International Technological University

Student Handbook

August 1, 2014 – July 31, 2015

International Technological University
355 W. San Fernando St
San Jose, CA 95113 USA
Main: (888) 488-4968
Fax: (408) 400-2001
http://www.itu.edu

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.

International Technological University is accredited by the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges (WASC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; (510) 748-9001. Questions regarding the University's accreditation may be directed to the institution or to WASC at wascsr@wascsenior.org or (510) 748-9001.

International Technological University (ITU) is a private institution. The University has received approval to operate from the Bureau for Private Postsecondary Education (www.bppe.ca.gov). An approval to operate means compliance with state standards as set forth in the California Education Code, Title 3, Division 10, Part 59, Chapter 8.

GENERAL INFORMATION FOR PROSPECTIVE STUDENTS

As a prospective student, you are encouraged to review this catalog prior to signing an enrollment agreement. You are also encouraged to review the School Performance Fact Sheet, which must be provided to you prior to signing an enrollment agreement.

COMPLAINTS

Students or any member of the public may file a complaint about this institution with the Bureau for Private Postsecondary Education by calling (888) 370-7589, or by completing a complaint form, which can be obtained on the bureau's Internet Web site at www.bppe.ca.gov.

ADDITIONAL QUESTIONS

Any additional questions and/or concerns may be addressed by contacting the school at 355 W. San Fernando Street, San Jose, CA 95113, or by calling (888) 488-4968.
Any questions a student may have regarding this catalog that have not been satisfactorily answered by the institution may be directed to the Bureau for Private Postsecondary Education at:
Physical Address: 2535 Capitol Oaks Drive, Suite 400, Sacramento, CA 95833
Mailing Address: P.O. Box 980818, West Sacramento, CA 95798
Website: www.bppe.ca.gov
Phone Number: (916) 431-6959
Toll Free: (888) 370-7589
Fax Number: (916) 263-1897

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A MESSAGE FROM THE FOUNDER

Today, interdependency among nations is a working reality. Global developments in communications and technology mark the dynamic, changing nature of socio-economic 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.

Professor Shu-Park Chan, Ph.D.
Founder/President Emeritus

ABOUT ITU

"To transform industry-linked technological education through innovative educational models and industry partnerships, worldwide."

Established in 1994 by Dr. Shu-Park Chan, International Technological University (ITU) provides excellence in education for the future leaders of Silicon Valley corporations, leveraging the best of Silicon Valley's technology and business models to advance developing economies throughout the world. ITU reflects and enhances Silicon Valley's unique business culture with six industry-oriented departments that provide high-quality academic and practical training and offer unparalleled certificate, graduate, and doctorate programs in electrical engineering, digital arts, computer science, engineering management, and business administration. ITU degree programs aim to cultivate forward-thinking engineers, engineering managers, and business entrepreneurs and administrators with a deep understanding of professional ethics, intellectual property law, environmental protection, and other contemporary issues.

VISION

To empower people and advance global prosperity through inventive, industry-linked Silicon Valley education.

MISSION

ITU pioneers a modern, industry-focused educational model to deliver education globally. ITU's educational pedagogy cultivates innovative thinking, ethical leadership, and entrepreneurial spirit through practical, industry relevant curriculum that reflects Silicon Valley's culture. ITU closes the employment skills gap and empowers people to lead successful, enriching lives as meaningful contributors to the global community.

PURPOSE

The purpose of ITU is to foster excellence in education for students particularly interested in the high-tech entrepreneurial field. All our programs have an applied nature, with an emphasis on specialty areas tailored to the market needs of Silicon Valley companies. Students are actively encouraged to affiliate or intern with relevant local industry firms from the very beginning of their academic studies as an integral part of ITU's academic pedagogy. As such, the hallmarks of an ITU education include:

- A special focus on practical engineering, business, biotech, and media arts research projects.
- Relevant internships integrated into academic programs from the beginning of a student's tenure.
- Multicultural awareness through the international exchange of scholars and students from locations around the globe.
- Systemically designed, competency-based courses that utilize innovative instructional methods.
- Cross-disciplinary curriculum that encourages students to look beyond their own fields and generate new possibilities.
- Programs that meet the high standards of both the ITU Advisory Board, which consists of prominent Silicon Valley industry leaders, and the Western Association of Schools and Colleges (WASC).

INSTITUTIONAL LEARNING OUTCOMES

1. Demonstrate proficiency in critical thinking, quantitative methods, and verbal communication skills.
2. Employ an entrepreneurial perspective and innovative problem-solving skills to industry-relevant applications.
3. Display technical competency, research, and leadership ability in a chosen professional field.
4. Exhibit the ability to work effectively in team and group settings to advance professional objectives.
5. Understand and advocate for social responsibility and professional ethics from a perspective of global diversity and sustainability.

UNIVERSITY LOCATION

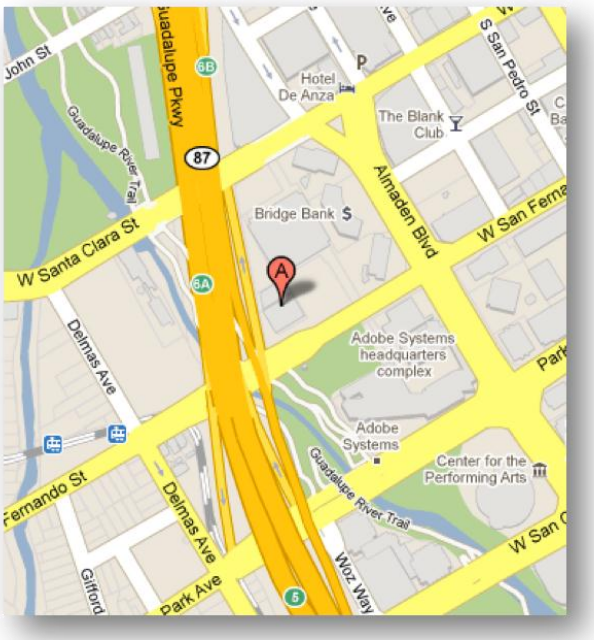
International Technological University's Silicon Valley location provides access to one of the most well known hubs for entrepreneurial activity. The innovative atmosphere of Silicon Valley and the wider San Francisco Bay Area provides students with a unique environment from which to draw inspiration. 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.

On March 28, 2011 ITU finalized its move to downtown San Jose. 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, Nvida, 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 five miles from campus.

University Address:
355 W. San Fernando St
San Jose, California 95113
Tel: (888) 488-4968
Fax:(408) 331-1026

Below is a map of ITU's campus with surrounding streets provided by Google Maps®.



ADMISSIONS

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

Admissions Office
International Technological University
355 W. San Fernando St
San Jose, CA 95113
Academic Scheduling

TRIMESTER ADMISSIONS

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

ENGLISH PROFICIENCY REQUIRED
The ability to communicate effectively in English – to read, write and speak the language fluently – is vital to your success as a university student. Demonstrated English proficiency at the point of admission is required as all instruction will be in English.

GENERAL APPLICATION REQUIREMENTS

All ITU Applications must include:

- Online Application (includes $80 Application Fee).
- Official Undergraduate Transcript: must be issued directly from your undergraduate institution, listing courses taken and grades received, with a minimum cumulative GPA of 2.75.
- Official Transcripts from All Other Post-Secondary Institutions: additional transcripts must be submitted. Transcripts must be issued directly from the institution, listing courses taken and grades received.
- Statement of Purpose Essay (500-750 words): please describe why you are interested in the intended program of study, and how you hope to use this education to achieve your future goals.
- Submit the document in pdf format at admissions@itu.edu. In the subject line include [Your Name & Program of Interest]
- Resume Demonstrating Relevant Work Experience: required for MBA. Optional for other programs.
- Submit the document in pdf format at admissions@itu.edu. In the subject line include [Resume - Your Name]
- GRE or GMAT scores: Recommended. Scores must be sent directly from the testing center.
- Letters of Recommendation: optional. Two letters maximum (must be on letterhead with contact information).

ADDITIONAL REQUIREMENTS FOR INTERNATIONAL APPLICANTS

International applicants who have completed their post-secondary education from an institution outside the U.S. must hold a degree from a university recognized by their Ministry of Education as a degree-granting institution.

- WES Basic Course-by-Course (with GPA & course-levels): all foreign transcripts must be submitted to World Education Services (WES) for a WES Basic Course-by-Course (with GPA & course-levels) evaluation.
  Please note that it takes WES at least 7 business days after receipt of your documents to process and send the evaluation to ITU.
- TOEFL or IELTS score report required for non-native English speakers. Reports must be sent directly from the testing center. ITU looks for scores of at least 80 ibt or 6.5 for IELTS.

