks.

Prerequisite: AMN 920

CEN 974 Neural Networks II (3 credit hours)

Application of neural networks, architectures for neural networks and projects.

Prerequisite: AMN 920

CEN 996 Independent Study (3 credit hours)

By arrangement with instructor. Independent study of topics of special interest in computer engineering under the direction of an instructor who is knowledgeable in the field. It may consist of reading, homework, tests, presentations and projects determined by the instructor.

Prerequisite: Graduate standing

CEN 998 M.S. Project (3 or 6 credit hours)

By arrangement with project advisor. A nominal number of 2 or 4 credit hours is expected toward the M.S. degree if the Project Option is selected. Students will conduct independent research of an approved topic in computer engineering, prepare a technical report, and defend it before a faculty advisor.

Prerequisite: Graduate standing

CEN 999 M.S. Thesis (6 credit hours)

By arrangement with thesis advisor. A nominal number of 6 credit hours is expected toward the M.S. degree if the Thesis Option is selected. Conduct independent research of an approved topic in computer engineering, prepare a thesis, and defend it before a committee composed of a number of faculty designated by department chair.

Prerequisite: Graduate standing.

DIGITAL ARTS (MMM)

MMM901 Story Visualization (6 credit hours)

In this course the student will focus on scripting, storyboarding and techniques used in creating and portraying a story. The student will focus on process rather than production.

MMM902 Design (6 credit hours)

In this course students will use design as form of visual communication. This course introduces the basic principles to solve design problems and the ability to demonstrate effective use of color, typography, and production skills by using industry standard software. Students will explore the use tools, techniques and design layout principles to produce professional designs.

MMM903 Animation (6 credit hours)

In this course students will understand the basics of modeling, positioning and rendering 3-D objects. Students will understand Animation language, software and provide the necessary design skills and techniques employed by 3-D animation. Students will develop an understanding and use of a wide variety of applications used in animation.

MMM904 Sound Design (6 credit hours)

This course provides an introduction to sound design principles for multimedia in a broad and diverse manner. Students will develop skills in recording, digital editing and mixing with industry standard software and techniques.

MMM905 Creating Story (6 credit hours)

This course provides a variety of story development techniques for shaping a compelling story. The students will learn the fundamentals to demonstrate and adapt stories into a specific project.

MMM906 Archetypes (6 credit hours)

Students will learn to develop characters that will come alive. This class will help the student understand the importance of adding depth, detailed background, and distinctive characters who correspond to their thoughts and action.

MMM907 Acting (6 credit hours)

Students will learn the basic techniques of acting. This class will explore the creativity of finding emotions in acting and conveying them to the audience. Physical exploration, monologues, improvised and rehearsed scenes will give the students the necessary tools to succeed in acting.

MMM908 Camera Workshop (6 credit hours)

This workshop will teach students the fundamentals for video and lighting. This course will cover equipment, procedures and methodology useful for documentaries, dramatic and industrial projects. Learn useful techniques more effectively to develop your styles.

MMM909 Editing (6 credit hours)

Students will develop the skills and knowledge to create and edit high quality projects in a professional environment. Hands-on experience in basic and advanced video editing, sound, and all other aspects leading to a finished product.

MMM910 Business Marketing (6 credit hours)

This course will help students understand and handle the challenges encountered in a busy marketing environment. Appreciate and utilize the different marketing functions, the management of these functions and how each function affects others in the marketing domain.

MMM911 Design Web/Graphic (6 credit hours)

Student focus on developing and sharpening skills using the appropriate software tools, terminology and design theories. Students will gain valuable experience in the ideation, execution and presentation of projects.

MMM912 Web Programming/Authoring (6 credit hours)

The web programming/authoring course includes hands on instruction in the tools and techniques in making a high quality and professional website. Students will gain HTML skills required to create a web page. Software, code, writing, incorporating sound and video will be covered in this course.

MMM913 Copywriting/Journalism (6 credit hours)

This course covers all aspects writing for print, internet and broadcasting. Student will acquire skills to write and articulate various types of advertisement, which includes strategies, proposals, slogans and text copies.

MMM914 3D Art Production (6 credit hours)

This production course gives the student a good technical basis for design quality and introduces the student to the concepts and techniques for 3-D computer graphics. The major focus will be on creating and demonstrating skills in various types of production using the latest software and tools essential to 3-D art.

MMM915 Modeling (3 credit hours)

Students will utilize sophisticated software tools, investigate new techniques and explore 3-D Modeling. They will use design principles on the computer to further their understanding of the creative process in constructing models and environments.

MMM916 Animation (3 credit hours)

Students will understand the basics of modeling, positioning and rendering 3-D objects. Students will understand animation language, software and provide the necessary design skills and techniques employed by 3-D animation. Students will develop an understanding and use of a wide variety of applications used in animation.

MMM917 Game Development (3 credit hours)

Students will understand and discuss the process of game development. This course carefully teaches how technical development and artistic development go hand in hand in this process. The course will investigate topics such as game engine, sound, rendering, user interface and other facets of computer science in game development.

MMM918 Preproduction (3 credit hours)

Students will learn all aspects of preproduction and planning for film and TV. Students will experience the role of producer and learn what it takes to plan and start a project and take it to completion.

MMM919 Screenwriting (3 credit hours)

This course is an introduction to writing for the screens. Topics include dialogue, characterization, plot, format, structure and the writing process. Students will learn to examine films from a writers' point of view and participate in writing exercises.

MMM920 Lighting (3 credit hours)

Course introduces film lighting techniques, concepts, terminology related to film and video production. Students will become familiar with standard procedures and hands on experience with lighting equipment. The use of spot meters and light measuring techniques will be covered.

MMM921 Camera (3 credit hours)

In this course students will achieve a comprehensive overview of camera work. Students will learn camera operation, mounts, movement and framing to make a better project. Focus is creating and showing a understanding of video as an art form in all contexts.

MMM922 Editing (3 credit hours)

This course will give the students knowledge and experience in video editing. Students will demonstrate the use of the latest editing software, post-production methods, sound editing, titling and effects. Topics include graphic matching, rhythmic editing, continuity and montage editing.

MMM923 Special Effects (3 credit hours)

This course will teach students how to use the latest industry standard software and demonstrate special effects to help tell a story. Practical usage on projects ranging from high budget to low budget films will be covered as well as enhancing footage.

MMM924 Portfolio Production (3 credit hours)

In this course students will compose a multi-media portfolio of past projects and work pieces in DVD format. Students will learn how the portfolio will apply to the job market environments and the important role it plays in the new digital age.

ELECTRICAL ENGINEERING (EEN)

EEN 901 Solid-State Electronics for Integrated Circuits (3 credit hours)

The course will focus on practical knowledge of fabrication and measurement of common semiconductor devices. It will consist of the processing of light emitting diodes, Schottky diodes, metal oxide semiconductor (MOS) capacitors, p-n junction diodes and field-effect transistors. Students start with plain wafers of silicon or gallium arsenide phosphide and have to design, create, and measure their own devices. Laboratory teaching assistants will supervise the students in these tasks, instruct them on how to make their own photolithography masks and guide the students through the lithography, pattern transfer, metallization and device measurement procedures. In the second term of the class, students will build and construct more advanced devices including MOS field effect transistors, bipolar transistors, microelectromechanical microphones, and laser diodes.

EEN 902 Fundamentals of Semiconductor Physics (3 credit hours)

The course will focus on crystal structure and crystal binding, introduction to quantum mechanics and quantum statistics, energy band theory, phonon theory of crystal vibrations, equilibrium

carrier statistics, recombination-generation processes and carrier transport.

Prerequisite: A course in college physics.

EEN 903 Semiconductor Devices and Modeling (3 credit hours)

The course will focus on semiconductor physics, band theory, drift and diffusion, recombination/generation, P-N junctions in equilibrium forward and reverse bias, breakdown, transient and AC behavior, and bipolar junction theory, switching and frequency limitations. Spice modeling theory and methods.

EEN 904 Integrated Circuit Processing & Equipment (3 credit hours)

The course will review, discuss, and analyze various steps used in IC fabrication; focus on principles, processes, equipment, engineering practice; history and current status of semiconductor industry, semiconductor and process materials, crystal growth and wafer preparation, contamination control and yield, oxidation, rapid thermal processing, photolithography, steppers, X-ray & e-beam lithography, chemical mechanical polishing, doping, ion implantation, deposition (PVD, CVD, Epi), etching, metallization, wafer testing, formation of various devices, manufacturing technology and packaging; design, hardware, software control and process engineering aspect of semiconductor fabrication equipment.

EEN 905 Integrated Circuit Fabrication Processes (3 credit hours)

The course will focus on Principles of IC fabrication processes and characterization of basic semiconductor devices, Basic materials properties, Process simulation and integration, and Principles and practical aspects of fabrication of devices for MOS and bipolar integrated circuits.

EEN 906 (974) Electromagnetic Fields and Waves (3 credit hours)

This course will introduce electromagnetic fields in vacuum and in matter, boundary value problems and Green's functions, retarded potentials, wave propagation, wave-guides and cavities, radiation, dispersion and absorption.

EEN 910 Integrated Circuit Design and Method (3 credit hours)

The course will be designed to bring students an overview picture of IC design industry. Various IC design methods, tradeoff and

applications are introduced. The course projects will allow students to practice different approaches of Full-Custom design, ASIC/SOC design or FPGA design.

EEN 911 VLSI Design I - Circuit Design (3 credit hours)

The course will bring fundamental considerations involved in VLSI chip design. Various circuit designs will be introduced to understand design concepts, techniques and tradeoffs in practical implementations, Physical design aspect of and global issues in chip designs, and design considerations of circuit performance, size and power consumption.

EEN 912 VLSI Design II - Memory Design (3 credit hours)

The course will be an advanced circuit design consideration and implementation. It will focus on various memory design concepts, techniques, and applications involved DRAM/SDRAM, SRAM/SSRAM, ROM, EPROM, FLASH, etc.

Prerequisite: EEN910 or EEN911 or instructor approval.

EEN 913 Microprocessor Design (3 credit hours)

The course will introduce various microprocessor architectures, characteristics, and applications, and deliver to students a specific microprocessor design to understand each functional block design and design considerations.

Prerequisite: EEN910 and CEN922 or instructor approval.

EEN 915 Analog Circuit Design (3 credit hours)

The course will involve Design and analysis of multi-stage BJT and CMOS analog amplifiers, Frequency response of cascaded amplifiers and gain-bandwidth considerations, Concepts of feedback, stability, and frequency compensation.

EEN 916 Mixed Signal IC Design (3 credit hours)

The course will focus on the intersection of the digital and analog design worlds. The students will be expected to have basic analog circuit and digital design knowledge, and to have used the principal EDA tools like SpectreRF and Verilog. The course will cover SoC system design and mixed signal subsystems such as A/D converters, digital PLLs, embedded CPUs with thermal sensors, DDR PHYs and others. Mixed-signal issues like substrate noise will be explored in detail. The course will also include a significant design project with a simple embedded CPU.

EEN 917 Advanced Analog IC Design (3 credit hours)

The course will provide an understanding of analog circuit and systems design and complex CMOS IC issues. Topics include high-frequency amplifiers, high-Q oscillators, low-noise circuits, selecting passive components for minimum mismatch, non-linear systems, active filters, A/D and D/A converters, grounding and shielding, layout and system design. Students will design a medium-complexity analog circuit starting from performance and parametric specifications. The course will require heavy use of HSPICE and some electromagnetic modeling.

Prerequisite: EEN915 or instructor approval.

EEN 918 RF IC Design (3 credit hours)

This advanced course will cover CMOS RFIC design. The course will start with basic electromagnetics like high-Q inductor design, then moves into device modeling and layout issues. It will examine in detail the primary CMOS RF subcircuits like LNAs, power amplifiers, fractional N synthesizers, mixers, filters, local oscillators and baluns; and supporting mixed signal circuits like A/D converters and baseband filter-amplifier blocks. RF system analysis will be explored and applied in calculating overall link budgets, receiver noise figure and gain and filter bandwidth requirements. The course will include a significant design project that is typically a subsystem like a power amplifier or low-noise amplifier. The design will be done using SpectreRF, with the passive components designed using Sonnet or equivalent modeling tool. The circuits will be laid out using Virtuoso and the parasitics will be extracted using Assura.

Prerequisites: EEN915 and EEN917 or instructor approval. Knowledge of basics electromagnetics is helpful.

EEN 919 Low Power IC Design (3 credit hours)

This course will cover Design consideration and techniques for low power IC design, Power estimation and analysis at different design stages, Techniques and tradeoffs in high performance and power critical IC design.

Prerequisite: EEN910 or instructor approval.

EEN 920 Scientific Computing (3 credit hours)

This course will cover fundamental scientific computing and optimization techniques used in various electronic engineering fields. The techniques include interpolation methods (linear and non-linear interpolation, piece-wise interpolation, Splines, surface

interpolation), solving equations and partial differential equations using numerical methods, optimizations (linear programming, dynamic programming, iterative method), approximations, Monte Carlo simulations. Parallel computing will also be introducing using clusters.

EEN 921 Computer-Aided Design of Integrated Circuits (3 credit hours)

The course will cover a wide variety of topics relating to the development of computer aids for integrated circuit design. It will emphasize state-of-the-art techniques and both the theoretical basis for the methods as well as the application of results to practical problems, including details of implementation.

EEN 922 Design for Testability (3 credit hours)

The course will teach students the fault modelings including single stuck-at fault (SSF) and multiple stuck-at fault, fault equivalence and dominance, fault simulation techniques: serial, parallel and concurrent, testing algorithms for SSF and bridge fault, functional testing, PLA testing. Memory testing; and will also Introduce commercial tools and their capabilities.

Prerequisites: EEN910 or instructor approval.

EEN 923 Logic Synthesis and Equivalence Checking (3 credit hours)

The course will introduce logic synthesis for combinational and sequential circuits, the method of equivalence checking, and the ties between the two. Advanced algorithms applied to methods are introduced. The challenges of speed, scalability, verifiability, and superior results over classical methods will be discussed. Recent focus of retiming, register correspondence, and use of approximate unreachable states are considered.

Prerequisite: EEN920 or instructor approval.