** All documents submitted for admission become property of the University and will not be returned.

INTERNATIONAL STUDENTS APPLICATION CHECKLIST

International Students refers to students needing F1 status to attend ITU. The General Admissions Requirements are mandatory for all applicants, while additional materials are dependent on individual student status. All students must apply for admission. Once an international student has been admitted and notified by Admissions, they will be able to start the process to get your I-20. Send all documents to the following address:

Admissions Office
International Technological University
355 W. San Fernando St
San Jose, CA 95113

1. Submit a copy of the first and last page of your Passport, your Visa and I-94.
2. Original Bank Statement.
   Original copy of bank statement showing a minimum of $33,395. Applicants must have proof of an additional $15,600 per dependent. For example, an applicant with an infant and a dependent spouse must show a total of $64,595, having a total of $15,600 per dependent. Bank statements must come directly from the bank, and must include an official stamp and signature from your banking institution. Any documents printed from the internet will be rejected.
3. Notarized Letter of Affidavit. Fill out and submit a Letter of Affidavit if you are being sponsored. If you are a student being sponsored by a company/resident within the US, then your sponsor is responsible for filling out an I-134 Form.
4. For Transfer Students, if currently on OPT, please provide a copy of your EAD (Employment Authorization Document) card.

FINANCIAL INFORMATION

The following sample tuition and fees schedule is for all students (international and domestic):

	SPRING TRIMESTER	SUMMER TRIMESTER	FALL TRIMESTER	ACADEMIC YEAR
Tuition [1]	$4,500	$4,500	$4,500	$13,500
Registration	$50	$50	$50	$150
Student Union	$15	$15	$15	$45
Technology	$200	$200	$200	$600
Insurance	$586.22	$586.22	$586.22	$1,758.66
VTA Pass [4]				$72
TOTAL	**$5,351.22**	**$5,351.22**	**$5,351.22**	**$16,125.66**

[1] Based on full-time registration of nine (9) credit hours.
[2] Registration Fee is $50 per trimester. Late Registration Fee is $100 (applies to students who register for classes during the Late Registration Period).
[3] Fees are non-refundable once students register for classes.
[4] Fees may be refundable if all of the requirements are met. Refer to the ITU website for specific requirements regarding Insurance Premium refund and VTA Pass refund.
Please refer to http://itu.edu/index.php/admissions/student-resources/tuition-and-fees/ for other applicable fees.

The following estimated tuition and fees table is for the entire educational program:

	FEES PER TRIMESTER	**TOTAL NUMBER OF CREDIT HOURS/TOTAL NUMBER OF TRIMESTERS TO COMPLETE THE EDUCATIONAL PROGRAM**	**TOTAL CHARGES DUE FOR THE ENTIRE EDUCATIONAL PROGRAM**
Tuition	$500 per Credit Hour	36 Credit Hours	$18,000
Registration Fee [5]	$50	4 Trimesters	$200
Student Union Fee	$15	4 Trimesters	$60
Technology Fee [5]	$200	4 Trimesters	$800
Application Fee [6] (one-time fee)			$80
Enrollment Fee [6] (one-time fee)			$200
Insurance Premium (for four	$586.22	4 Trimesters	$2,344.88
Student Tuition Recovery Fund [6, 8] (one-time fee)			$10 (current fee)
VTA Pass [7] (for two calendar years)			$144
Graduation Fee [6] (one-time fee)			$200
TOTAL			**$22,038.88**

[5] Fees are non-refundable once students register for classes.
[6] Fees are non-refundable.
[7] Fees may be refundable if all of the requirements are met. Refer to the ITU website for specific requirements regarding Insurance Premium refund and VTA Pass refund.
[8] The Student Tuition Recovery Fund (STRF) assessment rate is $0.50 per $1,000 of institutional charges for the entire program.

The following table lists other fees:

OTHER FEES (NON-REFUNDABLE)	AMOUNT
Bounced Check Penalty Fee (per check)	$50
Course Examination Under Challenge Test	$100
ISO Processing Fee	$100 (includes shipping)
Diploma Replacement Fee	$100 without cover $125 with cover
Ground Shipping Fee	$25
Installment Plan Administration Fee (per	$80
Insurance Premium [10] (per trimester)	$586.22 (coverage for student only)
International Postage Fee	Additional charges will apply
Lab Supplies/Kit (depends on class	$50 - $200
Late Payment Fee [9]	$100
Overnight Postage Fee	$50
Payment Switch/Check Holding Fee	$50
Petition For Incomplete Grade Fee (per course)	$50
Student ID Replacement Fee	$10
Transcript Fee (per copy)	$15 for first copy $10 each for copies 2-5 $5 each for copies 6-10
USCIS Notary Fee	$20
VTA Pass [10] (per calendar year)	$72

[9] Late Payment Fee will be applied one (1) month after the first day of the trimester if there is an outstanding balance on the account and the student has not signed up for an installment plan.
[10] Fees may be refundable if all of the requirements are met. Refer to the ITU website for specific requirements regarding Insurance Premium refund and VTA Pass refund.

Students are responsible for payments of all tuition and fees. ITU reserves the right to adjust the above schedule of fees at any time. Refer to our website for the latest fee table.

Tuition and fees for each trimester are due and payable at the beginning of each trimester, unless special approval has been obtained in writing from ITU's Department of Accounting Services. ITU reserves the right to deny enrollment or cancel enrollment for students whose fees are not paid one month after the first date of class of each trimester, unless special arrangements have been made with ITU's Department of Accounting Services. In the event that it becomes necessary for ITU to incur attorney fees to collect tuition and fees, or any portion thereof, or to communicate suit under this Enrollment Agreement to the appropriate court within Santa Clara County, California, the undersigned agrees to pay such attorney fees and/or court costs. The interpretation or performance of this Enrollment Agreement shall be construed and enforced in accordance with the laws of the State of California. The undersigned hereby consents to and submits to the jurisdiction of the appropriate court within Santa Clara County, California. The undersigned shall not raise in connection therewith, and hereby waives any defenses based upon the venue, inconvenience of the forum, lack of personal jurisdiction, sufficiency of service of process in any such action or suit brought in Santa Clara County, California.

FINANCIAL OBLIGATIONS AND REFUNDS

1. Students will be given a 100% refund if a class is cancelled by the University.
2. Students have until 11:59PM (PST) of the day of the class session to drop classes.
3. Students have the right to cancel the enrollment agreement and obtain a refund of charges paid (not including non-refundable fees) through attendance at the first class session, or the seventh day after enrollment, whichever is later.
4. If students drop their class(es) or withdraw from the University after the first class session, amounts refunded are calculated based upon the time students drop their class(es) or withdraw from the University.
5. To withdraw from a class:
    - Log into MyITU and drop the class.
6. To request a refund:
    - Submit the Student Refund Request Form to refund@itu.edu.
7. To withdraw from the University:
    - Notify the Office of the Registrar through support.itu.edu.
8. If students have received federal student financial aid funds, students are entitled to refund of moneys not paid from federal student financial aid program funds.

ITU's refund schedule is as follows:

ON-CAMPUS CLASSES	
Date of Withdrawal	**Refund Percentage**
On/Before the Day of the 1st Class (Ending at 11:59PM (PST) on the Day of the 1st Class)	100%
On/Before the Day of the 2nd Class (Ending at 11:59PM (PST) on the Day of the 2nd Class)	85%
After the Day of the 2nd Class (Starting at 12:00AM (PST) on the Day after the 2nd Class)	No Refund

ONLINE CLASSES	SESSION I	SESSION II
Date of Withdrawal	**Refund Percentage**	**Refund Percentage**
On/Before the 1st Day of the Session (Ending at 11:59PM (PST) on the 1st Day of the Session)	100%	100%
During the 1st Week of the Session (Ending at 11:59PM (PST) on 1st Friday of the Session)	85%	85%
After the first Friday of the Session (Starting at 12:00PM (PST) on 1st Saturday of the Session)	No Refund	No Refund

FINANCIAL ASSISTANCE

International Technological University does not participate in any federal and state financial aid programs. In order to ease the burden of a single lump sum tuition payment, the University offers the following payment option:

Installment Plan
Each installment plan application is subject to an Installment Plan Fee of $80 (non-refundable). Any student who wishes to pay using an installment plan must complete and sign a promissory note.

Each installment plan consists of a minimum of two (2) to a maximum of three (3) installments.

- Students must submit all their installment plan checks along with their first payment. The checks should be post-dated and will only be deposited on the day the installment is due.
- Installment plan payment schedule:
  - The **first installment** is due the day of course registration, and the amount must be equal to or greater than three (3) units of tuition in addition to all of the mandatory fees and the Installment Plan Fee.
  - The **second installment** is due one (1) month after the first day of class, and the amount must be equal to or greater than three (3) units of tuition.
  - The **third installment** is due two (2) months after the first day of class. Any remaining balance must be paid with this final installment.

For more information and regulations, please refer to the ITU website.

SCHOLARSHIPS

International Technological University offers scholarships to a select number of students every trimester. The application period is open the first two weeks of registration for each trimester. The scholarship awarded will be applied to the upcoming trimester's tuition. Students are encouraged to complete and submit their complete application via email to ituscholarship@itu.edu.

Dr. Shu-Park Chan Scholarship
The Dr. Shu-Park Chan Scholarship provides merit-based financial assistance to outstanding, qualified students in ITU's academic programs. In addition, ITU encourages our students to contribute to the community, embrace innovation, and promote entrepreneurship. Scholarship applicants should demonstrate their accomplishment of these core values of ITU's mission by showing their leadership, achievement, and participation in class, school and community.
Recipients will be awarded a tuition waiver of up to 9 units per trimester.
Details of the Dr. Shu-Park Chan Scholarship can be found on ITU website:
http://itu.edu/index.php/financial-info/tuition-and-fees/scholarship/

FINANCIAL AIDS AND LOANS

If a student obtains a loan to pay for an educational program, the student will have the responsibility to repay the full amount of the loan plus interest, less the amount of any refund, and, if the student has received federal student financial aid funds, the student is entitled to a refund of the moneys not paid from federal student financial aid program funds.