EEN 924 Signal Integrity of High-Speed Digital Circuits (3 credit hours)

The course will introduce the issues in signal integrity of high-speed digital circuits, identify signal integrity problems; circuit analysis for transient signals in lumped and distributed circuits; reflection and crosstalk; analysis of coupled-line systems; current measurement processes for high-speed signals; and also the current

design techniques, rules and procedures.

Prerequisites: EEN905, EEN910 or instructor approval.

EEN 925 Introduction to MEMS Design (3 credit hours)

The course will apply parametric design and optimal design to micro-electro-mechanical systems with an emphasis on design and micro-mechanical simulation. Students will learn microfabrication techniques and analyze a variety of MEMS structures including switches, accelerometers and microcavities.

Prerequisite: EEN902 or instructor approval.

EEN 927 (914) VLSI System Design (SOC) (3 credit hours)

The course will be an introduction to ASIC and SoC design fundamentals, and cover VLSI architectures, systolic arrays, self-timed systems; System verification; Design flow and implementation; Design consideration and analysis; and Trends in VLSI development.

Prerequisite: EEN910 or instructor approval.

EEN 928 VLSI Design to Silicon (3 credit hours)

The course will provide students on-hand chip design practice. Students will complete a full-custom chip design from circuit to silicon. With given technology and design spec, students will start their own designs from transistor-level schematic design and verification, to the completion of layout and layout verification, and run LPE and whole chip post-layout verification. The designs will be taped out for manufactory and chips will be packaged and tested.

Prerequisite: EEN910 or instructor approval.

EEN 930 (950) Quantum Devices (3 credit hours)

The course will introduce the knowledge of principles and operational characteristics of modern semiconductor devices, especially nanometer scale structured semiconductor devices. Topics includes quantum transport, quantum interference, quantum noise, transport and optical properties of low dimensional semiconductor devices, quantum optical devices, high electron mobility transistors, single electron transistors, super conducting devices, and quantum transport in mesoscopic structures.

EEN 931 Nanotechnology I (3 credit hours)

Nanotechnology is the field of fabrication, characterization and manipulation of nanometer scale objects. The course will analyze in details a step-by-step description of the equipment, facilities processes and process flow needed to fabricate small devices and structures, and cover fabrication challenges and break-throughs in semiconductor nanotechnology. Students will learn processing and manufacturing concerns including process control, contamination, yield, and processing interaction, and also practice design process flows to build micro- and nano-scale devices and systems.

Prerequisites: EEN902, EEN930 or instructor approval.

EEN 932 Nanotechnology II (3 credit hours)

The course will be a further study on quantum behaviors which mechanic, electronic, magnetic, optical and chemical properties open the door to a new domain of engineered nanostructures and nanodevices, with enormous applications in many aspect of life. Students learn small scale quantum phenomena, device fabrication, analysis and synthesis processes, instrumentation for characterization, integration of nanodevices and systems.

Prerequisite: EEN931 or instructor approval.

EEN 933 (962) Network Analysis (3 credit hours)

The course will introduce linear graph concepts and definitions, graph matrices and Kirchhoff's equations, matrix loop, node and cutset equations with generalized branch representation, and topological formulas for network functions and their application to computer-aided analysis.

EEN 934 (964) Computer-Aided Simulation of Electronic Circuits (3 credit hours)

The course will introduce DC and AC analyses of linear networks, DC analysis of nonlinear resistive networks, linear and nonlinear capacitors and inductors, circuit models for semiconductor devices, and the stability region of numerical integration algorithms.

EEN 941 Digital Signal Processing (3 credit hours)

The course will focus an advanced techniques in signal processing. Stochastic signal processing, parametric statistical signal models, and adaptive filterings. Application to spectral estimation, speech and audio coding, adaptive equalization, noise cancellation, echo cancellation, and linear prediction.

EEN 942 Digital Image Processing I (3 credit hours)

The course will be designed to introduce fundamental knowledge of basic image processing algorithms and systems. It will cover image acquisition, image data structures, images operations such as, geometric, arithmetic, logical convolution, transforms, calibration, correction, enhancement. Matlab will be used to help students grasp the basic skills of processing images on digital computers.

Prerequisite: EEN920 or instructor approval.

EEN 943 Digital Image Processing II (3 credit hours)

This course will be designed to introduce techniques and implement algorithms for advanced digital image processing. It will cover segmentation, shape and texture, Morphology, recognition and classification. And compression techniques, real-time image and video coding will be covered. Matlab is used to implement and test various image processing algorithms.

Prerequisite: EEN942 or instructor approval.

EEN 946 Designs of Embedded Systems (3 credit hours)

The course will focus on design methodologies and foundations; Platform-based design and communication-based design and their relationship with design time, re-use, and performance; Models of computation and their use in design capture, manipulation, verification, and synthesis; Mapping into architecture and system platforms; Scheduling and real-time requirements; Performance estimation; Simulation techniques for highly programmable platforms; and Synthesis and successive refinement.

EEN 951 Control Engineering (3 credit hours)

The course will introduce the knowledge of block diagram & signal flow graph, modeling of electromechanical, hydraulic, pneumatic systems, state variable representation & transfer functions, matrix methods in state space, controllability, observability, and canonic form transformations, pole placement with state feedback and integral control, time domain analysis & stability criteria, root locus & method for output feedback design, and control system simulation.

EEN 952 Digital Controls (3 credit hours)

The course will introduce the knowledge of frequency, stability, design in the frequency domain, introduction to computer control, Z-transform technique, sampling, A/D & D/A conversion, digital

redesign, minimum norm and root locus design, state space design, and state observers.

Prerequisite: EEN951 or instructor approval.

EEN 953 Intelligent Controls (3 credit hours)

The course will introduce Artificial intelligent theories, algorithms, and applications; Detection and analysis; Self-learning system; and Project of robot system design.

Prerequisite: EEN920 or instructor approval.

EEN 954 ASIC Design Practice I (3 credit hours)

The course will focus on ASIC design principle, consideration, and design implementation with logical design, verification, synthesis, design analyses of function, timing, power, signal integrity and others. A design project with a front-end ASIC design flow will be assigned for practice.

Prerequisite: EEN910 or instructor approval.

EEN 955 ASIC Design Practice II (3 credit hours)

The course will focus on ASIC design principle and consideration, emphasize on back-end design implementation with placement and routing, layout verification and parameter extraction, design for manufacture and post-layout analysis A design project with a back-end ASIC design flow will be assigned for practice.

Prerequisite: EEN954 or instructor approval.

EEN 958 FPGA Design (3 credit hours)

The course will focus on FPGA (Field Programmable Gate Array) principles and implementations. It will cover FPGA architecture, design flow and application advantages vs. limitations, and actualize design projects with FPGA implementation. Students will develop solid understanding and hands-on experience in this exciting digital design area.

Prerequisites: Knowledge of HDL (Hardware Description Language), VERILOG or VHDL.

EEN960 Parallel Computing (3 credit hours)

The course will focus on parallel computing frameworks and techniques. It will cover cutting-edge techniques which including multiprocessing, multithreading, synchronization, cluster/MPI, cell computing, general purpose GPU (CUDA/STREAM), and stream computing. The course project will be issued for

solving/benchmarking some computing intensive problems, such as Monte-Carlo simulations, partial differential equations, image processing, etc, using different parallel computing frameworks.

EEN 961 (967) Fundamentals of Communication Systems (3 credit hours)

The course focuses on the analysis, principle, and application of the communication systems, both digital and analog. Students will learn Fourier techniques and their usages in communication systems, brief review of probability theories, concept of information theory, different modulation and demodulation techniques.

Prerequisite: EEN941 or instructor approval.

EEN 962 (965) Applied Linear Systems (3 credit hours)

The course will introduce state equations, and their time and frequency domain solutions, methods for calculating state transition matrix, modes suppression and excitation, Z-transform and inverse transform sinusoidal steady state analysis and digital filtering, stability in linear time-invariant systems.

EEN 963 (&966) Digital Communications (3 credit hours)

The course will focus on basic theory and principles up on today's digital communication technologies. It will cover introductory information and coding theory, baseband transmission systems, its optimum receiver structures, intersymbol interference, equalization; and discuss application of digital systems, various modulation and corresponding demodulation schemes.

Prerequisite: EEN961 or instructor approval.

EEN 966 Computer Network Systems (3 credit hours)

The course will introduce the principles and techniques in computer network design and architecture. Topics will include OSI and TCP/IP reference models, packet switching, data link control, medium access control, routing algorithms and transport layer control. In addition, an introduction will be given for client-server model, LAN, WAN and network performance evaluation.

EEN 970 Introduction to Microwave Engineering (3 credit hours)

The course will introduce high frequency theory, the basic performance, bandwidth, and manufacturing yield of RF and microwave networks. Students will learn Electromagnetic field theory and mathematical details; the applications of different

matrices and their limitations; and the basis and use of Smith chart, and filter designs.

EEN 971 Introduction to Wireless Communication Systems (3 credit hours)

The course provides an overview of wireless communication systems in use today as well as some of the emerging systems. It presents wide range of wireless applications, from cell phones to wireless local area networks (WLAN) to satellite communications. It will examine the pros and cons of wireless communication and describe both infrared and radio technologies. Finally it will survey the representative 2G, 3G and 4G cellular systems as well as representative WiFi WLAN systems.

Prerequisite: EEN961 or instructor approval.

EEN 972 Wireless Communication Networks (3 credit hours)

The course will present wireless networking over a range of applications, from cell phones to wireless local area networks (WLAN) to broadband wide area network links to satellite. It will cover representative systems of the first, second, third and fourth generation cellular systems as well as those of WLAN and Wireless Personal Area Network (WPAN). The coverage will focus on the MAC and PHY layers and will emphasize the recent and emerging systems. It will also introduce mobile IP and Wireless Application Protocol (WAP).

Prerequisite: EEN971 or instructor approval.

EEN 973 Wireless Communication Development (3 credit hours)

The course will introduce wireless communication and briefly trace its history. It will cover the propagation loss and both long-term and short-term fading in wireless channel. It will describe in details how the time, frequency and antenna diversities can be used to effectively mitigate the effects of fading. Finally, it will cover the principle of cellular communications and introduce multiple access and interference management in the cellular environment.

Prerequisite: EEN971 or instructor approval.

EEN 974 Advanced Wireless Communications (3 credit hours)

This course will build on the concepts covered in EEN 973. The topic covered here include: capacity of wireless channels, multi-user capacity and multi-user diversity, MIMO channel capacity and

spatial channel modeling, MIMO receiver design. The concepts will be illustrated using examples from the WiMax and LTE systems.

Prerequisite: EEN973 or instructor approval.

EEN 975 High Speed Digital Systems (3 credit hours)

The course will focus on the practical and theoretical aspects necessary to design modern high-speed digital systems, including Transmission line theory, cross talk, connectors, packages, and vias, modeling, SSN (Simultaneous Switching Noise), power delivery system, driver/receiver buffer modeling, clock distribution, digital timing analysis, design methodologies, and other advanced topics.

Prerequisite: EEN906 or instructor approval.

EEN 977 Green Energy (3 credit hours)

The course will focus on solar energy, specially the principles and operational characteristics of modern solar cells. Main topics to be covered will be solar energy principles, principles of diode, solar cell, concentrated solar cell, thin film solar cell, multi-cell structure, power conversion (DC to AC, grid), power storage (battery, fuel cell, etc) and other green energy source (hydro, wind, biomass, etc) comparison.

Prerequisite: EEN902 or EEN903 or instructor approval.

EEN 995 Special Topics in Electrical Engineering (3 credit hours)

The course will offer a relatively new subject that is not currently available in the catalog, but will be of great relevance to electrical engineering. It will consist of lectures, readings, homeworks, presentations and projects determined by the instructor.

EEN 996 Independent Study (3 credit hours)

By arrangement with instructor. The course will be independent study of topics of special interest in electrical engineering under the direction of an instructor who is knowledgeable in the field. It will consist of readings, homeworks, tests, presentations and projects determined by the instructor.

EEN 998 Project (3 credit hours)

By arrangement with project advisor. A nominal number of 2 or 4 credit hours will be expected toward the M.S. or PhD degree if the Project Option is selected. Student will conduct independent

research of an approved topic in electrical engineering, prepare a technical report, and defend it in front of a faculty advisor.

Prerequisite: Graduate standing

EEN 999 Thesis (6 credit hours)

By arrangement with thesis advisor. A nominal number of 6 credit hours will be expected toward the M.S. or PhD degree if the Thesis Option is selected. Students will conduct independent research of an approved topic in computer engineering, prepare a thesis, and defend it in front of a committee composed of a number of faculty designated by department chair.

Prerequisite: Graduate standing

ENGLISH AS A SECONDARY LANGUAGE (ESL)

ESL 101 The Pronunciation of American English (3 credit hours)

This course will cover the phonetics of American English, giving practice in pronunciation. Students will learn how to reduce their native accent with speech articulation. This course teaches ESL learners to hear, identify, and clearly articulate the sounds and patterns in spoken English.

ESL 102 Introduction to ESL - Grammar & Writing (3 credit hours)

An intense review of grammatical structure, of writing skills. This course is designed to promote accurate and appropriate language usage. Students must demonstrate the ability to write effectively in an academic environment. Course covers sentence structure, verb tenses, short essays, and content interpretation.

ESL 103 Introduction to ESL - Vocabulary & Reading (3 credit hours)

This course is designed to enhance the student's word usage and oral reading ability. Students will review academic word usage relative to homework, study, and modern English. Consisting of essays, reading comprehension, and increased reading speed.

ESL 104 Introduction to ESL - Listening & Speaking (3 credit hours)

In this class, students will refine oral presentations, focusing on pronunciation and listening skills. Students will receive extensive practice speaking in an academic and professional setting.

ESL 105 Introduction to ESL Lab (3 credit hours)

The lab course will provide the student with more individualized instruction and exercises, combining all the skills attained in the regular class. The lab course is mandatory.

ESL 201 Intermediate Grammar & Writing Skills (3 credit hours)

Students will work on academic writing, critical reading and augmentation, style and organization of writing, summarizing, paraphrasing, and short essays. Student must submit a final report.

ESL 202 Intermediate Vocabulary & Reading Skills (3 credit hours)

This course is designed to promote class participation as well as practice in formal and informal communication skills, including listening comprehension, pronunciation, conversational, and presentation skills.

ESL 203 Intermediate Listening & Speaking Skills (3 credit hours)

Oral communication and presentation skills essential for participation in seminars and conferences. Students will work on projects in their own field, such as thesis, articles for publication, and dissertations.