NOTICE OF NO PENDING PETITIONS

ITU does not have a pending petition in bankruptcy. ITU is not operating as a debtor in possession. ITU has not filed a petition within the preceding five years, nor has any petition in bankruptcy filed against it within the preceding five years that resulted in reorganization under Chapter 11 of the United States Bankruptcy Code (11 U.S.C. Sec. 1101 et seq.).

STUDENT CODE OF CONDUCT

Article I: Terminology

1. The term “University” means ITU University.
2. The term “student” includes all persons taking courses, receiving services from University, and pursuing graduate studies at University.
3. The term “faculty member” means any person hired by or contracted with the University to conduct instructional activities.
4. The term “ITU staff” means any person employed by the University, with the exception of student employees.
5. The term “member of the ITU community” includes students, faculty members or ITU staff, and or any other individual associated with the University. The Chief Student Affairs Administrator or designs shall determine a person’s status in a particular situation.
6. The term “ITU Premises” includes all land, building, facilities and other property in the possession of or owned, used, or controlled by the University (including parking lots, adjacent streets and sidewalks)
7. The term “judicial body” means any person or persons authorized by the Chief Student Affairs Administrator or designee to determine whether a student has violated the Student Code of Conduct and to recommend imposition of sanctions.
8. The term “judicial Advisor” means an ITU official authorized on a case-by-case basis by the Chief Student Affairs Administrator or designee to impose sanctions upon students found to have violated the Student Code of Conduct. The Chief Student Affairs Administrator or designee may authorize a judicial advisor to serve simultaneously as a judicial advisor, and as the sole member or one of the members of the judicial body. Nothing shall prevent the Chief Student Affairs Administrator or designee from authorizing the same judicial advisor to impose sanctions in all cases.
9. The term “shall” is used in the imperative sense.
10. The term “may” is used in the permissive sense.
11. The “Chief Student Affairs Administrator or designee” is the person designated by the CEO of ITU University to be responsible for administration of the Student Code of Conduct.
12. The term “policy” is defined as the written regulations of the University.
13. The term “organization” means any number of persons who have complied with the formal requirements for University recognition / registration.

Article II: Judicial Authority

1. The judicial advisor shall determine the composition of judicial bodies and determine which judicial body shall be authorized to hear each case.
2. The judicial advisor shall develop procedures for administration of the judicial program and for the conduct of hearings, which are not inconsistent with provisions of the Student Code of Conduct.
3. Decisions made by a judicial body and / or judicial advisor shall be final. Pending the normal appeal process. (Unless otherwise is stated).

Article III: Proscribed Conduct

Jurisdiction of the University

The Code of Conduct applies to student behavior that affects the ITU community, irrespective of where that conduct may occur. Discipline may extend to off-campus activities and locations, when they adversely affect the ITU community and / or pursuit of its objectives.

Conduct – Rules and Regulations
Any student found to have committed the following misconduct may be subject to disciplinary sanctions outlined in Article IV.

1. Acts of dishonesty, including but not limited to the following:
    a. Furnishing false information to any University official, faculty member or office.
    b. Forgery, alteration r misuse of any University document, record or instrument of identification.
    c. Computer piracy, including duplication of computer software, copyright infringement and unauthorized computer entry.
2. Disruption or obstruction of teaching, research, administration, disciplinary proceedings and other University activities, including its public service functions on or off campus, or other authorized non-University activities, when the act occurs on ITU premises.
3. Physical abuse, verbal abuse, threats, intimidation, and harassment including, but not limited to, sexual harassment, coercion and/or other conduct that threatens or endangers the health or safety of any person, either on ITU premises or at any University-sponsored activity.
4. Attempted or actual theft of and/or damage to property of the University or property of a member of the ITU community or other personal or public property.
5. ITU specifically prohibits any organization, chartered or otherwise, officially or in fact, from participating in the activity of “hazing”.
6. Gambling on ITU premises, at University functions or through the use of University equipment.
7. Failure to comply with directions of University officials or law enforcement officers acting in performance of their duties and/or failure to identify oneself to these persons when requested to do so.
8. Unauthorized possession, duplication or use of keys to any part of ITU premises, or unauthorized entry to or use of ITU premises.
9. Violation of federal, state or local law on ITU premises or at University-sponsored or University-supervised activities, or other violation of federal, state or local law which has an adverse effect on the ITU community.
10. Violation of published University policies, rules or regulations.
11. Use, possession or distribution of narcotic or other controlled substances, except as expressly permitted by law, or being under the influence of such substances.
12. Illegal or unauthorized possession of firearms, explosives, other weapons or dangerous chemicals on ITU premises or at any University-sponsored activity.
13. Participating in a campus demonstration that disrupts normal operation of the University.
14. Conduct that is disorderly, lewd or indecent; breach of peace; or aiding, abetting or procuring another person to breach the peace on ITU premises or at functions sponsored by the University.
15. Theft or other abuse of computer time, including but not limited to:
    a. Unauthorized entry into a file, to use, read or change contents, or for any other purpose.
    b. Unauthorized transfer of a file.
    c. Unauthorized use of another individual’s identification and password.

16. Abuse of the judicial or disciplinary system, including, but not limited to:
    a. Failure to appear before a judicial body or University official.
    b. Falsification, distortion or misrepresentation of information before a judicial body.
    c. Disruption or interference with orderly conduct of a judicial proceeding.
    d. Attempting to influence the impartially of a member of a judicial body prior to, and / or during the course of the judicial proceeding.
    e. Harassment (verbal or physical) and/or intimidation of a member of a judicial body prior to, during and/or after a judicial proceeding.
    f. Failure to comply with sanction(s) imposed under the Student Code of Conduct.

Article IV: Judicial Policies

Charges and Hearings

1. Any member of the ITU community may file charges against any student for misconduct. Charges shall be prepared in writing and submitted as soon as possible after the event takes place.
2. The judicial advisor may conduct an investigation to determine if charges have merit and/or if they can be resolved by mutual consent of parties involved on a basis acceptable to the judicial advisor (such as mediation). Such disposition shall be final, and there shall be no subsequent proceedings.
3. All charges shall be presented to the accused students in written form. Chief Student Affairs Administrator or designee shall decide on how they want to follow up with the case. This could go up to an actual hearing.
4. It is up to the Chief Student Affairs Administrator or designee to decide on everything related to the charges brought up against the accused student.

SANCTIONS

There shall be two major classifications of sanctions that may be imposed for violations of this procedure: Academic and Administrative. Academic sanctions will be defined as those actions related to the course work and grades which are the province of the instructor. Administrative sanctions are concerned with a student's status on campus. The imposition of one variety of sanction will not preclude the additional imposition of the other.

1. The sanctions listed below may be imposed upon any student found to have violated the Student Code of Conduct.
    a. Warning – A verbal or written notice to the student that the student is in violation of or has violated University regulations.
    b. Probation – A written reprimand for violation of specific regulations. Probation is for a designated period of time and includes the probability of more sever disciplinary sanctions if the student is found to be violating any University regulation(s) during the probationary period.
    c. Fines – Fines may be imposed, as determined or approved by the university.
    d. Restitution – Compensation for loss, damage or injury. This may take the form of appropriate service and/or monetary or material replacement.
    e. Discretionary Sanctions – Work assignments, service to the University or other related discretionary assignments.

f. ITU Suspension – Separation of the student from the University for a definite period of time, after which the student is eligible to return. Conditions for readmission may be specified.
g. University Expulsion – Permanent separation of the student from the University.

2. More than one sanction listed above may be imposed for a single violation.
3. Other than University suspension and University Expulsion, disciplinary sanctions shall not be made part of the student's permanent academic record, but shall become part of the student's disciplinary record.

ACADEMIC SANCTIONS

Faculty members are responsible for determining the type of academic sanction and reporting the incident. Usually a form of "grade modification" will be employed. Before sanctions can be employed, the faculty member must have verified the instances of academic dishonesty by personal observation and/or documentation. In all cases the violation should be reported to The Chief Student Affairs Administrator. Sanctions that may be imposed by the faculty member include but are not limited to those listed below. A student may be:

1. Reprimanded orally.
2. Lowered grade on assignment, exam, paper, or project involved.
3. Failed in the evaluation instrument (assignment, exam, paper, or project).
4. Reduced in course grade, including possible failure of the course. NOTE: A grade of "F" earned in the course as a result of sanctions for academic dishonesty is final and shall be placed on the transcript.
5. Referred for administrative sanctions. A faculty member may choose to refer a student to The Chief Student Affairs Administrator for disciplinary action in addition to the academic action the faculty member has taken or in lieu of any academic sanction.
6. If the incident happened around final time, then the result is an immediate 'F" in the course followed by other Administrative Sanctions, including NP in other courses taken in the same semester, up to expulsion.