ESL 204 Intermediate Lab for ESL (3 credit hours)

The lab course will provide the students with more individualized instruction and exercises, combining all the skills attained in intermediate classes. This lab course is mandatory, and will include computer-based exercises.

ESL 301 Comprehensive ESL Reading & Writing (3 credit hours)

Students will work on academic writing, critical reading and augmentation, style and organizations of writing, summarizing, paraphrasing, and short essays. Student must submit a final report.

ESL 302 Comprehensive ESL Oral Communications (3 credit hours)

This course is designed to promote class participation as well as practice in formal and informal communication skills, including

listening comprehension, pronunciation, conversational, and presentation skills.

ESL 310 Academic and Professional Discussions (3 credit hours)

Oral communication and presentation skills essential for participation in seminars and conferences. Students will work on projects in their own field, such as thesis, articles for publication, and dissertations.

ESL 311 Cross-Cultural Language Concepts (3 credit hours)

This course develops a students' awareness of various cultural dialects and focuses on the everyday speech patterns used in conversation. Students will explore the different ways in which various cultures address each other.

ESL 312 Exploration of Current Events (3 credit hours)

This course is designed to explore the many areas of current events through media and publications. Students will learn the up-to-date trends in different cultural environments.

ESL 313 Global Communication Technology (3 credit hours)

This course will look at the effect of the global environment on organizational communication. Focus will be on developing communication theories in computer mediated, group and distributed teams, and cross-cultural communication. The class will study the barriers to communication, strategies and modifications needed to implement global communication strategies.

ESL 314 Business English Terminology (3 credit hours)

The course will develop designs for non-native English speaking students. The purpose of the course is to equip students with the English writing, speaking, and listening skills necessary to communicate effectively on the job.

ESL 315 Information Technology for Non-Native Speakers of English (3 credit hours)

This course will emphasize the development of English vocabulary, specifically computer terminology, and grammar while strengthening the students' reading, writing, listening, and speaking skills.

ENGINEERING MANAGEMENT (SEM)

SEM 901 Introduction to Software Management (3 credit hours)

Through seminar discussions, collaborative practice, and individual investigation, students assess real software businesses from marketing, business strategy, financial, and overall business perspectives, applying fundamental methods, models to frameworks. Throughout the course, students are also coached on effective business communication.

Prerequisite: Graduate Standing.

SEM 902 Managing Software Professionals (3 credit hours)

This class will address a series of issues related to coordinating and managing the various tasks associated with a distributed software development project. In this context, you consider a variety of issues related to hiring, retention, and dismissal of employees, as well as cultural considerations of managing a diverse team.

Prerequisite: Graduate Standing.

SEM 903 Software Product Strategy (3 credit hours)

Students will learn to use market analysis techniques to evaluate opportunities for software products. They then use this information to explore technical feasibility, to expand the product definition, create a product roadmap, and presenting findings to senior management.

Prerequisite: Graduate Standing.

SEM 904 Management of Outsourced Development (3 credit hours)

Student project teams analyze the business rationale, risks, and benefits for outsourcing some or all of a new software project and present its recommendations for outsourcing to senior managers. The analysis includes what tasks should be outsourced, how to select suppliers, and how to manage the outsourced work effectively.

Prerequisite: Graduate Standing.

SEM 905 Open Source Software (3 credit hours)

Students acquire fundamental skills and awareness of recent technical and business issues regarding open source software. Emphasis is on understanding the impact of open source software on the software industry including licensing and commercialization issues, corporate software evaluation techniques, and business models.

Prerequisite: Graduate Standing.

SEM 906 Enterprise Architecture (3 credit hours)

In this class students will learn the proposal and evaluation of architectural alternatives for software systems, including both packaged and open source applications. Study includes integration mechanisms, inclusion of pre-built components, and adherence to standards to satisfy a given set of business, technical, and functional requirements.

Prerequisite: Graduate Standing.

SEM 907 Software Product Marketing (3 credit hours)

Student teams develop marketing plans for new software products or services, identifying programs needed to support the cost-effective launch and ongoing marketing activities for the software. Teams define the product positioning and the product marketing initiatives, including pricing, channel management, service agreements, product collateral, sales, marketing communications, and partnerships.

Prerequisite: Graduate Standing.

SOFTWARE ENGINEERING (SEN)

SEN 900 Software Engineering I (3 credit hours)

The lessons for this course are the same as CSN 800. This course meets 3 hours per week for 16 weeks. Requirements specification techniques, software design technique and tools, implementation issues, and software engineering and programming languages.

Prerequisite: CSN 882

SEN 901 Security Programming (3 credit hours)

This Secure Programming course gives students a good working knowledge of common programming problems and how to avoid them in their code. Students also gain the ability to review existing programming for vulnerabilities and how to rectify them. This course will help students get started on the right foot with Windows security APIs, Java Security, and give the students the foundation of knowledge needed to understand even the most obscure security concepts. It will also introduce the students to techniques for adding security-based features to various applications. Through carefully designed code and interfaces, students will be able to extract security information from objects easily and protect objects with a minimum of code. This is a

programming and code-oriented class with lots of hands-on projects and exercises.

Prerequisite: SEN909 or SEN964

SEN 908 Visual Basic Programming (3 credit hours)

This course will provide students with the proper Visual Basic environment knowledge, and programming language skills needed to write applications with sophisticated Graphical User Interfaces (GUI) that run on an MS Windows Operating System.

Prerequisite: CSN 922

SEN 909 Advance OO Programming with C++ (3 credit hours)

Students will learn the syntax of C++, classes and objects, encapsulation, inheritance, polymorphism, design for reuse, and programming with objects.

Prerequisite: CSN 381

SEN 910 GUI Programming Using Java (3 credit hours)

This course will teach students about Graphical User Interface (GUI) development using Java Swing. The majority of software today depends on a GUI for user and software interaction. More and more software companies are increasing efforts towards GUI development since its quality can mean the success or failure of their product. In this course, students will acquire the essential knowledge and skills to create a user-friendly GUI that maintains responsiveness and stability, and complies with the most natural human expectations and reactions on a computer screen.

Prerequisite: SEN 964

SEN 911 Web Graphic Design (3 credit hours)

Web Graphic Design takes into consideration the art and profession of selecting and arranging visual elements – such as typography, images, symbols, audio, video and colors – to convey a message to an audience. Sometimes graphic design is called "visual communications." Website creation is a collaborative discipline in which Web Graphic Design plays an essential role: writers produce content while photographers and illustrators create images that are then used by the Web/Graphic designer to incorporate into a complete visual message – hence the website.

SEN 920 Computer Algorithms (3 credit hours)

Students will learn about algorithm design, sorting algorithms, searching, graph algorithms, stacks, queues, and dictionaries implementations.

Prerequisites: AMN 840, CSN 882 and SEN 909

SEN 929 Automata, Computability, and Complexity (3 credit hours)

This course introduces mathematical models of computation and the finite representation of infinite objects. It covers finite automata and regular languages, context-free languages, Turing machines, partial recursive functions, Church's Thesis, undesirability, reducibility and completeness, time complexity and NP-completeness, probabilistic computation, and interactive proof systems.

SEN 930 Software Testing & Quality Engineering (3 credit hours)

This course is a amalgam of modern testing techniques based on black box or behavior testing, control flow and data flow testing, transaction based and finite state testing, domain testing, reliability testing, software reliability models, tools, and automation.

Prerequisites: SEN 500, SEN 509 or SEN 564

SEN 932 Software Testing & Automation Via Perl & Shell Script (3 credit hours)

Learn traditional (UNIX) software tools, such as shell scripts, Tcl/Tk scripts, Perl, make, and possible .BAT (Win32) files. Practical applications of these tools involve regression tests, automate software releases, handle email and perform general computer automation.

Prerequisites: CSN 864 or CSN 881, and SEN 956

SEN 934 Database Management Systems (3 credit hours)

This course will teach students about data definition and manipulation languages (related algebra and calculus). Students will also learn about the architecture of database management systems, transaction management, concurrency control, and security, distribution and query optimization.

Prerequisite: CSN 878

SEN 936 Software Tools (3 credit hours)

Students will develop techniques for building tools and interfaces, and designing for different applications.

Prerequisite: SEN 500

SEN 939 Software Innovation and Creation (3 credit hours)

This course introduces innovation concepts, the theory behind, methodologies, and practical applications for software development. It also covers software patent strategies, the boundary between patentable and non-patentable software, and intellectual patent laws.

SEN 941 SE I, Basic Software Engineering Elements (3 credit hours)

This course focuses on techniques used throughout the software engineering process. The software life-cycle and modeling techniques for requirements specification and software design are emphasized. Both traditional and object-oriented approaches are addressed. During this course students will receive hands on experience in the form of a group project, challenging them to develop a working prototype complete with requirements specifications, and other objectives. This is a project-based class where students are expected to start from a narrative of the problem, and then specify output reports, analyze the problem using special data modeling techniques (entity-relationship, relational, object-oriented), design data structures, and then follow through with a prototype. This course represents 45 contact hours required for 3 semester units or credits.

SEN 942 SE II, Software Engineering Methodologies (3 credit hours)

This course introduces the framework that is used to structure, plan, and control the process of developing a software system. This course covers the methodologies of waterfall, spiral method, scrum, and extreme programming, and their recognized strengths and weaknesses as well. These methodologies are often bound to organizations, tools, and projects.

SEN 943 Principles of Software Testing (3)

The most important testing practices will be explained using scenarios and scenario-based development and testing. Explanation and practicing of test cases, testing procedures, strategies for Software Testing, black box/glass box/gray box testing. Unit testing, integration testing, regression testing, and user acceptance testing/ Beta Testing.

SEN 944 Software Refactoring with Design Patterns (3)

Students will learn about improving the design of existing code as well as various techniques and refactoring patterns. Other topics covered include the following: Increasing software understandability and productivity, reducing software complexity, aging, and maintenance costs. Refactoring in the context of agile development, during debugging and code review. Refactoring tools for important languages and OSs. Various categories of refactoring, small and big refactoring. Refactoring of UML design models.

SEN 950 Client Programming with JavaScript (3 credit hours)

SEN 951 SAP ABAP Programming (3 credit hours)

ABAP is the language used for programming SAP's Web Application Server component of its Net Weaver platform for building business applications. This course introduces the ABAP language environment, syntax checking inclusion, code generation and runtime system, and different types of ABAP Programming.

SEN 952 SAP Tools (3 credit hours)

SAP Query is a powerful tool to get reports without the normally required complex programming knowledge. In this course you will learn to create and design your own SAP Query reports. This course covers two SAP Query scenarios: (1) creating a simple SAP Query report when all information is available in a single table, and (2) creating an advanced join table SAP query when the information required is spread in different tables.

SEN 953 Programming Language Concepts (3 credit hours)

This course will cover a survey and critical comparison of a variety of computer languages. Issues include syntax, semantics, control structures, and data representation. There will be a discussion of both design and implementation of both imperative and declarative languages. This course represents 45 contact hours of instruction required for 3 semester units or credits.

SEN 956 The Unix Operating System (3 credit hours)

This course will teach students about using Unix, fundamental Unix commands, pipes and redirection, shells, processes, Unix system administration basics, internals of Unix, history of operating systems.

Prerequisite: CSN 882

SEN 957 GUI Development with Java

This course teaches students the principles of Graphical User Interfaces (GUI) and how to develop GUIs using Java's AWT and Swing libraries. The proper understanding and ability to use these libraries is of paramount importance in almost all of today's software development and is not limited to development of Android Phone applications. The learning and programming of GUIs is most effective and rewarding using these Java libraries, as they are considered by many as the best, simplest and most elegant of all GUI development tools and libraries. Most Java GUI developers disregard the use of any visual development tools, as the design and concept of Java's GUI libraries are so natural and intuitive, that visual development tools seem redundant. Additionally, students will learn the basic principles of graphical user interfaces, the widget hierarchies, event handling mechanisms, event queue management, thread handling etc. It is in most ways a parallel course to SEN 961 except for the language and component libraries used.

SEN 958 Android Phone Application Development

Teaches the use of SDKs released by Google to facilitate the development of applications for the Android Phone. Android Phones are Linux based and programmed in Java. This alone bodes very well for any software development on that platform for the following reasons: Linux OS is the most powerful and easiest to manage of all operating systems, and the Java programming language has superior GUI development capabilities. Knowledge of SDKs is certainly an advantage when developing for the Android platform.

SEN 959 Operating System (3 credit hours)

This course will cover the basic principles of operating system design and implementation. Students will learn about concurrent processes, inter-process communication, job and process scheduling; deadlock. Overcoming issues in memory management (virtual memory, segmentation, and paging) and auxiliary storage management (file systems, directory structuring, and protection mechanisms) are also included in this course.

SEN 960 Compiler Design (3 credit hours)

This course covers the following topics: Parsing: comparison of LL versus LR. Use of a lexer and parser generator. Formation of syntax trees. Name management via a symbol table. Type resolution. Code

generation issues. Simple optimizations, such as peephole optimizations, strength reduction, and constant folding.

Prerequisites: SEN 920 and SEN 964

SEN 961 GUI Development with NS Library

The NextStep Library of GUI Components is an elegant design of classes for GUI development, written in Objective-C. It is conceptually much clearer and easier to use than the Microsoft Visual C++ Library, and uses basic programming features. Since it is the platform of choice for all GUI development on Mac and iPhone, its knowledge is quite relevant as the Macintosh empire continues to expand. This class teaches the basic ideas of GUI development using NS in terms of its approaches, components, uses, and event and exception handling mechanisms.

SEN 962 Web Page Design Using HTML and Java (3 credit hours)

This course offers an introduction to how the combination of JavaScript with HTML can make a website more powerful and dynamic. The topics covered are as follows: Create dynamic images, frames, dynamically update pages, JavaScript and cookies, plug-ins, cascading style sheets, and debugging. After finishing this course, the student will have a better picture of client side vs. server side, HTML vs. JavaScript and integrate JavaScript into web pages to create dynamic images, add smart forms, and detect which browsers and plug-ins that visitors are using so that one can customize the content.

Prerequisite: CSN 364 or CSN 381

SEN 963 Unix, Perl and Web Management (3 credit hours)

Learn how to use UNIX commands effectively. Students will be provided a Linux account by ITU. Understand UNIX basic: files, pipes, jobs, redirection, globing. Basic Perl and Java Script. Learn how to design, write, and maintain a small website. Learn how to write interactive web pages using either Perl CGI scripts or JavaScript. Learn how to run a Web server on UNIX.

Prerequisite: SEN 556

SEN 964 Advance OO Design Using Java (3 credit hours)

This course is the same as CSN 464, meeting 3 hours per week. Introduction to Java, Application versus Applet, Installing Java, variables, types, expressions, control constructs, java. Lang, Strings, Vectors, Hash tables, File I/O, The Java AWT, components, events, layout managers, Improved GUI libraries, Threads,

Synchronization, Java intervals, Sockets, and Writing a server and a client.

Prerequisites: CSN 881 and CSN 881

SEN 965 iPhone Application Development I

This is an introductory course about iPhone Application development. Students will be given a comprehensive overview of the possibilities of iPhone application development, the languages and tools used: the Xcode IDE, the Interface Builder, the iPhone simulator, and develops example applications for all areas: Graphics, Animation, Audio, Video, Web access etc.

SEN 966 iPhone Application Development II

The successor course for SEN965 I. This course goes further in depth into the world of iPhone Application development from the programming perspective. The lessons learned from this course will provide students with the abilities to apply advanced techniques when developing iPhone Applications allowing grammatical creation of existing GUI components without the often limiting use of the Interface Builder, allowing the design of new GUI components, and allowing a solid understanding of the event handling, threading and exception mechanisms. In short, it gives the student designer a mastery of the development tools, knowledge of the NS library, and thus the power to develop even the most complex and demanding Mac and iPhone applications, for which only the developer's own imagination is the limit.

SEN 969 Computational Models of Discourse (3 credit hours)

This course is an introduction to automatic discourse processing. It covers methods and models that apply to image and speech processing. The detail methods include discourse structure, models of coherence and cohesion, recognition algorithms, and image segmentation as well as machine learning methods for discourse analysis.

SEN 970 OOP with Objective-C

All application development on the Mac and on the iPhone is done in Objective-C and its solid knowledge is a requirement for all development on products such as the Macbook and iPhone. Even though Objective-C is as old as C++ it is in the simplicity of its features and concepts that make it more modern than C++. Also, Objective-C offers features that neither C++ nor Java has. This course will provide students with an advanced understanding of

Objective-C, and will keep them from being limited to only superficial application development. A useful preparatory curriculum for iPhone application developers must include this course. This course adds to our traditional successful series of OOP courses that we continue to offer for the important Object Oriented languages.

SEN 971 Storage Area Network (SAN) Implementation (3 credit hours)

In this comprehensive and practical course, the instructor will take you through all aspects of storage networking. First, the theory of how a SAN can help consolidate conventional server storage onto networks will be explained. Then students will understand how a SAN can help make applications highly available no matter how much data is being stored, which, in turn, makes data accessibility and management faster and more convenient. Along the way, the course will provide students with practical advice on the design and implementation of this new technology and the benefits of adopting storage networking. Students will understand the theory of SAN technology, and appreciate the benefits of SAN. This course provides a detailed up-to-date coverage on the following topics: The evolution of computing in data centers leading to SANs, some killer applications for SAN technology, storage networking theory and its meaning to an enterprise information processing architecture, the software components required to implement SANs, and some practical issues in SAN implementation and management.

Prerequisite: CEN 963

SEN 974 Client/Server and The Internet (3 credit hours)

This course covers the Client/Server paradigm in the context of the Internet: this includes CORBA architecture, Java programming language and its support to applications and applets. The core of this course is focused on Java extended APIs and their usage including: Sockets, Remote Method Invocations (RMI), Java IDL, Java Security APIs and Java Database Connectivity (JDBC).

Prerequisite: SEN 509

SEN 976 Theory of Parallel Systems (3 credit hours)

This course introduces theoretical foundations of general-purpose parallel computing systems including languages, architecture and algorithms. It also covers multithreading, synchronization, race detection, load balancing, memory consistency, routing networks, and message-routing algorithms.

SEN 978 Knowledge-Based Applications Systems (3 credit hours)

This course covers knowledge representation, knowledge acquisition and application development which includes the knowledge base and the inference mechanisms. Additionally, there will be some basic techniques of Artificial Intelligence included in the lessons. Students will have the opportunity for hands-on experience by building a knowledge-based application.

SEN 979 Cryptography and Cryptanalysis (3 credit hours)

This course introduces the modern cryptography including the fundamental cryptographic primitives of public-key encryption, digital signatures, pseudo-random number generation, and basic protocols and their computational complexity requirements. It also introduces the study of methods for obtaining the meaning of encrypted information.

SEN 980 Database Systems (3 credit hours)

This course covers the following topics: E-R and E-C-R model, view integration, relational database, network database, hierarchical database, and physical database design.

Prerequisite: An undergraduate course in Data Structure or CSN 882

SEN 981 Pervasive Human Centric Applications (3 credit hours)

This course introduces applications for personal device assistants such as mobile phone, GPS, or iTouch. These applications include speech processing, vision, GPS, and more. The applications will run on handheld devices such as iTouch, and cell phones such as iPhone or Android-based phones.

SEN 982 Oracle Database Architecture and Administration I (3 credit hours)

The course is the same as CSN 482, meeting 3 hours per week. It is composed of two parts: Oracle Architecture and Administration. The first part gives a comprehensive picture of Oracle architecture and discusses the concept of Oracle database and instance. The second part shows students how to create Oracle database, allocating system storage and planning for future storage requirements, creating and modifying database storage structure and objects, and controlling and monitoring user access to the database.

Prerequisite: SEN 980

SEN 983 Oracle Database Architecture and Administration II (3 credit hours)

This is a continuation of SEN 982. It covers the availability and scalability issues, Oracle database architecture, backup/recovery concept, Oracle backup/recovery configuration, types of failures, and the usage of high availability features in Internet applications.

Prerequisite: SEN 582

SEN 984 UNIX Networking Programming (3 credit hours)

The course will cover in detail the different Interprocess Communication (IPC) facilities available under the UNIX operating system to develop distributed applications in a network environment. Distributed application components can be executed on the same machine, or on different machines, or a combination. These IPC facilities have two main attributes, the IPC interface and network protocol. The course covers in detail the following interfaces: pipes, FIFO, shared memory, message queues, semaphores, sockets, system V Transport Layer Interface (TLI), and Remote Procedure Calls (RPC). In addition, we cover a useful set of network routines that simplifies distributed programming.

Prerequisites: CSN 881, CSN 882 and SEN 956

SEN 985 Artificial Intelligence (3 credit hours)

This course introduces the foundation of simulating (or creating) intelligence from a computational point of view. It covers the techniques of reduction, reasoning, problem solving, knowledge representation, and machine learning. In addition, it covers applications of decision trees, neural nets, SVMs and other learning paradigms.

SEN 986 Software Design Using Unified Modeling Language (UML) (3 credit hours)

This course is an introduction to object-oriented principles of software design using the Unified Modeling Language (UML). Object oriented systems offer the promise of constructing highly modular and reusable software components. In this course we will discuss what is meant by object oriented design from analysis, through system design to programming implementation. The course will focus on building the object-oriented (OO) analysis model for software engineering. Then it defines in depth principles of object orientation reviewing the characteristics that actually comprise a true object. The course covers the gathering of requirements for software design, software project organization & management, the role of design, use-case analysis, object modeling in software engineering and an introduction to design patterns.

UML is presented in context throughout the discussion with emphasis on the practical application of OO principles and techniques, including the use of UML to solve real-world problems. Students are expected to write a detailed description of the design for each of the programs, incorporating UML models where appropriate. Students will implement their programs in the Java programming language.

Prerequisites: CSN 874, CSN 882. Students should be familiar with Java, C++ or other language, some web programming as well as basic data structure concepts and some UNIX.

SEN 987 Program Analysis (3 credit hours)

This course introduces a variety of program analysis techniques and tools for software engineering applications. These techniques and tools are for static and dynamic analysis. Static analysis covers dataflow, type systems, model checking, decision procedures and theorem proving. Dynamic analysis covers testing, debugging for fault isolation, and model inference. This course also covers the tools to visualize the results of the program analysis.

SEN 989 Natural Language Processing (3 credit hours)

This course introduces the theory and practice of human natural language processing, with an emphasis on linguistic and cognitive from an engineering perspective. It covers syntactic and semantic processing and machine learning. Additionally, this course introduces applications of these methods and models in syntactic parsing, information extraction, and machine translation.

SEN 990 Introduction to Compiler Design I (3 credit hours)

Parsing: comparison of LL versus LR. Use of a lexer and parser generator. Formation of syntax trees. Name management via a symbol table. Type resolution. Code generation issues. Simple optimizations, such as peephole optimizations, strength reduction, and constant folding.

Prerequisites: SEN 920 and SEN 964

SEN 991 Computer Graphics I (3 credit hours)

Computer Graphics I is a study of the hardware and software principles of interactive raster graphics. Topics include an introduction to the basic concepts, 2-D and 3-D modeling and transformations, viewing transformations, projections, rendering techniques, graphical software packages and graphics systems. Students will use computer graphics packages and implement

fundamental computer graphics algorithms. This course represents 45 contact hours required for 3 semester units or credits.

SEN 992 Computer Graphics II (3 credit hours)

This course covers the following topics: Historical development of computer graphics, black and white graphics programming, color raster graphics, resolution and memory requirements, look-up tables, vector graphics and matrices, surfaces, rotation & scaling, graphics primitive, and transformation.

Prerequisite: AMN 840

SEN 994 X Window System Programming (3 credit hours)

This course covers the spectrum of writing X window applications from the Xlib level up to Intrinsic, widget sets (Athena, Motif) and widget creation. Window managers, inter Xclient communication, resource specification.

Prerequisites: CSN 881 and SEN 956

SEN 996 1 Independent Study (3 credit hours)

By arrangement with instructor. Independent study of topics of special interest in software engineering under the direction of an instructor, who is knowledgeable in the field. It may consist of reading, homework, tests, presentation and project determined by the instructor.

Prerequisite: Graduate standing

SEN 998 M.S. Project (3 or 6 credit hours)

By arrangement with project advisor. A nominal number of 3 or 6 credit hours is expected toward the M.S. degree if the Project Option is selected. Conduct independent research of an approved topic in software engineering, prepare a technical report, and defend it before a faculty advisor.

Prerequisite: Graduate standing

SEN 999 M.S. Thesis (6 credit hours)

By arrangement with thesis advisor. A nominal number of 6 credit hours is expected toward the M.S. degree if the Thesis Option is selected. Conduct independent research of an approved topic in software engineering, prepare a thesis, and defend it before a committee composed of a number of faculty designated by department chair.

Prerequisite: Graduate standing

BUSINESS ADMINISTRATION

ACTN 900 Financial Accounting (3 credit hours)

This course provides an introduction to basic theory and methods of financial accounting. It is designed to offer managerial users the foundations of accounting concepts. The course helps the students understand the financial statement information. Focus will be on accounting for assets (e.g., Accounts Receivable, Inventories, Property, Plant and Equipment, Intangible Assets), liabilities (e.g., Bonds, Deferred Taxes) and owners' equity. Focus will be also on the presentation of the income statement through Net Income, revenues and expenses. Class sessions develop the understanding of the different steps of the accounting cycle, and of the financial statements that provide managers with the necessary information for decision-making.

Prerequisite: Graduate standing

ACTN 910 Managerial Accounting (3 credit hours)

The course develops the understanding of the many ways that firms utilize costs. The students will learn the alternative costing methods, such as the relevant costs for decision making; the break even analysis and the contribution margin approach; absorption costing vs. direct costing; cost volume profit analysis. In addition, student will learn about other topics such as the decision-making involving joint costs, decentralization, product costing, job and process costing, and performance evaluation.

Prerequisite: ACTN 900 or equivalent

ACTN 920 Cost Accounting (3 credit hours)

This is a study of cost accounting principles and procedures. The focus is on capital budgeting, standard costing, flexible budgeting, cost allocation, variance analysis, and transfer pricing.

Prerequisite: ACTN 910 or equivalent

ACTN 921 Intermediate Accounting (3 credit hours)

This course is a review of basic accounting concepts. Topics include current assets, noncurrent assets and liabilities, including pensions and other employee compensation issues, leases, and debt financing. The course develops in depth understanding of equity accounts. It also discusses the single step and multiple step income statements, and the comprehensive income, derivatives, and contingencies. In addition, students will learn about income statements with separated reported items, such as discontinued

operations, extraordinary items, and the cumulative effect of a change in accounting principle (net of tax effect).

Prerequisite: ACTN 900 or equivalent

ACTN 923 Advanced Accounting (3 credit hours)

This course develops an understanding of the financial accounting principles with the preparation of consolidated financial statements, segment disclosures, foreign currency adjustments, in addition to reorganizations and liquidations, mergers and acquisitions.

Prerequisite: ACTN 921 or equivalent

ACTN 924 Auditing (3 credit hours)

This course covers generally accepted auditing standards (GAAS) as they apply to the study of audit preparation. Other auditing services, such as compilations and reviews, will be examined. In addition, the course covers the Code of Professional Conduct, which demonstrates the ethical responsibilities of the profession.

Prerequisites: ACTN 900 or equivalent

ACTN 925 Accounting Information Systems (3 credit hours)

The course addresses the development and use of accounting information systems for managerial control and external reporting with emphasis on reporting objectives, management needs, documentation, security, and internal controls. The course focuses on concepts and principles of designing computer systems to perform accounting functions; and extensive use of applications of different microcomputer accounting software packages.

Prerequisites: ACTN 900 or equivalent

ACTN 926 International Accounting (3 credit hours)

The knowledge of accounting requirements and the influence of environmental factors on the accounting systems both nationally and internationally becomes important to the accounting professional. Topics of financial accounting for international operations, multinational managerial accounting and control, comparative international accounting, international reporting issues, and international taxation are examined. The focus of the course is to solve the problems related to accounting for multinational corporations doing business in a global environment. This course covers the topics of currency translation and foreign currency gains and losses, and accounting for international accounting organizations.