ADMINISTRATIVE SANCTIONS

Cheating or plagiarism in connection with an academic program at a campus may warrant expulsion, suspension, probation, or a lesser sanction. Administrative action involving academic dishonesty at ITU is the responsibility of the Chief Student Affairs Administrator according to the Standards of Student Code of Conduct.

The Chief Student Affairs Administrator will respond to:

1. Referrals from the faculty;
2. Flagrant violations of academic standards; and

3. Repeat violations as brought to attention by the faculty or through the centralized reports filed with the Chief Student Affairs Administrator. Repeat violators of the academic dishonesty procedure will face the following sanctions:
    a. Students found to have violated the academic dishonesty procedure in two separate incidents may be placed on academic probation, and potentially suspended or expelled from the University;
    b. The University will initiate expulsion proceedings for students found to have violated the academic dishonesty procedure in three or more separate incidents. Faculty members will be notified by the Chief Student Affairs Administrator when action has been taken.

INTERIM SUSPENSION

In certain circumstance, the Chief Student Affairs Administrator, or a designee, may impose an immediate University suspension.

1. Interim suspension may be imposed:
    a. To ensure the safety and well-being of member of the ITU community or preservation of University property;
    b. To ensure the student's own physical or emotional safety and well-being; or
    c. To ensure safety of others if the student poses a definite threat of disruption of or interference with the normal operation of the university, all at the discretion of the Chief Student Affairs Advisor or designee.
2. During the interim suspension, student shall be denied access to ITU premises and / or all other University activities or privileges for which the student might otherwise be eligible, as the Chief Student Affairs Administrator or designee may determine to be appropriate.

APPEALS

The accused student may appeal a sanction imposed. The request must be in writing and submitted within the timeframe outlined in the sanction notice. The Chief Student Affairs Administrator or designee may decide to uphold an appeal. Based on the nature of the case, he/she may decide to deny the appeal process.

ACADEMIC GRIEVANCE PRECEDURES

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. To launch a complaint via the Bureau of Private Postsecondary Education (BPPE) please go to the BPPE website.

ACADEMIC INTERGRITY

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.

ACADEMIC DISHONESTY POLICY

ITU is committed to creating an environment where student achievement is championed and celebrated. Because the university values academic integrity as an essential component of academic excellence, students are expected to be truthful and ethical in their academic work. Commitment to academic integrity is the responsibility of every student and faculty member at ITU.

Faculty and students come from a variety of backgrounds and cultures, giving rise to different understandings of moral and ethical behavior. Faculty should clearly state well-defined standards to reduce uncertainty and clarify expectations.

Academic dishonesty is defined as: an act of deception in which a student claims credit for the work or effort of another person or uses unauthorized materials or fabricated information in any academic work. Academic dishonesty is a violation of the ITU 'Student Code of Conduct' and will not be tolerated and might lead to suspension and expulsion. Acts of academic dishonesty include, but are not limited to, the following:

CHEATING

Unauthorized copying or collaboration on a test or assignment, or the use or attempted use of unauthorized materials;

TAMPERING

Altering or interfering with evaluation instruments and documents;

FABRICATION

Falsifying experimental data or results, inventing research or laboratory data or results for work not done, or falsely claiming sources not used; fabricating or falsifying documentation to try to change a course grade;

PLAGIARISM

Representing someone else's words, ideas, artistry, or data as one's own, including copying another person 's work (including published and unpublished material, and material from the Internet) without appropriate referencing, presenting someone's else's opinions and theories as one 's own, or working jointly on a project, then submitting it as one's own;

ASSISTING

Assisting another student in an act of academic dishonesty, such as taking a test or doing an assignment for someone else, changing someone's grades or academic records, or inappropriately disturbing exams to other students.

ACADEMIC POLICIES

CLASS ATTENDANCE AND PARTICIPATION POLICY

All on-campus classes are held at ITU, 355 W. San Fernando Street, San Jose, CA 95113. Class attendance is mandatory for all on-campus courses at ITU. Showing up for each class session is the minimum requirement for students to learn and be successful in their studies. As a graduate institution, ITU requires all of its students to attend, fully participate, and be engaged in all of the classes for which they are enrolled each term.

It is the responsibility of the individual faculty member to monitor and record student engagement and participation for their class(es), both on campus and online. This can be done in a number of ways, such as in-class quizzes, participation points during in-class discussions, roll call, etc. How attendance is measured may vary from class to class. To encourage student engagement, faculty are encouraged to use classroom participation as a part of their grading.

CLASS SIZE LIMIT

Classes are limited to 48 students per weekday course, and 75 students per weekend course.

CREDIT HOUR POLICY

Except as provided in Federal Regulation 34 CFR 668.8(k) and (l), a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

(1) One hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or

(2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution, including laboratory work, internships, practice, studio work, and other academic work leading to the award of credit hours.

Besides:

(3) One credit hour is assigned to a part time CPT in which the student needs to get between 10 to 20 hours training a week for at least 15 weeks; three credit hours are assigned to a full time CPT in which the student takes 21 to 40 hours training per week for at least 15 weeks. In addition, given the nature of our school, many of our engineering classes meet in a laboratory of the subject matter these classes meet in accordance with the time requirements of the above policy. In addition to the class

meeting time, which is largely lecture/didactic and discussion classes, students are required to complete additional lab work/assignments outside of their class hours.

With regard to ITU's online course offerings, ITU has adopted the United States Department of Education requirements for "courses offered entirely online and without any required face-to-face class meetings."
A week of instructional time is any given seven-day period in which at least one session of regularly scheduled instruction or examination occurs. Students are expected to be academically engaged through means which could include, but are not limited to, submitting an academic assignment; taking an exam, an interactive tutorial, or computer-assisted instruction; attending a virtual study group assigned by the instructor; contributing to an academic online discussion; and engaging in contact with the faculty member and class peers related to the academic subject of the course. Departments must document through scheduling of classes or syllabi that they are meeting the minimum semester credit hour requirement for the credit awarded. (U.S. DOE, CH-A5, 2.22.2013)

The course syllabus communicates an expectation to students that the student will be required to participate as a part of the course and indicates the expected minimum time that students will need to devote to the course. The total expected time should be a minimum of 45 hours per semester for each unit of class.
The credit hour requirement for a course may be achieved through working online, attending online discussions, watching video presentations, taking quizzes, participating in group activities, etc. A student's participation may be randomly monitored for quality control by the instructor for that course, faculty mentors assigned to courses, or the program chair.

CREDIT MEASUREMENTS

Academic credits are measured in terms of credit hours. This is a listing of how Academic Credits are measured:

1 credit hour = 1 trimester term hour
1 trimester credit hour = 15 hours of classroom lectures/30 laboratory hours/45 practicum hours

The student should enroll in 9 credits to maintain the F1 status for all trimesters, unless he/she is in Semester Break, Last Trimester, or Reduced Course Load.

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 Trimesters.

FINAL EXAM POLICY

All classes conducted at ITU main campus have a mandatory in-class final examination or presentation.

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 on the student's record as an "I", with no credit earned, and is not computed in the GPA.
P/NP	(Pass/Not pass)-Used as an alternative grading option for students. 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.
R	Repeated class
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 in which 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.

INTERNSHIP POLICY

After more than thirty years of service in higher education, Dr. Shu-Park Chan retired to found his life's capstone: International Technological University (ITU). ITU continues to fulfill its vision and mission of globalizing cutting-edge industry-focused education through all of its educational programs. In application, ITU has created a holistic learning model that marries work experience with in-class or online education from a student's initial time of enrollment. This synergistic combination creates a hands-on learning experience that builds job readiness.

As affirmed by the university's Academic Quality Committee (AQC), the following academic programs at ITU require students to participate in internship (one unit for Part-Time, three units for Full-Time, up to a maximum of nine units per degree) from the first trimester as a core part of the curriculum for their degree program:

Master of Business Administration
Master of Science in Software Engineering
Master of Science in Digital Arts
Master of Science in Electrical Engineering
Master of Science in Computer Engineering
Master of Science in Engineering Management

Prior to registration, ITU must determine the relevance of an internship to a student's course of study. To do this, employers must submit an internship offer letter on the employer's letterhead, as well as complete ITU's Employer Cooperation Agreement. At the end of the trimester, employers must also submit the Final Evaluation Form to ITU's Student Records Office.

Case-by-case exceptions may be made if a student is unable to attain or work in an internship while studying. The Registrar's Office will review the exception to substitute in an additional course in the program of study as necessary. Final decisions regarding exceptions to the internship policy are under the discretion of the Registrar.

Once enrolled in the internship course, students are assigned an ITU faculty designated by the Department Chair of the respective program who will review the internship. These assigned faculty members are available to advise the student on what coursework will be most synergistic to the skills necessary for that internship.

Additionally, students are required to submit three documents for the approved

internship each trimester. At the beginning of the trimester, they must submit an Internship Job Description. During the mid-term period, students are required to submit their Mid-Term Internship Report. At the end of the trimester, students are required to submit the Final Internship Report through ITU's Educational Management System (EMS).

*Please note: All international students MUST obtain work authorization on their Form I-20 Certificate of Eligibility for Nonimmigrant (F-1) student status and present a photocopy to the employer BEFORE they can legally start their internship. Per USCIS regulations, any violations will result in the student's loss of legal status in the U.S. and subject him/her to deportation.

POLICY FOR INDEPENDENT STUDY

Independent Study (IS) is a form of educational activity involving an individual instructor and an individual student in which the student conducts research on a mutually agreed upon topic under loose guidance from the supervising instructor. Usually an instructor will make it known to the University in which fields s/he is willing to guide independent study in a particular trimester.

A student who intends to register for and conduct independent study (IS) has to follow the rules described below.

1. The student applies for independent study with the Registrar. The registrar approves or denies the application dependent on condition a) listed below. If approved, the Registrar issues to the student the 'Outline of Independent Study' form.
2. With this form the student seeks approval for IS from the Department Chair of the student's major and suggests a supervising instructor. The Department Chair approves or denies the application dependent on condition b) listed below which is subject to the Department Chair's judgment.
3. If approved the Department Chair assigns the suggested or a different instructor as supervising instructor at his/her discretion.
4. The instructor and the student fill out the 'Outline of Independent Study' form, which contains the student's and instructor's names, the trimester in which the IS is to be conducted, the credit units to be awarded, the topic of the IS, and the desired outcome. The maximum credit units for IS is 3. It can be reduced to 2 or 1 credit units by the supervising instructor at the preparation of the Outline form. The completed form is submitted to the Department Chair for approval.
5. Upon approval and signature of the Outline form by the Department Chair the form is sent to the Registrar, who files it and makes the entry in the student's record, and EMS, as registered for IS.
6. IS must be conducted and completed in the trimester specified in the Outline form. Upon completion of the IS the instructor assigns a letter grade in compliance with the general grading policy. Assignment of Incomplete grade (I) is not allowed for IS.

Approval of Independent Study at ITU is subject to the following conditions:

a) No course is available in the schedule for the given trimester that counts for the student's degree as listed in the curriculum.
b) There is some hardship for the requesting student that makes the earning of additional credit units through IS a necessity (typically visa requirements, preceding loss of credits through disease etc.) If the situation of the requesting student is not deemed a hardship by the Department Chair, the application is denied.

The wish to gain more credit units than possible with the current course schedule, does not constitute a hardship.

SATISFACTORY ACADEMIC PROGRESS (SAP)

Formal Policy on Satisfactory Academic Progress (SAP) that matches current practice & is published (100% & 150%)

The Financial Aid office is required by federal law to monitor the progress that students make in their classes, even if they have never applied for financial aid. This process is known as Satisfactory Academic Progress, or SAP.

SAP requirements include:

- Students must maintain a satisfactory pace towards completing their degree
- Students must maintain a cumulative GPA
- Students must complete their degree within a maximum time frame
- More detailed information about each rule can be found below.

Effective Fall 2011, ITU will perform an evaluation of student records at the end of each term to determine compliance with the federal rules of Satisfactory Academic Progress (SAP). This is a mathematical test of a student's record against the three requirements with either a positive or negative outcome; positive meaning the record meets all requirements, negative meaning one of the three requirements was not met. This outcome affects a student's SAP status for the next evaluation period.

MAKING SATISFACTORY PROGRESS

Each student begins their enrollment at ITU with a "Making Satisfactory Progress" status. A positive evaluation result means the student would keep that status, and a negative result would mean that the student would be put on warning status. No communication is sent to a student if there is no change in status. When a status change does occur, a paper letter is mailed to the student.

Requirement Details
Satisfactory Pace Towards Degree:

- You must complete, with a passing grade, at least 67% of all coursework you attempt at ITU.

- Earned (completed) credits include grades of “A”, “B”, “C”, “D”, and “Pass” if class is “Pass/Fail” (repeat courses may only count as earned once, but each attempt will add to attempted hours)
- Attempted (not completed) include any credits in which a student was enrolled beyond the add/drop period(100% refund period) and any transfer credits which have been accepted by ITU
- The number of earned credits divided by the number of attempted credits must be at least 67% to satisfy the requirement. All courses, including repeats, remedial, and ESL, count as attempts, even when they do not count as earned with a passing grade.

GPA Requirement
You must maintain a minimum cumulative grade point average (GPA) to prevent SAP warning or suspension. The minimum cumulative GPA required is as follows:

(Credit Hours Attempted) = (GPA Required)

- 0-6 = 1.50
- 6-12 = 2.00
- 12+ = 2.00
- Graduate = 3.00

Maximum Time Frame (150% Rule):
An eligible graduate, or 2nd degree seeking student can receive Federal financial aid while attempting up to, but not exceeding, 150% of the published normal completion length of the student’s program, regardless of enrollment status. For example, a student seeking a degree which requires 36 credit hours could receive financial aid while attempting 180 credit hours (36 X 150% = 54). Credits transferred to ITU, and any credits attempted at ITU, with or without the benefit of student financial aid, must be taken into consideration. Financial aid will be suspended when our office determines that a student cannot mathematically complete their degree within this timeframe.

Should a student not make the satisfactory academic progress, he/she would need to appeal the case to the Chief Academic Officer. Chief Academic Officer will review the document and working closely with the Registrar’s office may or may not approve the appeal. “Extreme Hardship” may be count as a reason to extend the program and may be subject to approval of the appeal case.

EXPERIENTIAL LEARNING

International Technological University does not award credit for prior experiential learning.

ARTICULATION AGREEMENTS

International Technological University has not entered into any articulation agreement with any other colleges or universities that provide for the transfer of credits earned in the program of instruction.

TRANSFERABILITY OF CREDITS AND CREDENTIAL EARNED AT OUR INSTITUTION

The transferability of credits you earn at International Technological University is at the complete discretion of an institution to which you may seek to transfer. Acceptance of the degree you earn in PhDEE, PhDIS, DBA, MBA, MSSE, MSEE, MSCE, MSDA, and MSEM is also at the complete discretion of the institution to which you may seek to transfer. If the course credits and degree that you earn at this institution are not accepted at the institution to which you seek to transfer, you may be required to repeat some or all of your coursework at that institution. For this reason you should make certain that your attendance at ITU will meet your educational goals. This may include contacting an institution to which you may seek to transfer after attending International Technological University to determine if your credits, degree, or certificate will transfer.

WASC POLICY ON TEACH-OUT PLANS AND AGREEMENTS

An institution accredited by the Commission must submit to the Commission for its prior approval a teach-out plan or agreement upon the occurrence of any of the following:

1. The Secretary of Education notifies WASC that the Secretary has initiated an emergency action against an institution in accordance with section 487(c)(1)(G) of the HEA or an action to limit, suspend, or terminate an institution participating in any Title IV, HEA program, in accordance with section 487(c)(1)(F) HEA, and that a teach-out plan is required.
2. WASC acts to withdraw, terminate, or suspend accreditation or candidacy of the institution.
3. The institution notifies WASC that it intends to cease operations entirely or close a location that provides one hundred percent of at least one program.
4. A state licensing or authorizing agency notifies WASC that an institution's license or legal authority to provide an educational program has been or will be revoked.

A teach-out plan means a written plan developed by that institution that provides for the equitable treatment of its own students if an institution, or an institutional location that provides one hundred percent of at least one program, ceases to operate before all students have completed their program of study, and may include if required by the institution's accrediting agency, a teach-out agreement between institutions. A teach-out agreement means a written agreement between two institutions that provides for equitable treatment of students under these circumstances. WASC may require an institution to enter into a teach-out agreement as part of its teach-out plan.

When an institution enters into a teach-out agreement with another institution, the initiating institution must submit the agreement to the Commission for approval prior to its implementation. The teach-out agreement may be approved only if the agreement is between institutions that are accredited by a nationally recognized accrediting agency; and

1. must be consistent with applicable standards of accreditation and Commission Policies;

2. Must provide for the equitable treatment of students by ensuring that the teach-out institution has the necessary experience, resources, and support services to provide an educational program that is of acceptable quality and reasonably similar in content, structure, and scheduling to that provided by the institution that is closing or discontinuing its program(s), to remain stable, carry out its mission, and to meet all obligations to its existing students;
3. Must ensure that the teach-out institution can provide students access to the program and services without requiring them to move or travel substantial distances;
4. Must provide for notification of another accrediting agency if the teach-out institution holds accreditation from that agency; and
5. Must specify additional charges, if any, levied by the teach-out institution and provide for notification to the students of any additional charges

If an institution the Commission accredits or has granted candidacy to closes without a teach-out plan, the Commission must work with the Department of Education and the appropriate State agency, to the extent feasible, to assist students in finding reasonable opportunities to complete their education without additional charges. The Commission has adopted Guidelines for Closing an Institution, available from the Commission office.

The University will provide all graduate students currently in the affected programs who have at least 3 hours in the major, an opportunity to complete degree requirements during a “teach out” period. Dean or designees will inform affected students of the program closure and the time within which they must complete the program. Students should work closely with the Registrar or designee, who will be knowledgeable about the projected course offerings of the terminated program. New students will not be enrolled in the program. The university will follow all rules and regulations stated by WASC and BPPE.