Prerequisite: ACTN 910 or equivalent

ACTN 927 Tax Accounting Principles (3 credit hours)

This course is an introduction to federal tax law, including the preparation of individual income tax form 1040 and related schedules. Tax accounting principles, such as the measurement of income, asset exchanges, capital transactions, and business expenses are examined. Topics include corporate income tax, subchapter S, dividends, and liquidating distributions. The course also provides tax knowledge through identification of significant differences between tax and financial accounting.

Prerequisite: ACTN 900 or equivalent

ACTN 928A Payroll Accounting (2 credit hours)

This course examines the payroll records, regulations, and laws related to payroll accounting. It provides the students skills on the preparation of all payroll forms, schedules, and records. The course will also include a study of the computation of earnings and withholdings. Students will learn how to compute wages and salaries, withholding for social security and income taxes.

Prerequisite: ACTN 900 or equivalent

ACTN 928B Payroll Tech Accounting (1 credit hours)

This course teaches the use of microcomputers for accounting information such as computing wages; calculating social security, income, and unemployment taxes. Emphasis is placed on preparing appropriate payroll tax forms; and journalizing and posting payroll transactions.

Prerequisite: 928B should be taken concurrently with 928A

ACTN 929 Federal Personal Income Taxation (3 credit hours)

This course is an introduction to the federal income taxation of individuals. Topics include the concept of income, exclusions from income, personal and business deductions, and taxable income.

Prerequisite: ACTN 900 or equivalent

ACTN 930 Federal Corporate Taxation (3 credit hours)

The course is an introduction to the federal income taxation of corporation. Topics include the concept of contribution, formation, stock dividends, liquidation, and acquisition.

Prerequisite: ACTN 900 or equivalent

ACTN 940 Federal Partnership Taxation (3 credit hours)

The course is an introduction to the federal income taxation of partnership. Topics include the concept of formation, operation of a partnership, sales of partnership interest, termination, and death of a partner.

Prerequisite: ACTN 900 or equivalent

ACTN 991 CPA Exam: Auditing and Attestation (3 credit hours)

This course develops an understanding of the auditing process and the role of internal and external auditing in an organization. The course covers auditing procedures, Generally Accepted Auditing Standards (GAAS) and other standards related to attestation engagements. The auditing and attestation section of the CPA exam tests knowledge in the context of five broad engagement tasks: plan the engagement, evaluate the prospective client and engagement, decide whether to accept or continue the client and the engagement, and enter into an agreement with the client; consider internal control in both manual and computerized environments; obtain and document information to form a basis for conclusions; review the engagement to provide reasonable assurance that objectives are achieved and evaluate information obtained to reach and to document engagement conclusions; and prepare communications to satisfy engagement objectives.

ACTN 992 CPA Exam: Business Environment and Concepts (3 credit hours)

The Business Environment and Concepts section tests knowledge of general business environment and business concepts that candidates need to know in order to understand the accounting implications of transactions. Topics in this section include knowledge of business structure; limited liability companies (LLC), limited liability partnerships (LLP), and joint ventures; economic concepts essential to obtaining an understanding of an entity's business and industry; financial management; information technology; and planning and measurement.

ACTN 993 CPA Exam: Financial Accounting and Reporting (3 credit hours)

The Financial Accounting and Reporting section tests knowledge of Generally Accepted Auditing Principles (GAAP) for business enterprises. Topics in this section include financial statements concepts and standards; typical items: recognition, measurement,

valuation, and presentation in financial statements in conformity with GAAP; specific types of transactions and events: recognition, measurement, valuation, and presentation in financial statements in conformity with GAAP; accounting and reporting for governmental entities; accounting and reporting for not-for-profit organizations.

ACTN 994 CPA Exam: Regulation (3 credit hours)

The Regulation section tests candidates' knowledge of federal tax procedures and accounting issues; of federal taxation of property transactions; of federal taxation—individuals and entities; of professional and legal responsibilities; of ethics and of business law.

BUS 400 Fundamentals of Financial Accounting (3 credit hours)

This course covers accounting concepts and terms used to prepare business financial statements: Balance Sheet, Income Statement, and Statement of Cash Flows.

BUS 410 Fundamentals of Managerial Accounting (3 credit hours)

This course is an overview of the use of financial accounting information for internal planning and control purposes. It is an introduction to manage strategic and operational choices, to determine pricing and profitability, and to control costs. Topics include cost accounting, budgeting, performance evaluation, and resource allocation.

BUS 411 Managerial Applications of Information Technology (3 credit hours)

This course introduces applications of corporate information systems. Topics describe the utilization of the software to solve a wide range of specific business problems and develop strategic decisions, and business management solutions.

BUS 412 Managerial Economics (3 credit hours)

This course focuses on the application of economic concepts and principles to the managerial decision-making process. Topics include a review of economic models, the demand and supply analysis, optimization techniques, market structure, and risk evaluation. This course emphasizes the application of microeconomic tools to managerial problems.

BUS 413 Political, Social, and Legal environment of Business (3 credit hours)

This course examines the roles and responsibilities of business, key legal concepts, and ethical decision-making processes. In addition, the course presents a critical analysis of theory and regulation of business from political, social and legal perspectives.

BUS 414 Financial Management (3 credit hours)

This course introduces basic principles in finance, with a focus on using the financial statements and other financial data to make decisions. Topics include cash flow, the time value of money, capital budgeting, financial risk, working capital management, cost of capital, stock and bond valuation, and the financial regulatory environment.

BUS 415 Operations Management Analysis (3 credit hours)

This course introduces the design and management of manufacturing and service operations. Students will learn to improve quality and productivity of products, services, and work-performing processes. Topics include product and service design, capacity planning, supply chain management, theory of constraints, total quality concepts and tools, and just-in-time management and lean operations.

BUS 416 Fundamentals of Marketing Management (3 credit hours)

This course provides an overview of the relationships in marketing, business and behavioral activities. Topics include consumer behavior and segmentation, marketing research, environmental factors, competitive positioning, marketing information systems, distribution, pricing, promotional considerations, and ethical issues.

BUS 417 Management Principles and Organizational Behavior (3 credit hours)

This course introduces the principles of management and their application in public and private organization. It helps the students to learn frameworks for resolving problems in organizational settings. Topics include employee motivation, group behavior, leadership, strategic planning, organizational design and problems, and interpersonal communication and influence.

CONS 900 Consilience Theory 1 (3 credit hours)

This is the first course comprising the capstone of ITU's general education requirements. It is aimed at presenting the case for the unity of science. It brings together leading edge scientific findings and thinking across a broad spectrum of human knowledge and explores new efforts at integrating the natural with the social sciences. It explores the relationships and linkages among physics, biology, neuroscience, psychology, psychodynamics, mysticism, and philosophy.

Prerequisite: None. Required of all undergraduates

EBUS 910 Executive Leadership (3 credit hours)

This course will improve the students interpersonal and team working skills. It will help the students to understand organizational behavior issues, with a special emphasis on assessing leadership competencies and changing corporate cultures. Topics include analyses of leading companies, and direct application of material to individual work settings.

Prerequisite: Graduate standing

EBUS 911 Executive Marketing Strategy and Analysis (3 credit hours)

This course focuses on the development and implementation of marketing strategies in the rapidly changing global environment. This course prepares future general managers to deal with core marketing issues by providing a way of thinking strategically about the firm's products, services and markets.

Prerequisite: Graduate standing

EBUS 912 Executive Strategic Management (3 credit hours)

This course examines the complex strategic problems facing top management in a variety of contemporary organizations. Topics include strategy formulation, implementation, and evaluation. The course develops the students' ability to analyze and manage business problems from managerial perspectives. It provides concepts to guide strategic decision-making through examining case studies of diverse managerial situations in both large and small organizations.

Prerequisite: Graduate standing

EBUS 913 Managing and Competing in the Global Environment (3 credit hours)

The course seeks to provide the students with the skills, and the knowledge required to successfully manage organizations and organizational units within a multinational environment. The primary objective of this course is to help the students think like managers in the global context and enable them to develop an understanding of the strategic issues.

Prerequisite: Graduate standing

EBUS 914 Data Analysis and Decision Models (3 credit hours)

This course helps the students to formulate, solve and interpret the mathematical models that assist a manager in decision-making. Decision models that are used in different businesses and industries are emphasized. The course helps the students to make effective operational and strategic decisions using concepts, methods, and quantitative tools.

Prerequisite: Graduate standing

EBUS 915 Current Issues in Executive Compensation & Corporate Governance: Opportunities & Strategies

The course will examine the executive compensation contracts and corporate governance and their impact on executive behavior and firm performance. Topics include equity-based compensation and accounting treatment, strength of governance rating services, market for corporate control, and determinants of senior-executive terminations.

The course will focus on the executive benefits and it is designed to explain how they can effectively manage their benefit programs, especially given today's market situation. Other topics include funding and investment strategies, human capital and compensation issues, multi-country mergers and acquisitions

EBUS 916 Developing Strategies for Competitive Advantage (3 credit hours)

This course seeks to expand the students' perspective of competitive strategy and to encourage development and understanding of how firms create and reinforce a competitive advantage. The objective of the course is to provide the students with the conceptual tools associated with the understanding of industry, the assessment of core competencies and the evaluation of key competitors in the formulation and implementation of business strategies.

Prerequisite: Graduate standing

EBUS 917 Leading and Managing Change (3 credit hours)

This course offers practical tools to improve the students' ability to influence, to negotiate and to lead changes in the organization.

Prerequisite: Graduate standing.

EBUS 918 Regulation, Governance Ethical and Social Responsibility (3 credit hours)

ECON 920 Macroeconomic Theory (3 credit hours)

This course analyzes the level and rate of growth of output income, employment and prices, interest, and foreign exchange rates. It prepares decision-makers to understand how an economy functions, how to interpret, analyze, and operate within a changing macroeconomic environment.

Prerequisite: Graduate standing

ECON 921 Microeconomics for Business Decisions (3 credit hours)

The course provides an analysis of managerial economics. It focuses on demand, cost, production, and pricing at the individual firm or industry's level. The market structure and the regulatory environment are examined.

Prerequisite: Graduate standing

ECON 923 International Economics (3 credit hours)

This course analyzes the source of a country's comparative and competitive advantage in international trade. The course emphasizes the relationship among industrial performance, and trade policy.

Prerequisite: ECON 920 and ECON 921

FINN 916 Securities Analysis (3 credit hours)

The course develops analytical skills for personal or business investment activities. Topics covered are techniques for analyzing risk and return for investment opportunities. This course discusses the modern and traditional portfolio management techniques. The students will learn the tools and techniques to develop their skills through the analysis of real firms.

Prerequisite: FINN 933 or equivalent

FINN 917 Financial Economics (3 credit hours)

The objective of this course is to undertake a rigorous study of the theoretical foundations of modern financial economics. The course will cover the central themes of modern finance including individual investment decisions under uncertainty, stochastic dominance, mean variance theory, capital market equilibrium and asset valuation, arbitrage pricing theory, option pricing, and incomplete markets, and the potential application of these themes. Upon completion of this course, students should acquire a clear understanding of the major theoretical results concerning individuals' consumption and portfolio decisions under uncertainty and their implications for the valuation of securities.

Prerequisite: FINN 933 or equivalent

FINN 918 Financial Institutions (3 credit hours)

This course provides students with an overview of the basic contributions in the modern theory of corporate finance and financial institutions. The course is methodology oriented in that students are required to master necessary technical tools for each topic. The topics covered may include capital structure, distribution policy, financial intermediation, incomplete financial contracting, initial and seasoned public offerings, market for corporate control, product market corporate finance interactions, corporate reorganization and bankruptcy, financing in imperfect markets, security design under adverse selection and moral hazard, and some selected topics.

Prerequisite: FINN 933 or equivalent

FINN 920 Financial Derivatives and Risk Management (3 credit hours)

This course helps the students to develop the necessary skills to value and to use options, and futures. Topics include the valuation of futures contracts on stock indices, on commodities and treasury instruments; the valuation of options; forwards; swaps; hedging strategies. The course covers derivative exchange, valuation of derivatives, trading practices and regulations, assessing and managing financial risk, and mutual funds analysis.

Prerequisite: FINN 933 or equivalent

FINN 930 Investment Management (3 credit hours)

The course offers the basics of investment management. Quoted and private equity investments and entrepreneurial finance are the focus of the topics. This course introduces market and portfolio perspectives, starting with the discounted cash flow methods to the

concept of term structure in the valuation of risk-free cash flows, including forward rates and valuing risky or uncertain cash flows. The course prepares students to identify various investment products. Both real world and theoretical views are discussed.
Prerequisite: FINN 933 or equivalent

FINN 931 International Financial Management (3 credit hours)

This course provides students with the framework for making corporate financial decisions in an international environment. Topics include: measurement of currency exposure and of currency risk. In addition, topics about the decision to undertake a global financing program, exchange and capital market; capital budgeting analysis for foreign direct investment; and the value of target firms for cross-border acquisitions are discussed. The course will examine different aspects of the foreign exchange market, the role of governments and the central banks. The main focus is on the markets for spot exchange, currency forwards, options, swaps, international bonds, and international equities. Multinational financial transactions create unique challenges due to the market complexity, to the exchange rate and the political risks.

Prerequisite: FINN 933 or equivalent

FINN 932 Corporate Finance (3 credit hours)

Corporate Finance is an introductory finance course and it is required for all MBA students. It is designed to cover the areas of finance that are important to all managers. At the end of this course you will be able to value the financial position of a firm. In order to reach this goal, the students will analyze historical uses of funds and understand project funding needs. In addition, the students will be able to analyze working capital management; choose among alternative sources of external funding for company operations; and evaluate investment opportunities. The course shows the students how to use ratio analysis to assess corporate performance, financial statements and cash needs.

Prerequisite: Graduate standing

FINN 933 Managerial Finance (3 credit hours)

The course teaches the students financial concepts and tools necessary for effective business planning. Topics include formation of interest rates, income taxes, working capital management, cost of capital, financial forecasting, external sources of capital, company valuation and bankruptcy.

Prerequisite: Graduate standing

FINN 934 Financial analysis and Corporate Policy (3 credit hours)

The course is an in-depth study of selected topics in finance, including ratio analyses, capital structure and leverage, working capital management, reorganization and bankruptcy. Current business cases, including several Harvard Business School cases study, will be discussed.