Addendum to the WASC Teach-Out Policy
Approved 01/13/2014

For the fully online degree option to existing university Master’s programs, should it be necessary to teach out the online versions of these programs, the same WASC-approved policies will serve as a guide, and apply to all students who have enrolled in these programs.

1. Students in the online schedule of offerings will be informed of the teach-out of the fully online versions of the program and a teach-out schedule of online offerings in that program will be promulgated, which will permit students in continuous enrollment to complete the required coursework in the online delivery format.
2. All degree students may complete all degree requirements through on-campus offerings, in either weekend or weeknight schedules or a combination thereof.
3. For all students who cannot complete all course requirements in the teach-out period, a policy to permit students to transfer degree-relevant coursework from other WASC or regionally accredited institutions will be adopted to ensure students access to completing course requirements.
4. If needed, and with prior WASC approval, an articulation agreement will be developed to allow smooth transfer of ITU students into another regionally accredited university’s graduate programs in that discipline.

5. In exceptional cases, and where needed, individual teach-out plans will be developed for any students in the program for whom the above accommodations do not permit timely completion of their respective degree programs.

THE OFFICE OF REGISTRAR'S POLICIES

ACADEMIC PROBATION AND EXPULSION POLICY

All current ITU students will start with a clean slate. Probation I will be placed based on Summer 2014 grades.

ITU exercises a "three strikes" policy when it comes to academic probation, suspension, and expulsion.

Strike 1 – Probation I

A student whose GPA for any trimester is below 3.00 will be placed on academic probation the following trimester. A hold will be placed on the student's record and the student MUST meet with their academic advisor before they are allowed to register for the next trimester.

A student on academic probation is not considered to be in "good standing" and has therefore lost the following privileges:

Applying for on-campus jobs, including TA positions
Requesting internship credit (i.e. enrollment in GRN 900)
Receiving an ITU scholarship
Running for student government
A student on academic probation must earn a GPA above 3.00 the following trimester in order to return their academic status to "good standing."

Strike 2 – Probation II

Earning a term GPA in any subsequent trimester that falls below 3.00 for a second time will result in Probation II. A hold will be placed on the student's record and the student MUST meet with their academic advisor before they are allowed to register for the next trimester. Probation II acts as a final warning before Expulsion.

Strike 3 – Expulsion

If a student earns a GPA in any subsequent trimester that falls below 3.00 for a third time, the student will be expelled from the University. Once expelled, the student may not reapply for admission to the University for a period of one year.

ADDING AND DROPPING COURSES

Students may not add a course after the second 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 second week of the trimester. Dropping a course after the second week of instruction will result in a grade of W (W=Withdraw). Dropping a course after the halfway point of the term (after the 4th week of an Online Session or after the 8th week of an on-campus course) will result in a grade of F (F=Fail).

Tuition refund will be issued for a dropped 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.

AUDITING CLASSES

A student may audit almost any course offered by ITU. Auditing a class means that the student registers for a class as an "Auditor". The student is not required to complete course assignments, though he or she may do so with the permission of the instructor. The student does not receive a letter grade for the course. Instead a grade of "AUD" is entered in the student's record.

Classes taken for "Audit" do not apply toward any academic degree, and do not count as part of a student's full- or part-time course-load. The tuition for an audited course is the same as that for a credit course.

REGISTERING TO AUDIT A CLASS

Duration: A student may register to audit a course up to one week after the last day of late registration

AUDITING LIMITATIONS

Registration is limited to classes with space available
Professor's permission
Tuition and fees are the same as for credit

CHANGE OF PROGRAM (MAJOR)

This policy will be discontinued after August 29th, 2014 and be replaced with a new policy.

Students who wish to change their program (major), or add a concentration, must submit the request before they complete 19 units at ITU. Previous credits may or may not be considered towards new major requirements. Existing GPA carries over into the new program.

CONTINUATION AND PROBATION RULES

Students are considered to be in good standing if they:

- Meet all admissions requirements
- Are not on academic probation

- Are making satisfactory progress towards degree requirements – including a project or thesis if required

DECLARING OR CHANGING CONCENTRATIONS (FOR MBA PROGRAM ONLY)

Effective September 2014

MBA program concentrations may be declared, starting at the point of admissions. If a student does not declare a concentration during the admissions process, the student will be enrolled in the General MBA program.

Students may add or change their MBA program concentration at any point before the completion of 19 credit hours. Any approved transfer credit will be counted towards the 19 credit hours. Requests to declare, or change, concentrations must be made by the first day of the trimester in which the student will attempt the 20th credit hour in order to be considered.

If a student has declared a concentration and does not complete the required concentration courses by graduation, the student will graduate with a General MBA degree, with no specialization.

Please note that concentrations will only appear on your transcript, and not on your diploma.

GRADE CHANGE POLICY

After a grade has been assigned by the instructor, any change of the grade has to follow the Grade Change Policy below:

A) The application for a grade change must be received by the instructor not later than the end of the trimester following the one in which the course was taken.
B) The assignment of the contested grade is due to a clerical error of the instructor, for example: wrong summation of points, or clerical oversight of any student work that is used in the grade computation.

Grade change requests that contest the instructor's judgment of the academic quality of the student's work or achievement are disallowed.

Grade change requests that are based on makeup work of any type performed after the trimester in which the course was taken are disallowed.

Grade change requests that are based solely on the student's desire to have a better grade are disallowed.

If the above conditions A) and B) are met and the instructor decides to change the grade, the request must be submitted to the department chair for final approval. After this approval the registrar will effect the grade change in the student's records.

Addendum:
If a student decides to take the same course again and achieves a better grade, the better grade will be entered in addition to the former grade in the student's record, but will not count as additional credit units toward the student's degree.

INCOMPLETE GRADE POLICY

Incomplete grade is student initiated.

1. The purpose of an 'incomplete' (I) grade is to give a student the chance of receiving at a later time a letter grade for a course for which the student has not finished all necessary work during the course time, or was prevented by special and unforeseeable circumstances from making proper progress.
2. A student who fulfills the conditions of 1) is entitled to ask the instructor for a grade of 'incomplete' for the course. If the student so requests, the instructor can, but is not required to issue an I grade. Without such a request the instructor must not issue an I grade. (An I grade cannot be issued for Independent Study and for any class that has not been sufficiently attended by the student).
3. The student makes the request by filling out the Incomplete Grade Request (Petition) form and submitting it to the instructor before the date when the grades for the course are due. The form must contain the names of student and instructor, the number and name of the course for which the I grade is requested, and the description of the work, that must be completed to receive a letter grade. The form must be dated and signed by student and instructor and is filed with the registrar.
4. A student who receives an I grade for a course must complete and submit the missing work within the following trimester to the instructor of the course or the instructor's TA.
5. If the missing work is submitted in time, the instructor's TA will check the submitted work for completeness and, if complete, will forward it to the instructor. The instructor will review the submitted work and will make the decision which letter grade the student should receive. This letter grade must not be higher than B+. This letter grade is considered the final course grade and cannot be contested by the student.
6. If the student does not submit the missing work in time, the I grade changes to F.
7. Whatever the I grade changes to will replace the I in the student's record.
8. As long as a course grade is in the student's record as an I, it counts toward the student's credit hours, but is ignored in the calculation of the student's GPA.
9. A student must not have more than 2 I grades on his/her record at any time.

Students should be aware that the change of an I grade to an F can impact the student's status with respect to their visa.

MAXIMUM COURSE LOAD PER TRIMESTER

The maximum course load for any graduate student in one trimester is thirteen (13) credit hours. Continuing students are eligible to register for a maximum of ten (10) credit hours during the registration period. Students wishing to register for the eleventh (11th) through thirteenth (13th) credit hours must follow special registration procedures, as prescribed by the Office of the Registrar.

NO PASS (NP) GRADE LIMIT FOR GRN 900 INTERNSHIP

A student who has earned two (2) No Pass (NP) grades for previous GRN 900 (Internship) courses is not eligible for future enrollment in GRN 900. In view of the University's internship requirement to complete certain programs, such a student may appeal to the Office of the Registrar for a special waiver.

No Pass (NP) grades for GRN 900 earned prior to Fall 2014 will not be counted towards the two (2) No Pass (NP) limit.

REPEATING COURSES

A graduate student may repeat a course for which s/he has earned a grade of B-, C+, C, C-, D+, D, D-, F, and NP. A withdrawn (W) course is not counted as a repeated course. Repeating a course is not allowed for courses where an Incomplete (I) grade has been assigned.

A graduate student is only allowed to attempt the same class for a maximum of three (3) times. Earned course credit will be awarded only once. Grades assigned at each attempt are permanently recorded on the student's transcript and the term (trimester) GPA will not be modified. The highest grade earned will be used in the career (cumulative) GPA calculation.

Under certain circumstances, the University Registrar, in consultation with the appropriate Department Chair, may allow a fourth attempt on a course. For example, certain classes required for graduation, such as internship and capstone, may be repeated multiple times to achieve the required number of credits for the student to graduate. Internship classes have a separate limitation on number of attempts. See No Pass (NP) Grade Limit for GRN 900 policy.

TIME LIMITS

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

TRANSFERRING CREDITS

Students who have taken graduate-level courses at other US universities may petition to transfer course credit to count towards completing their ITU degree program. The Department Chair grants final approval, as subject to the following criteria:

(1) A grade of B or better in the course is required for any credit to be transferred.
(2) No more than 9 credit hours may be transferred from other US graduate institutions recognized by the following regional and national accrediting agencies:

Accrediting Council for Independent Colleges and Schools (ACICS)
Middle States Association of Colleges and Schools (MSA)
New England Association of Schools and Colleges (NEASC)
North Central Association of Colleges and Schools (NCA)
Northwest Commission on Colleges and Universities (NWCCU)

Western Association of Schools and Colleges (WASC)
Southern Association of Colleges and Schools (SACS)
(3) Courses transferred must be equivalent in level and content to specific courses offered in your ITU degree program.
(4) The courses to be transferred may substitute for electives but not for core courses in the ITU degree program.
(5) No course(s) will be approved for transfer prior to a student's admission to and enrollment at ITU.
(6) Grades from previous institutions will not be transferred and will not affect GPA.

At the time of admission, the Admissions Office will provide an overview of the transfer credit policy and process to give applicants a general sense of what course credit the student can expect to transfer upon enrollment at ITU. However, preliminary transfer credit evaluations will not be provided prior to enrollment. Decisions on the awarding of actual credit are ultimately at the sole discretion of each Department Chair.

Transfer credit requests must be received by the Registrar's Office before the end of the student's first trimester at ITU in order to be considered.

NEW STUDENTS TRANSFER POLICY

New transfer-in students may not transfer in and out in the same trimester. A student who does not register before the deadline will be considered "Out of Status."

LEAVE OF ABSENCE POLICIES

1. One-Trimester Stop-out
   With certain restrictions and exceptions, matriculated students may stop-out from ITU for one trimester in a calendar year and maintain his or her continuing student status. Continuing status includes the maintenance of catalog year for graduation and priority registration privilege. Students who do not continue their studies after a one-trimester absence will be withdrawn from ITU.
   This section only applies to students in good academic standing. This section does not apply to newly admitted students who have not earned any credits at ITU. This section does not apply to F-1 International Students who were issued Forms I-20 by ITU.
2. Personal Leave of Absence
   ITU recognizes that a student might find it necessary to interrupt his or her progress toward a degree for various reasons such as medical, family, or other personal causes. To obtain an authorized break from ITU, a personal leave of absence application must be filed with and approved by the Office of the Registrar. Applicants must indicate in which trimester he or she will continue. The deadline to file the application is the first day of the trimester in which a student would like to begin the personal leave. Upon return from the approved personal leave, the students will retain his or her continuing status, which includes the maintenance of catalog year for graduation and priority registration privilege.
   However, if the personal leave of absence lasts for more than three (3) trimesters, the students' catalog year will be automatically changed to the academic year to which the students return. Failure to resume studies in the trimester indicated in the application will result in withdrawal by ITU. The Office of the Registrar does not

extend an approved personal leave of absence. A new personal leave of absence application is required if a student seeks to return in a later trimester. This section only applies to students in good academic standing. Students are advised that they should pay attention to the time limit allowed to complete their degrees.

3. Restrictions on F-1 International Students
   Students on F-1 visas should seek advice from their International Student Advisors before filing for a personal leave of absence. The U.S. Federal Immigration Law and Regulation supersede the foregoing policy if any inconsistency arises. The final approval decision is at the discretion of the ITU International Student Office.

NONACADEMIC POLICIES

DIVERSITY POLICY

ITU firmly believes that personal diversity in all its aspects is essential to our ability to accomplish our mission. Diversity embodies all those differences that make us unique individuals and includes people of different race, ethnicity, culture, sexual orientation, gender, religion, age, personal style, physical ability as well as people of diverse opinions, perspectives, lifestyles, ideas and thinking. We value the differences in views and perspectives and the varied experiences that are part of a diverse organization. Diversity enriches and broadens our university, which in turn leads to more creative and meaningful programs.

For the same reasons, ITU values professional diversity. Academic professionals and faculty, administrators, and students, from all disciplines, from both the public and private sectors, from all economic strata, and from the least experienced to the most seasoned are vital to maximizing our experience. Only by drawing and retaining a diverse employee and contractor base will we guarantee success of our university as well as our respective professional pursuits. Therefore, ITU is committed to creating and maintaining a culture that promotes and supports diversity throughout our organization.

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.

WHISTLEBLOWER POLICY

I. Summary of Policy
This policy governs the reporting and investigation of allegations of suspected illegal or improper activities concerning the financial assets of the University, and the protection of whistleblowers from retaliation. It describes the procedures for investigating known or suspected illegal or improper activities and addressing complaints of retaliation for raising such issues.

II. Policy
ITU has a responsibility for the stewardship of University resources and the private support that enables it to achieve its mission. The University's internal controls and operating procedures are intended to detect and to prevent illegal or improper activities relative to its financial assets. However, intentional and unintentional violations of laws, regulations, policies and procedures may occur and may constitute illegal or improper activities. The University has a responsibility to investigate and report to appropriate parties allegations of suspected illegal or improper activities, and to protect those employees who, in good faith, report these activities to the appropriate authority.

A ITU employee may not: (1) retaliate against an employee who has made a protected disclosure or who has refused to obey an illegal or improper order, nor (2) directly or indirectly use or attempt to use the official authority or influence of his or her position for the purpose of interfering with the right of an employee to make a protected disclosure to the University. It is the intention of the University to take whatever action may be needed to prevent and correct activities that violate this policy.

III. Procedure

A. Filing a Report of Suspected Illegal or Improper Activities Relative to Financial Assets

1. Any person may report allegations of suspected illegal or improper activities. Knowledge or suspicion of illegal or improper activities may originate from academic personnel, staff or administrators carrying out their assigned duties, internal or external auditors, law enforcement, regulatory agencies, and customers, vendors, students or other third parties.
2. Allegations of suspected illegal or improper activities should be made in writing

so as to assure a clear understanding of the issues raised. Such reports should be factual and contain as much specific information as possible.

3. Normally, a report by an ITU employee of allegations of a possible illegal or improper activity should be made to the reporting employee's immediate supervisor or other appropriate administrator or supervisor within the department. However, when the whistleblower believes there is a potential conflict of interest, such reports may be made to another University official who has responsibility over the department in question or the authority to review the alleged illegal or improper activity on behalf of the University. Should the alleged illegal or improper activities involve the President, Executive Vice President, or another Vice President, such reports may be made to the Chair of the Audit Committee of the Board of Trustees (c/o Board of Trustees, International Technological University).
4. When a person reports allegations of suspected illegal or improper activities to an appropriate authority, the report is known as a protected disclosure. University employees and applicants for employment who make a protected disclosure are protected from retaliation.
5. The Audit Committee may enlist outside legal, accounting or other advisors, as appropriate, to conduct any investigation of complaints regarding financial statement disclosures, disclosure concerns or violations, accounting, internal accounting controls, auditing matters or violations of the University's policies.

B. How to report improper acts

If any employees have information regarding possible violations of state or federal statutes, rules, or regulations, or violations of fiduciary responsibility, call:

1. Office of the President – 888-488-4968 ext 300
2. Human Resources office – 888-488-4968 ext 280
3. California State Attorney General's Whistleblower Hotline – 800-952-5225. The Attorney General will refer your call to the appropriate government authority for review and possible investigation.
4. Report can be submitted through the suggestion box in the front desk area or an anonymous email from ITU website.

C. Protection from Retaliation

Any employee who believes he or she has been subjected to or affected by a retaliatory conduct for

(1) reporting suspected illegal or improper activity, or

(2) for refusing to engage in activity that would result in a violation of law, should report such conduct to the appropriate supervisory personnel (if such supervisory personnel is not the source of or otherwise involved in the retaliatory conduct). Any supervisory employee who receives such a report, or who otherwise is aware of retaliatory conduct, is required to advise the Human Resources Manager of any such report or knowledge of retaliatory conduct. If the employee believes that reporting such conduct to the appropriate supervisor is for any reason inappropriate, unacceptable or will be ineffectual, or if the report to the supervisor has been made and the retaliatory conduct has not ended, the employee should report the incident directly to an Executive Vice President, the President, or the Chair of the Audit Committee of the Board of Trustees. The University will use its best efforts to protect whistleblowers against any form of retaliation.

It cannot guarantee confidentiality, however, and there is no such thing as "unofficial" or

"off the record" reporting. The University will keep the whistleblower's identity confidential, unless

(1) the person agrees to be identified;
(2) identification is necessary to allow the University or law enforcement officials to investigate or respond effectively to the report;
(3) identification is required by law; or
(4) the person accused of illegal or improper activities is entitled to the information as a matter of legal right in disciplinary proceedings.

CAMPUS POLICIES

CAMPUS ALCOHOL POLICY

Since the consumption of alcoholic beverages is prohibited, alcoholic beverages may be consumed on University premises only during event being sponsored or hosted by a campus individual, university-recognized group, department, or office that get approval by the University President or an Executive Vice President. The event must operate within state and local laws as provided by the Department of Alcohol and Beverage Control (ABC).