Prerequisite: FINN 933 or equivalent

FINN 935 Mergers and Acquisitions (3 credit hours)

This course examines issues that arise in the merger and acquisition context. There will be an analysis of the key components of acquisition agreements against the background of relevant case law. Topics include advanced capital budgeting techniques, strategies, acquisitions, and leveraged buyouts. The course focuses on the study of the law governing, and the methods of accomplishing, including the conduct of negotiations, considerations in pricing and stock-for-stock swaps.

Prerequisite: FINN 933 or equivalent

FINN 936 Behavioral Finance (3 credit hours)

There is an abundance of evidence suggesting that the standard economic paradigm – rational agents in an efficient market – does not adequately describe behavior in financial markets. In this course, we will survey the evidence and use psychology to guide alternative theories of financial markets with an eye towards identifying frontiers and opportunities for new research. Along the way, we will address the standard argument that arbitrage will eliminate any distortions caused by irrational investors. Further, we will examine more closely the preferences and trading decisions of individual investors. We will argue that their systematic biases can aggregate into observed market inefficiencies. The second half of the course extends the analysis to corporate decision-making. We present the two themes of behavioral corporate finance: rational managers exploiting financial market inefficiencies and managerial decision-making biases. We then explore the evidence for both views in the context of capital structure, investment, dividend, and merger decisions. We emphasize the importance of differentiating the behavioral approach from information models and other more traditional methodology.

Prerequisite: FINN 933 or equivalent

GRN 500 English and Grammar (3 credit hours)

This course is an English language, grammar-based program for second language instruction. The goal is English language growth. Frequent interaction and communication activities are the foundation for the course, starting with grammar information linked to practice modes. Class attendance and participation will allow students to apply learning in the context of their own life experiences. Weekly practice quizzes, in-class oral and written communication will be required. Group activities in class will also provide variety in learning opportunities.

Prerequisite: None

GRN 511 Verbal Communications and Conversations (3 credit hours)

This course focuses on the development of verbal language skills. It includes conversations in small groups. Topics are relevant to the needs and experiences of students learning to use verbal English in the American culture.

Prerequisite: GRN 500

GRN 513 Newspaper Reading and Essay Writing (3 credit hours)

This course increases student's proficiency in the use of the newspaper. Emphasis is given to articles and sections useful in becoming acclimated to the procedures and systems of a new culture. It includes writing practice on topics relevant to engineering.

Prerequisite: GRN 500

GRN 514 Active Listening (3 credit hours)

The course focuses on the development of listening as a method for learning English. Format will include listening to cassette tapes. Students will respond by paraphrasing, developing questions and replying.

Prerequisite: GRN 500

GRN 515 Technical Writing and Public Speaking (3 credit hours)

This course is an introduction to formal technical reports and oral communication designed especially for students planning careers in the sciences or engineering. By asking students to research and present topics to the class, the course provides the student with a thorough grounding in the writing and speaking skills required in the workplace. A particular emphasis is placed on effective professional communications to allow students to begin and excel in their careers.

Prerequisite: GRN 500

GRN 597 Joint Seminar / Curricular Practical Training (CPT) (3 credit hours)

Invited seminar speakers on subjects of general interest.

Prerequisite: None

Curricular practical training

The curricular practical training is defined to be alternative work and study, internship, cooperative education, or any other type of internship or practicum that is offered by sponsoring employers.

Prerequisite: None

GRN 599 Writing and Composition (3 credit hours)

This course provides students with a thorough grounding in writing and composing in English with particular emphasis on effective professional communications at management, marketing, administrative, and research levels. The student gains knowledge and experience in choosing and composing various types of real-world business correspondence. Although the class will be focused on composition, students will be expected to participate in spoken as well as written forms of communication. *Prerequisite: GRN 500*

GRN 920 Internship (3 credit hours)

Conduct research and development at a sponsoring company on a project in the student's field for one semester. Students must spend at least 80 contact hours for each credit hour received. At the end of the internship, the student must submit a satisfactory technical report to the advisor, and receives three credit hours. This course does not count toward core degree requirements, unless specifically granted on an individual case-by-case basis by the Academic Committee.

Prerequisite: None

GRN 921 Independent Study I (3 credit hours)

At the end of the Independent Study I, the student must submit a satisfactory report to the advisor, and receives three credit hours.

GRN 922 Independent Study II (3 credit hours)

At the end of the Independent Study II, the student must submit a satisfactory report to the advisor, and receives three credit hours.

GRN 923 Independent Study III (3 credit hours)

At the end of the Independent Study III, the student must submit a satisfactory report to the advisor, and receives three credit hours.

HRMG 940 Human Resource Management (3) credit hours

This course examines the principles of human resource management, including recruiting, hiring, orienting, training, developing, disciplining, and rewarding employees. The course provides a management-oriented exploration of human resource management, structure, functional applications, and labor management relations. This course is a humanistic and legal analysis of organizations, focusing on the role of human resource management. There will be an examination of managers and leaders within organizations and their responsibility to maximize performance and make decisions based on ethical criteria.

Prerequisite: Graduate standing

HRMG 941 Employee Training and Development (3 credit hours)

This course reviews training, employee and organizational development techniques that the organizations use to build group and individual skills. Topics include linking identified needs to business objectives, developing an implementation plan, implementing the plan using a variety of modalities, and assessing results. The students will use a hands-on approach to evaluate organizational needs for employee development.

Prerequisite: HRMG 940 or equivalent

HRMG 942 Employment law for business (3 credit hours)

This course emphasizes federal employment statutes. Cases are used to illustrate the various federal courts' interpretation. Federal agencies such as Equal Employment Commission and Department of Labor are studied. Topic on the employment Law provides a comprehensive analysis of federal and state laws, which affect the human resource function, including equal employment opportunity, wage and overtime payment, and employment agreements. The course focuses on applying employment laws to develop programs that enable organizations to act positively in meeting both company and work force needs, trying to resolve workplace disputes, prevent litigation, and implement personnel policies and practices in conformity with applicable law.

Prerequisite: HRMG 940 or equivalent

HRMG 943 Human Resource Planning (3 credit hours)

This course helps the students to understand the necessary basics of the human resources planning process in organizations. In this course, the students should complete a comprehensive written plan for a company's human resource function. Review of concepts and skills developed in other human resource courses is required. In addition to preparing the written plan, the students should make an oral presentation to the class and, if possible, to a panel of human resource professionals. Quantitative, qualitative concepts, approaches and techniques are discussed. Topics include human resources data systems and human resource action plans.

Prerequisite: HRMG 940 or equivalent

HRMG 944 Managing Human Capital (3 credit hours)

This course focuses on the organizational factors that influence the utilization of human capital. In addition, it will focus on developing, maintaining and improving workforce competence. This course will also explore the challenges of increasing the competitive advantage through effective human capital management. Topics include workforce planning in a dynamic environment; building a positive human capital reputation; dynamics of organizational culture; organizational change and learning; linking corporate strategy and human capital management, and influencing emerging technologies.

Prerequisite: HRMG 940 or equivalent

HRMG 945 Strategic compensation: issues and opportunities (3 credit hours)

This class addresses the need for strategically focused compensation systems aligned to the business objectives and examines the related factors that impact employee motivation and productivity in a variety of settings and industry sectors. The course will examine and analyze the various components of compensation systems in contemporary organizations in understanding how and why they add and sustain shareholder and/or stakeholder value.

Prerequisite: HRMG 940 or equivalent

HRMG 946 Human Resources and Technology (3 credit hours)

This course offers the students the best practices in use of technology in the human resources field. Topics include the use of human resources information systems, web-based human resources used to develop and support the various functional areas of human resources.

Prerequisite: HRMG 940 or equivalent

HRMG 948 Managing Global Diversity (3 credit hours)

This course discusses the benefits and challenges of managing diversity in the workplace. The students will analyze various ways to develop a positive, nondiscriminatory and productive work environment. In addition, the course focuses on workplace issues related to differences in gender, race, cultural ethnicity, age, and social class.

Prerequisite: HRMG 940 or equivalent

INBS 910 Fundamentals of International Business (3 credit hours)

This course discusses the world of international business, which raises issues related to controlling and staffing enterprises that are located in a distant area from a business' primary location. Topics include economic, cultural, legal, and political environments of international trade, international institutions and agencies. In addition, the topics include problems of foreign investments, conflicts between host countries and multinational corporations, and effects of multinational corporations on the global economy.

Prerequisite: Graduate standing

INBS 911 International Financial Markets (3 credit hours)

This course analyses the international financial markets. Topics include foreign currency, international money markets, banking, and capital markets.

Prerequisite: INBS 910, FINN 933 or equivalent

INBS 912 International Law (3 credit hours)

This course explores the legal considerations that apply to U.S. businesses abroad and explores issues of contract negotiations, international conventions, and current multinational business issues such as dumping, products liability, patents and copyrights. Topics about sovereignty, legitimate war, humanitarian intervention, economic aid, and human rights are discussed. The course explores international law concepts and issues such as, the law of treaties. It will discuss a series of international law topics and issues, including the settlement of international disputes, and the law or armed conflict.

Prerequisite: INBS 910 or equivalent

INBS 913 Global Strategic Management (3 credit hours)

This course examines the fact of Globalization, and how managers in multinational firms struggle with a complex and rapidly changing international economic environment. The course introduces the business skills of understanding and managing strategic issues in international environment. It will also focus the understanding of the need for awareness of a change in organizations' internal and external environments.

Prerequisite: INBS 910 or equivalent

INBS 914 International Monetary Economics (3 credit hours)

The course offers an analysis of the balance of payments and foreign currency markets. Topics include the international payments system, foreign investment and debt.

Prerequisite: INBS 910, ECON 923 or equivalent

INBS 915 International Human Resource Management (3 credit hours)

The course focuses on the role of the manager in international organizations. It creates awareness of differing legal environments. Topics related to functional areas of human resource management - staffing, compensation, training, and labor relations are discussed.

Prerequisite: INBS 910, HRMG 940 or equivalent

INBS 921 International Business Practicum (3 credit hours)

This course is a capstone course that focuses on integrating theory and practice through the application of international business tools and methods. The course will feature guest speakers that are experts in various aspects of international trade.

Prerequisite: INBS 910 or equivalent

MBAN 996 Case and Independent Study (3 credit hours)

By arrangement with instructor. Independent study of topics of special interest in business administration under the direction of an instructor, who is knowledgeable in the field. It may consist of reading, homework, tests, presentation and project determined by the instructor.

Prerequisite: Graduate standing

MBAN 997 Research Methods (3 credit hours)

This course provides an introduction to some of the important topics in the general area of research methods, and to do so in a non-intimidating and informative way. Topics include the role and importance of research, problem selection, sampling, measurement,

data collection, descriptive and inferential statistics, experimental and nonexperimental research, quasi-experimental research, and writing and presenting research. The course of study will give the student a solid background of knowledge for developing a research paper and subsequently, submitting it for publication to a refereed journal.

Prerequisite: Graduate standing

MBAN 998 MBA Project (3 credit hours)

By arrangement with project advisor. A nominal number of 2 or 4 credit hours is expected toward to M.S. degree if the Project Option is selected. Conduct independent research of an approved topic in business administration, prepare a technical report, and defend it before a faculty advisor.

Prerequisite: Graduate standing

MBAN 999 MBA Thesis (3 credit hours)

Preparation of an independent research or thesis and defending it before a committee composed of a number of faculty designated by director of the M.B.A. program.

Prerequisite: Graduate standing

MGTN 901 Fundamentals of Management (3 credit hours)

This course focuses on both theory and application. It is a broad overview of the field of professional management designed for the beginning upper division or graduate student or interested non-management major. It covers the functions of a manager, managerial ethics and social responsibility, managing in a global environment, motivation, controlling, leadership, organization design, strategy, and operations.

Prerequisite: Graduate standing

MGTN 922 Quality Control Management (3 credit hours)

This course focuses on the understanding of the effective quality management. It also provides a basis approach to teamwork, to analysis of continuous improvement and quality control. The responsibility of the leaders, including managers is emphasized. The course discusses the methods of quality control and improvement. The key factors of the course are defining quality, and developing systems for monitoring and improving quality control.

Prerequisite: MGTN 901 or equivalent

MGTN 930 Strategic Operations Management (3 credit hours)

This course is designed to give both a theoretical and practical background in strategic management. Strategic operations management concerns the essential activities of directing the varied processes of both manufacturing and service enterprises in both the domestic and Global environments. The course will analyze case studies related to the real challenges of management. It will develop awareness in business matters significant to fast moving high tech entrepreneurial environment. In addition, it will cover the strategic aspects of operations management.

Prerequisite: MGTN 901 or equivalent

MGTN 941 Entrepreneurship and Venture Capital (3 credit hours)

The course discusses the entrepreneurship and emphases are on forming and operating new business ventures. It covers important aspects of looking for new business opportunities. This course teaches the students how to pursue entrepreneurial opportunity related to starting a new venture. It will also focus on the development of entrepreneurial opportunities and determine the feasibility of such opportunities in today's business environment.

Prerequisite: The course should be taken concurrently with MGTN 945

MGTN 942 Project risk management (3 credit hours)

This course explores various ways to identify, and analyze the full range of project risks. It will also explores the six risk management: risk management planning, risk identification, qualitative risk analysis, quantitative risk analysis, risk response planning, and risk monitoring and control. The students will use case studies to learn risk management techniques.

Prerequisite: MGTN 901 or equivalent

MGTN 943 High-Technology Entrepreneurship (3 credit hours)

This course is offered for those planning to undertake an entrepreneurial career in starting and building an international company in the high-technology area. A special effort is made to take advantage of ITU's proximity to the entrepreneurial community in Silicon Valley with its fundamental international business thrust. An integrative business plan for a new company in the technology arena is an integral part of the course.

Prerequisite: Graduate standing

MGTN 944 International Management (3 credit hours)

This course studies the role of managers in global markets. Topics include the external economic and political environment, international strategic planning, partnerships, global human resource management, managing technology, product and service design, ethics and leadership. The course utilizes innovative techniques and case study analysis from a variety of national, and multinational firms.

Prerequisite: MGTN 901 or equivalent

MGTN 945 Pitching a Business to Venture Capitalists (or any investor) (1 credit hours)

In today's extremely competitive world of raising money for startup companies, it is absolutely critical to have an effective and well-conceived pitch deck to compliment your vision and strategy. Only 1 of every 200 business plans submitted to venture capitalists (VCs) gets funded, so it is vital to present a well thought-out presentation that includes all of the elements that VCs (or any type of potential investor) will be looking for in deciding whether to invest in your company or not.

Whether you are interested in starting your own company someday, want to work for a startup, or just want to learn more about venture capital, Silicon Valley and startups in general, this will be a great opportunity to discover how startup companies have successfully raised money - and how you can too!

There are two different ways to get involved, depending on your level of interest:

How to Pitch a Business to Venture Capitalists (or any investor) - Joint Session lecture/panel

This class will be an option for students wanting to take a 1-unit Joint Session class and is comprised of attendance of two lectures:

1) How to Build a Pitch Deck for VCs

Students will get a brief history of venture capital and then learn what today's VCs are looking for in a corporate presentation. This includes company mission, business case, competitive landscape, financials, marketing plan, product, etc. Even if you are not pitching to a venture capitalist, you will learn the necessary elements to pitch to bankers, angels, and other financiers.

2) Pitch Day Panel

Students will attend the presentation of pitch decks that participants of MGMT945W will make to a panel of ITU professors. Each student in the audience will vote along with the ITU panel for the top teams based on the quality of their presentation.

Prerequisite: Graduate standing

You do not have to join a team (MGTN945W) to attend these lectures

MGTN 945W: Building a Pitch Deck for Venture Capitalists (or any investor) – (2 credit hours) Workshop

Participants will form teams (companies) of 2-4 people to take on the roles of a real life startup company (eg. CEO, CTO, VP Sales, VP Marketing, etc.) During the course of the semester these teams will work diligently to create a pitch deck (of a real or fictitious company) that includes all the elements outlined in MGTN945. Up to 10 of these teams will present their pitch decks to a voting panel of ITU professors and fellow students and also get feedback on their concepts and presentations. The winning team(s) will then get the opportunity to take their pitch to a Silicon Valley venture capitalist!

This workshop is designed for current or future entrepreneurs or those who want to better understand what it takes to fund and/or work at a startup company.

Prerequisite: Graduate standing and attendance of MGTN945

MGTN 946 Culture and Management in Asia (3 credit hours)

The course examines the complex issues of interdependence among "culture" management philosophies, and corporate strategies in the Pacific Asian region. It provides conceptual tools to understand the dynamics of the interdependence, and contributes to developing skills in managing particularly joint ventures within local Asian environments.

Prerequisite: Graduate standing

MGTN 947 High Performance Leadership (3 credit hours)

What does it take to build a high-performance unit? The focus of the course is on individuals who are in the leadership positions, particularly the middle and upper-middle management in contemporary complex organizations. The course shows that traditional methods of management may produce adequate levels of performance but prevent excellence from developing. More recent or new approaches to leadership will be discussed and lead to a high-performing system.

Prerequisite: MGTN 901 or equivalent

MGTN 948 Project Management (3 credit hours)

This course provides an overview of project management history, culture, methodologies, leadership and strategic planning. The course introduces important tools, such as work breakdown structure, scheduling, earned value analysis, and risk management. Case studies from a variety of organizational settings are discussed. The course discusses the 5 processes that must be done for project success: Define, Organize, Execute, Control and Close. The strategic implications of projects will be considered with respect to the organizational vision.

Prerequisite: MGTN 901 or equivalent

MGTN 949 Organizational Theory (3 credit hours)

The course examines the role of perception, learning, motivation, leadership, organizational culture, communication, group and team dynamics, conflict, stress, and other factors that affect individual job performance and overall organizational performance. In addition, the course describes the relationship between the dual motive theory and the human behavior. Emphasis is placed on underlying causes of human behavior in organizations, and how to effectively manage behavior. Case studies are used to enhance learning and integration of key management skills related to managing human behavior at work

Prerequisite: MGTN 901 or equivalent

MGTN 951 Business Communications (3 credit hours)

Communication is an essential component in every management task. One objective of this course is to provide a framework to approach communication challenges and make media, message, structure, and style choices. Another objective is to develop the oral and written communication skills required of managerial leaders. Barriers to communication, particularly cultural barriers will be analyzed.

Prerequisite: GRN 500

MGTN 952 Business Ethics (3 credit hours)

This course introduces ethical decision-making in business environment. It examines the individual, organizational, and macro level issues. The course does not attempt to determine correct ethical action. In the complex business environment in which managers confront ethical decision-making there is no absolute right or wrong answer in most cases. Since there is no

general agreement on the correct ethical business norms, critical thinking and relevant decision-making are examined.

Prerequisite: Graduate standing

MGTN 953 Business Law (3)

This class is intended to inform and educate graduate business students of the legal requirements and risks associated with managing, owning and operating a high tech business in today's global economy.

Prerequisite: Graduate standing

MGTN 954 Advanced Project Management (3 credit hours)

This course offers a study of the human and the operational sides of project management. The human side includes discussion on negotiating and conflict management, leveraging diversity and selling project management. The operational side includes scope control techniques, risk management, and organizing for success. The students will learn how to effectively engage the project team, deal with the inevitable conflicts and use intellectual and cultural diversity to encourage creative problem solving. *Prerequisite:*

MGTN 948

MISY 910 Business Database Applications (3 credit hours)

This course provides a basic overview of the concepts, principles, skills and techniques of business database systems and of database application system development. The course provides an approach to the design and use of databases for business applications. The study focuses on query languages and application generation. Use of database software applications are a necessity in current business environments.

Prerequisite: MISY 915 or equivalent

MISY 911 Business Telecommunications (3 credit hours)

The course offers an overview of communications technology used in many business applications - local area network, wide area network, broadband network, wireless and voice network. The course helps the students understand the role of internet protocols. In addition, it provides training to analyze network requirements, design and implement local area networks.

Prerequisite: MISY 915 or equivalent

MISY 912 Information Resource Management (3 credit hours)

This course explains the concept of viewing information systems resources from a strategic resource standpoint. The course will provide pragmatic tools for implementing the IRM within the organization. Topics will include Information System outsourcing, total cost of ownership, Information System planning and strategic analysis, management of IT human resources, traditional project management theory, and project management techniques.

Prerequisite: MISY 915 or equivalent

MISY 913 Managing Global Information Systems Projects (3 credit hours)

The course helps the students learn how to plan and manage global information systems projects by focusing on initiating, planning, executing, controlling and closing projects. Topics such as integration, scope, timing, cost, quality, human resource, technology, communications, risk and procurement are discussed. The students will learn how to monitor project plans and communicate reports to clients.

Prerequisite: MISY 915 or equivalent

MISY 914 Information Systems Innovation (3 credit hours)

This course provides the tools and the skills to leverage emerging information technologies in order to create new business opportunities for both new entrepreneurial ventures and traditional firms. The course helps the students to understand, evaluate, and apply difficult topics such as new innovative and entrepreneurial information technologies.

Prerequisite: MISY 915 or equivalent

MISY 915 Management Information Systems (3 credit hours)

This course explains the concept of managing information systems as a part of a broader socio-technical system and their impacts on people and processes in the business environment. Critical thinking is an important and essential part for the understanding of important issues associated with the management aspects of information systems. The course focuses on how the organization has used and can use its information resources to best serve its needs.

Prerequisite: Graduate standing

MISY 920 Software Development Process Management (3 credit hours)

This course helps the students to understand the software development process at both the project and organization levels. In addition, it provides the students the tools to analyze software cost and schedule transaction issues. And it teaches them how to apply the principles and techniques to practical situations. Topics include statistical decision theory, software risk management.

Prerequisite: MISY 915 or equivalent

MISY 925 Public Information Management (3 credit hours)

The course presents an introduction to computers and information management systems in public sector organizations. Topics include data management, data analysis, public systems analysis, algorithm development, data base design concepts, and design support systems. The course focuses on the study of database and network technologies; the influence and relevance of information systems in public agencies; and the review of issues of ethics, and security as related to Information Systems.

Prerequisite: MISY 915 or equivalent

MISY 926 Strategic Management of Information Technology (3 credit hours)

This course addresses some contemporary issues faced by general managers – e.g., globalization, and time compression. The course defines the information technology strategies of an organization. It will examine principles and concepts of strategic information technology systems, and systems development as it relates to information technology management strategy.

Prerequisite: MISY 915 or equivalent

MISY 930 Business Information Systems & Technologies (3 credit hours)

This course provides the fundamentals of information systems and technology in business. The focuses are on the integration of business functions, and the strategic information systems. Topics include project planning, time, risk, and resource management in many business applications. In addition, the course will introduce information systems building and prototyping.

Prerequisite: MISY 915 or equivalent

MKTN 950 Entrepreneurial Marketing (3 credit hours)

This course provides entrepreneurs with an understanding of marketing for new and small enterprises. It addresses marketing

strategies. The Students will apply marketing concepts, such as creating and nurturing relationships with new customers, suppliers, distributors, employees and investors. This course brings together theory and practice to develop a comprehensive entrepreneurial business-marketing plan.

Prerequisite: Graduate standing

MKTN 951 Competitive Marketing Strategies (3 credit hours)

The course offers strategy development by discussing important analysis of various cases from consumer, supplier, and technological markets; production and service businesses for-profit and nonprofit sectors. The students will learn how to build a marketing plan.

Prerequisite: Graduate standing

MKTN 952 Retailing and Supply Chain Management (3 credit hours)

The course offers a critical analysis of retailing strategies and e-business sites to expand the company's markets, to provide service customers, and to increase the sales. The course also discusses the critical supply chain issues involved in commerce including inventory management, transportation, procurement and warehousing.

Prerequisite: Graduate standing

MKTN 953 International Marketing (3 credit hours)

The course presents to the students the major factors of the international marketing decisions. The student will learn about the forces that influence the global marketing environment. The course introduces students to principles, policies, procedures, ethics, and techniques used in efficient and effective international market. International product, price, promotion, and distribution issues are discussed.

Prerequisite: Graduate standing

MKTN 954 Marketing Research (3 credit hours)

This course introduces the methods for collecting, analyzing, and interpreting data relevant to the marketing decision-making. The course focuses on structuring marketing problems, understanding the different sources of marketing research data, using particular techniques for analyzing marketing research data that helps to make better marketing management decisions.

Prerequisite: Graduate standing

MKTN 955 Strategic Application of Technology in Marketing (3 credit hours)

This course introduces technology efficiencies into the value chain that become critical to corporate strategy. The course will review the applications of the current and emerging technologies to the strategic creation, maintenance, and communication of value within the corporate value chain. In addition, it will provide the students with an overview of strategic technology process and its principal concepts. Students are encouraged to present actual marketing issues, to bring the ideas from Silicon Valley companies for discussion.

Prerequisite: Graduate standing

MKTN 957 Consumer Behavior (3 credit hours)

The course focuses on how to assess customer behavior and interprets this knowledge into marketing strategies. Topics include customer satisfaction and dissatisfaction; the role of quality, TQM, cycle time. In addition, the course introduces concepts such as, motivation, perception, knowledge, attitude, and culture on customer decision-making. The course is designed for students interested in consumer, service, high-tech, or not-for-profit marketing.

Prerequisite: Graduate standing

MKTN 958 Marketing Management (3 credit hours)

This course presents an approach to understand and manage the marketing function. The students will learn how to develop a written marketing plan to determine and integrate elements of a marketing strategy. Topics include market segmentation, positioning and research; product decisions; pricing; channels of distribution; advertising; promotion; new product development; and marketing budgets. The course will introduce the role of marketing in the U.S. economy and the interaction of marketing with specific business functions and with society.

Prerequisite: Graduate standing

MKTN 959 Advanced Marketing (3 credit hours)

The course will explain the importance of marketing, which include market research, competitor analysis and the consumer analysis. The student will explore the marketing process, and concept. In addition, the course will provide a study of the relationship

between the marketing mix, and the changing business environment.

Prerequisite: Graduate standing

MKTN 960 Effective Marketing Planning In Dynamic Environments (3 credit hours)

This course will develop the implementation, control and evaluation plans. It addresses the practical aspects of appraisal, prediction and monitoring of market factors that impact organizational performance. The course will explain how marketing decisions contribute to developing and maintaining competitive advantage in dynamic markets.

Prerequisites: Graduate standing

MKTN 961 E-commerce (3 credit hours)

This course provides introduction to e-Commerce and related subjects. The course will cover e-commerce infrastructure and its related technologies. Various business models used in e-commerce will be discussed in the lecture. The student will have knowledge of e-commerce when finishes this course.

Prerequisite: Graduate standing

MKTN 965 Vendor/Seller Management (3 credit hours)

This course will explain all aspects of outsourcing, including planning, finding the right vendor and negotiating effectively. Topics include relationship building, creating a culture of cooperation, and skills in dealing with vendor. The course will teach the buying and selling processes that corporations use in business-to-business transactions. The focus of the course is on the concept of selling, improving value, and meeting the needs of clients through effective questioning, analysis, sales planning and presentations. The students will learn the major phases of the sales process, the sales objectives for each phase, the client needs, and the solutions' presentation.

Prerequisite: Graduate standing

7. Facilities

Library Resources

ITU has sought to increase the research, vast reference support and library resources made available to ITU students, particularly our masters students who need the most up to date research data, most commonly found in expensive subscription-based computer databases. In August 2005, ITU donated its 11,000 volume library to the Martin Luther King, Jr. Library and now direct ITU students to this wonderful resource.

All ITU students now have FULL ACCESS to the resources of Martin Luther King, Jr. Library, the main library of and located at San Jose State University, at 150 E. San Fernando (at Fourth Street), San Jose, CA. The library is a 14 minutes drive from ITU.

All ITU students access privileges include: obtaining a library card; checking out books, CD's, DVD's and other materials; utilizing the full multimillion dollar subscription-based university computer databases on campus; complete support from the university librarian; telephone reference support during library hours; support for multi-lingual students (including students who speaking Mandarin, Cantonese, Korean or Japanese); and full wireless access with their laptops within the library, and/or DSL direct connection services for those without a wireless card to store legally downloadable research data obtained from the library.

In addition to all the available volumes of hard cover books and publications at the library, students have access to the latest in the following databases.

For ITU MBA students, at no extra charge, the following paid subscription-based database access include the following:

ABI/INFORM Global - Indexing and full text for standard magazines and scholarly journals in business and economics.

America's Newspapers: California - Full text of many California newspapers, including the San Jose Mercury News, Los Angeles Times, Sacramento Bee, and the San Francisco Chronicle.

Business & Company Resource Center - (formerly Gale Business Resources) Data on companies and industry groups. Company profiles include selected brand listings, company histories, and SEC

reports. Industry information includes an overview and analysis of the industry with market share, company rankings, financial ratios and other statistical information.

Business Full Text - Indexes and abstracts articles from leading business magazines and trade and research journals in English, published in the USA and elsewhere. Since 1995 it includes the full text of selected periodicals. The abstracts (summaries) range from 50 to 150 words and describe the content and scope of the source articles.

Business Source Premier - Full text for newspapers, books, scholarly journals, standard business periodicals and country economic reports. Over 200 of the journals have PDF full text back to 1965 or to the first issue published. Can search by ticker symbol, NAICS/Industry code, or Duns number.

CCH Internet Tax Research Network - Tax research materials, replacing the Standard Federal Tax Reporter in paper and CD-ROM. U.S. and California tax codes, regulations, rulings, procedures, decisions and other developments in the field of taxation.

Communication Abstracts - Indexes and abstracts journal articles, reports, and books in general communication, mass communication, broadcasting, speech, advertising, public relations, journalism, radio and television, etc. It provides worldwide coverage from 1977 forward. The print equivalent is *Communication Abstracts*.

CQ Researcher - This weekly publication gives background information on current and controversial issues. Includes pro and con arguments, bibliography, contacts, chronology and future outlook.

Dun & Bradstreet Million Dollar Database - A directory of U.S. companies, including location, contact information, total sales, number of employees, brief executive biographies and other data.

EconLit - Access to the American Economic Association databases, *Index of Economic Articles* and *Journal of Economic Literature*. It also indexes journal articles and book reviews from 260 economics journals and about 200 monographs each year.

Economic Census - The Economic Census profiles the U.S. economy every 5 years, from the national to the local level. Statistical tables in HTML (web page) and PDF formats. Includes reports for individual states, zip code and by broad market sectors.

ERIC via CSA - Citations to journal articles and documents covering education at all levels, child development, educational psychology and librarianship (1966 - present).

Factiva - General news and company, industry, and other business information (mostly full-text) from newspapers, newswires, magazines, trade journals in 22 languages from 118 countries. A joint project of Dow-Jones & Reuters, it includes color pictures from Reuters and Knight-Ridder publications, company reports, SEC filings, web contents, and transcripts from BBC, ABC, CBS, NBC, Fox, CNN, NPR and more.

Financial Accounting Research System (FARS) - FARS is the source for primary accounting research. FASB-OP gives the full text of all AICPA and FASB pronouncements. FASB-CT covers general and industry standards relating to accounting. EITF gives the full text of abstracts for every issue discussed by the Emerging Issues Task Force. FASB-Q&A gives special reports on individual FAS. FASINDEX provides a topical index for these databases.

GPO on Silverplatter - Index to publications of U. S. Government agencies, including works such as monographs, serials, maps and some audiovisuals.

Hoover's Company Profiles - 2,500 in-depth company profiles including operations, officers, strategies, competitors, histories, locations, products & brand names, and financial information.

Lexis/Nexis Academic - Complete text of newspapers, magazines, newswires, transcripts of TV and radio news, trade publications, laws and court cases. "Foreign Language News" section includes articles in Spanish, French, Dutch, Italian & German. Company information includes annual reports (NAARS), SEC Reports, and Hoover profiles.

Rand California - Database on California, its cities and counties--economy, crime, school test scores, statistics; online index of public policy and research publications; calendar of workshops, seminars, and other discussions; federal policy bulletins ; bulletin on state policy developments; monthly reports on the California economy.

RDS Business Reference Suite - This database provides balanced and highly-focused full-text coverage of company and industry news, management practices, and market research information. It's essentially a core business reference collection featuring more than 1,400 leading worldwide business sources, plus tens of thousands of tables containing strategic data.

Regional Business News - Business news from local English-language business journals, newspapers and newswires covering many metropolitan and rural areas within the United States.

Standard & Poor's Publications - Electronic versions of *Industry Surveys* (which covers trends, outlook and comparative company statistics for specific industries); *Stock Guide* and *Bond Guide* (with prices and other trading information) and *Stock Reports* (which reports on financial and trading activities of important companies).

StatUSA - Reports and statistics on export and international trade (*National Trade Data Bank*, *Survey of Current Business*), domestic economic news (retail sales, CPI), business leads (*Commerce Business Daily*), and other economic information (*Economic Report of the President*). Data are gathered from 50 federal agencies.

Value Line Investment Survey Online - Standard Edition - A software program to help investors analyze and select stocks. A broad range of functions can be performed (e.g. sorting, filtering, graphing and reporting) on individual or groups of stocks. Each stock is described by over 200 categories of data.

Zacks.com - Research on 6,000+ publicly traded companies compiled from over 2,500 analysts at more than 240 different brokerage houses. Relevant to all disciplines of business (i.e. Finance, Accounting, Management, and Marketing). Includes company and stock news and information (and some mutual funds), analysis, rankings, investment advice.

For ITU MSCE, MSEE, MSSE students, at no extra charge, the following paid subscription-based database access include the following:

Academic Search Premier Full text for more than 4,650 publications, including more than 3,600 peer-reviewed journals. PDF backfiles to 1975 are available for over 100 journals. Designed specifically for academic institutions, it's the world's largest multi-disciplinary database. The majority of full text titles are available as searchable PDFs, and some are scanned in color. This scholarly collection offers information in nearly every area of academic study including: computer sciences, engineering, physics, chemistry, language and linguistics, arts & literature, medical sciences, ethnic studies, and many more

Engineering Village 2 Covers engineering, patents, technology, applied sciences.

ENGnetBASE Electronic full text of over 100 engineering handbooks published by CRC Press. They are searchable by topic or keyword. The collection is also browsable by category (for example, Nanoscience/Nanotechnology, Chemical Engineering, Material Science, Mechanical Engineering, etc.). New handbooks are continuously added to ENGnetBASE.

IC Master IC Master is a database of currently available integrated circuits. Using this resource you can review the latest IC product information; identify manufacturers and second sources; locate manufacturers and distributors.

IEEE Xplore Covers electrical, electronic and computer engineering.

INSPEC Ondisc Physics, electrical and electronic engineering, computer engineering, materials engineering, manufacturing and control engineering, communications and information technology.

NIST Scientific and Technical Databases NIST Data Gateway-provides easy access to many (currently over 80) of the NIST scientific and technical databases. These databases cover a broad range of substances and properties from many different scientific disciplines. The Gateway includes links to free online NIST data systems as well as to information on NIST PC databases available for purchase.

ScienceDirect Full-text articles, primarily science, technology and medicine (STM). Covers a few journals in the arts, humanities and social sciences; also includes some reference e-books.

Wiley Interscience Covers sciences, business, law and education. For ITU Bio Management and Pharmaceutical Science students, at no extra charge, the following paid subscription based database include the following:

Age line - Aging and middle age, from the perspectives of psychology, economics, sociology, gerontology, public policy, business, health and health care services, and consumer issues. References to documents on health care and policy comprise about half of the ... more details.

Biodiversity Heritage Library Full Text - The BHL will provide basic, important content for immediate research and for multiple bioinformatics initiatives. For the first time in history, the core of our natural history and herbaria library collection.

Biological Abstracts - Indexes original research (primary) articles in biological and biomedical journals. Includes traditional areas of biology such as botany, zoology, and microbiology, as well as related fields such as biomedicine, agriculture, pharmacology and ecology

Bio One Full Text - Full text of over 110 scholarly, peer-reviewed bioscience journals from approximately 50 scholarly publishers.

CHEM net Base Full Text - Online versions of major chemical reference works: The Combined Chemical Dictionary; Handbook of Chemistry and Physics; Polymers - A Property Database; Dictionary of Commonly Cited Compounds; Properties of Organic Compounds.

CINAHL Plus with Full Text - Indexes the literature of nursing, occupational therapy and other health professions. Virtually all English-language publications are indexed along with the publications of the American Nurses Association and the National League for Nursing.

Encyclopedia of Life Sciences Full Text - Over 3,000 specially commissioned and peer-reviewed full text articles, written by 5,000 scientists. Covers biological sciences, medicine, science, ecology, genetics.

General Science Full Text Full Text - Basic professional journals and popular science magazines in all sciences. Full text begins in January 1995; indexing/abstracting goes back to 1993.

ICPSR - See Inter-University Consortium for Political and Social - Research (ICPSR) Full Text Maintains and provides access to a vast archive of social science data for research and instruction, such as population, economics, education, health, social and political behavior, social and political attitudes, history, crime, aging, and substance ...

Ingenta - is a platform offering full text access to approximately 200 scholarly and academic journals in a variety of subjects. Additionally, the collection of citation data includes some 20 million articles from 30,000 publications.

Medline - Citations and abstracts from biomedical journals published in the U.S. and 70 other countries, dating back to the mid-1960's. Most records are from English-language sources or have English abstracts. Also called Plumbed. Merck Manual Home Edition Full Text - Vital information about diseases, diagnosis, prevention, and treatment. Based on The Merck Manual of Diagnosis and Therapy this edition transforms the language of the professionals' version into commonly used English.

Papers Invited Full Text - Papers Invited was conceived and developed to assist researchers at all levels - scientists, professors, post-docs and students who are seeking publishing opportunities for their research papers. It presents a list of Calls for Papers issued by professionals.

Science Direct Full Text - Full-text articles, primarily science, technology and medicine (STM). social sciences; also includes some reference and e-books.

TOXNET/TOXLINE - Indexes publications on the toxicological, pharmacological, biochemical and physiological effects of drugs and other chemicals--including journal articles, monographs, technical reports, theses, letters, and meeting abstracts, papers and reports.

Computer Labs

Computer facilities include an 8 station lab and full T-1 wireless Internet connections. The labs are open from 10:00 AM to 9:00 PM Monday through Friday, and limited hours on Saturday and Sunday. Please check with the Registrar for current access hours during each particular term. Hours may be modified from time to time as necessary for efficient operations. The use of computers at ITU is an integral element of all disciplines. All students are required bring in their own laptop computers with software necessary as determined by instructors for ITU class work.

Research Labs

There are two research labs: Artificial Intelligence Lab and UI Lab. Both labs are led by the industrial experts and ITU professors for researching the cutting edge technologies and products. Both labs provide the latest tools for best research and practice such as Synopsys and Cadence tools.

8. Student Activities and Services

Academic Advisement

Each student is assigned an academic advisor, who will on a regular basis give academic advice regarding the student's progress.

Placement Assistance

ITU provides a variety of services to assist students in clarifying, planning, and achieving their career goals. Workshops will be held regularly on career planning, including self-assessment, resume writing, interviewing skills, and job search strategies. Programs will be developed that bring professionals from various fields to present information concerning career opportunities weekly in the Joint Seminar class required of all students. Students are encouraged to take advantage of this exposure to industry leaders and continually collect networking contact information from the Joint Seminar class. A special program of informational interviewing will link students with alumni in a variety of fields.

Student Health, Safety, and Housing

All full-time students are required to have their own medical insurance coverage. ITU will assist them in contacting appropriate insurance companies. The University does not provide on-campus housing for students. However, students should not have difficulty finding accommodations near campus. Average monthly rent of a single room ranges from \$400-\$550.

Student Governance

The ITU Student Association offers students the opportunity to participate in the governing of the institution. Elected officers interact regularly with assigned faculty advisors to coordinate student functions, organize extra-curricular activities, and offer student input concerning university policy.

Student Organizations and Alumni Association

Students at ITU are free to organize and to join associations whose stated purpose is consistent with the University's mission.

All student organizations seeking ITU support must be registered. The ITU Alumni Association is operated under the Chancellor's Office of the University, keeping a current list of all alumni, and conducting alumni activities on a regular basis such as class reunions and career counseling.

Academic Achievement Recognition

Faculty and student awards are given annually during commencement ceremonies to recognize the outstanding achievements of faculty, staff, and students.

Tutorial Programs

A tutorial program will provide international students with assistance in English studies in addition to ITU's regular tutorial classes for academic courses conducted by our teaching faculty and teaching assistants.

Nonimmigrant Alien Student Services

ITU is authorized under Federal law to enroll nonimmigrant alien students. Nonimmigrant alien students requesting supporting documents must submit a financial statement showing adequate funds for tuition fees and living expenses for the entire degree program (no less than USD \$17,500).

An acceptance letter together with the supporting documents will be issued to an admitted nonimmigrant alien student, who must submit these and the necessary financial affidavits to a U.S. Consular Officer to whom he/she applies for a student visa.

All enrolled nonimmigrant alien students cannot miss more than 15 percent of their classes without endangering their visa status.

Students are allowed only 3 unexcused absences. If a student misses two consecutive classes, the student will receive a warning. If the situation persists, the director of the program will contact the student. If it continues, it will be referred to the President's Office. If the problem remains, ITU is required to report this to the Bureau of Citizenship and Immigration Services.

Student Tuition Recovery Fund

The Student Tuition Recovery Fund (STRF) was established by the Legislature to protect any California Resident who attends a private postsecondary institution from losing money if the student prepaid tuition and suffered a financial loss as a result of the

school: closing; failing to live up to its enrollment agreement; or, refusing to pay a court judgment.

To be eligible, the student must be a "California resident" and reside in California at the time the enrollment is signed or when the student receives lessons at a California mailing address from an approved institution offering correspondence instruction. A student temporarily residing in California for the sole purpose of pursuing an education, specifically one holding a student visa, is not considered a "California resident."

To qualify for STRF reimbursement you must file a STRF application within one year of receiving notice from the council that the school is closed. If you do not receive notice from the council you have four years from the date of closure to file a STRF application. If a judgment is obtained you must file a STRF application within 2 years of the final judgment.

It is important that you keep copies of the enrollment agreement, financial aid papers, receipts or any other information that documents the monies paid to the school. Questions regarding the STRF may be directed to: Bureau for Private Post-Secondary and Vocational Education, 1027 10th Street, Fourth Floor, Sacramento, CA 95814, (916) 445-3427.

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Barbara Hecker, Ph.D.

Acting Department Chair of
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Angie Lo

International Project Assistant

Soumya Mittapalli
Learning Resources Manager

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Mydhili Boya	Admissions and Accounts Associate
Betty Hayes	Admissions Officer
Shivani Sharma	Accountant
Rizza Obillo	Accountant
Derek Li	Accountant
Hayatt Adem	Accountant

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