It is the policy of ITU to maintain a drug-free workplace and campus. The workplace and campus are presumed to include all ITU premises where the activities of the University are conducted. The unlawful manufacture, distribution, dispensation, possession and/or use of controlled substances, or the unlawful possession, use, or distribution of alcohol is prohibited on the ITU campus, in the workplace, or as part of any of the University's activities

For approval of the detailed protocol on serving alcohol on campus, all of the following conditions shall prevail:

- The chair of the event and other officers or representatives of the event sponsor (21 years of age or older) who will be present throughout the event, who will refrain from consuming alcoholic beverages
- The monitoring and serving of alcohol shall be under the direct supervision of the chair of the event and other representatives of the event.
- It is the responsibility of the department to ensure that no alcohol is distributed to persons under the age of 21. Alcohol will only be served to individuals who are 21 or older with a valid, government issued photo identification.
- If there will be attendees at the event who are under the age of 21 years, the event sponsor must have a plan in place to ensure that these guests will not be served alcohol, e.g., ID cards must be shown upon entering the venue and wristbands must be distributed.
- Self-service of alcohol is not allowed in any location on the campus.
- Anyone who looks to be under the influence of alcohol and unable to exercise care for one's own safety or that of others should not be served alcohol and the Office of Campus Operations may be notified if there are further questions or concerns.
- Event sponsor should note that they may also be held responsible for serving

alcohol to persons who drive while intoxicated.

- Event sponsor are encouraged to reduce the consumption of alcohol at least 1 hour prior to the scheduled ending time of the event.
- No open containers of alcohol may be present on campus at any time. All alcohol must be served, opened, and disposed of by staff members who are over 21 years of age.
- Event sponsor must properly secure all leftover beverages
- Alcoholic beverages shall only be consumed in the approved designated area.
- Alcohol is not permitted to be served unless suitable Equally Attractive Non-Alcoholic Beverages (EANAB's) and food shall be made available at all functions when alcoholic beverages are served.

IF IMMEDIATE ASSISTANCE IS NEEDED OR AN EMERGENCY OCCURS, INFORM OFFICE OF CAMPUS OPERATIONS AND CALL 911.

UNIVERSITY LOST & FOUND POLICY

International Technological University's Lost & Found box is located at the Front Desk. When items are found, they are logged onto a log that is attached to the Lost & Found box and held for thirty days. Unclaimed items will be donated to charity after the thirty days. If possible, the Operations Office will make every effort to contact the owner of an item by phone or email, if the owner of the item can be identified.

Exemptions to the Policy:

- High value items will be logged onto the Lost & Found log but will be stored in the operations office. When a High value item is being claimed, the front desk staff will contact the Operations Manager and he will arrive to verify ownership prior to release. High value items include: driver's licenses, state/federal identification cards, ATM/debit/credit cards, checks, checkbooks, wallets, cell phones, and high value electronic items. High value electronic items include but are not limited to laptops, iPods, and mp3 players.
- Food and food/beverage containers turned into Lost and Found will be disposed of at the end of the day in which it was found.
- Any item deemed unsanitary will be disposed of immediately. In order to claim an item in Lost and Found the owner must provide a physical description of the item and current photo ID. The owner will be required to sign the item out once ownership has been established.

Any questions regarding Lost and Found items should be directed to the Operations Office at x217, or via email to the Operations Manager at lferdinand@itu.edu.

PARKING POLICY

- Parking is provided for the use of faculty, executive and full time staff of the University. You must have completed a parking permit application to be able to use.
- Parking areas are not to be used for distribution, solicitation, benefit sales or other activities of a similar nature, by employees of the University.
- ITU has no liability for loss or damage to automobiles or their contents while parked on University premises.

- All vehicles shall be parked within the boundaries of a market stall. Vehicles are prohibited from sidewalks, lawn lanes, and other areas not designated for driving or parking. Exceptions are maintenance, contractors, and emergency response vehicles.
- The lack of a readily available designated parking space is not an excuse for a violation of any parking regulation. Any vehicle found to be in violation will be towed
- Major vehicle repairs are not allowed on University property.

Special Parking Policy

- Drivers using parking designated for disabled persons must display a valid state issued placard, license plate, or other form of identification recognized by state or national authority.
- Reset parking key to let a second car in is prohibited. A $17 penalty fee will be charged for the first time. Parking key will be permanently terminated if happens again, and the applicant will be prohibited applying for another parking key with Standard Parking.
- Parking key has to be used in full cycle. Exit gate will not up if parking key did not use when enter in. Do not try to exit when the gate is up without using parking key.
- It is staff and faculty own responsibilities to keep parking key in a safe and secure place at all times. A $35 penalty fee will be charged for lost parking key.

UNIVERSITY PEST PREVENTION POLICY

ITU has adopted the following prevention program to assist with the prevention and elimination of any pest reported to be within campus and to promote the health and safety of its community.

Pest Prevention Program

1. There will be no overnight storage of foods, snacks, candies, etc. within or near a person's workstation regardless if it is store bought and still sealed from store purchase. Exception being food that is properly stored and sealed in either:
    - A glass sealable container (i.e. Rubbermaid glass container with lid)
    - A plastic sealable container (i.e. Tupperware)
2. Meals should not be regularly taken at one's desk. Please use designated break room.
3. Any use of silverware, glassware, or plates should be immediately washed and cleaned after use.
4. Disposal of food or drink items in approved receptacles only.
5. If at any time there is a sighting of any pest (insect, rodent, etc.) please contact the Operations Manager via email lferdinand@itu.edu or phone at x217

Reporting Violations of the Pest Prevention Program

Students

Students working with ITU staff in offices must follow this policy. Witnessed violations may be reported to the campus Operations Office or the Human Resources Office. Any student, who violates ITU policy, will be subject to disciplinary action in accordance with ITU policy.

Administrators, Faculty and Staff:
Witnessed violations of ITU policy on the part of ITU employees or faculty may be reported to a manager, administrator, Campus Operations Manager, or Human Resources staff. The individual's manager or the Human Resources Director will be responsible for counseling the employee, in writing, about the requirement that the employee comply with ITU policy. Any employee who thereafter violates ITU policy will be subject to disciplinary action in accordance with ITU policy.

DEGREE PROGRAMS & REQUIREMENTS

BUSINESS ADMINISTRATION

FACULTY

Amal Mougharbel, PhD, University de Corse Pascal Paoli, Department Chair
Frank Aguilera, PhD, Golden Gate University, Core Faculty
George Guim, Ed.D, University of San Francisco, Core Faculty
Ramesh Konda, PhD, Nova Southeastern University, Core Faculty

MASTER OF BUSINESS ADMINISTRATION

The MBA is designed as a balanced preparation for managerial careers in business. Its purpose is to prepare students for responsible positions in a rapidly changing world; to develop an attitude of intellectual curiosity to foster a program of continuous learning throughout life; and to study management as a unique function applicable to all types of endeavors which involve the coordination of people and material resources toward given objectives.

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 trimester units. The program offers concentrations in different disciplines. Concentration and elective courses provide flexibility in customizing the program to meet professional and personal goals.

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.

Program requirements
1. 4 Core Courses: 12 Units
2. Capstone or Thesis Project course: 3 Units
3. ITU Presents: no units but required for graduation (minimum 12 ITU Presents required)
4. Internship: 1-9 Units
5. Elective courses: 12-20 Units
- Cross Disciplinary course: Up to 3 Units (counts as Elective)
- Transfer Credits: Up to 9 Units (counts as Elective)
36 Total Units

Core Courses
MGTN 903 Organizational Leadership theories
FINN 934 Financial and Economic Analysis
MKTN 951 Competitive Marketing Strategies
MISY 927 Technology and Operations Management: Creating value

Capstone course OR MBA Thesis
MBAN 999 MBA Thesis
OR
MGTN 945 Pitching a Business Plan to Venture Capitalists

Internship
GRN 900 P/F Internship

Concentration in Accounting
To graduate with an MBA with an Accounting concentration, you need to complete at least 4 of the following Accounting elective courses:
ACTN 900 Financial Accounting (3) ACTN 910 Managerial Accounting (3)
ACTN 920 Cost Accounting (3)
ACTN 921 Intermediate Accounting (3)
ACTN 922 Forensic Accounting (3)
ACTN 925 Accounting Information Systems/ERP (3) ITU/SAP University Alliance
ACTN 926 International Accounting (3)

If you have passed all parts of the CPA exam, you are eligible to apply for transfer credits equivalent to 3 elective courses (9 units). See transfer credit policy and the limitation.

Concentration in Bio Management
To graduate with an MBA with a Bio Management concentration, you need to complete at least 4 of the following Bio Management courses:
BIOM 900 Concepts of Clinical Research Management (3)
BIOM 901 Concepts of Modern Medicine and Biology (3)

BIOM 903 Business and Scientific Writing (3)
BIOM 905 Human Ecology (3)
BIOM 906 Biological Management (3)
BIOM 908 Bioethics and policy (3)
BIOM 909 Biotech industry fundamentals (3)
BIOM 910 Bio Market Study (3)
BIOM 914 Innovation and R&D Bio Management (3)
BIOM 915 Regulatory Management in Biopharma (3)

Concentration in Digital Media Management

To graduate with an MBA with a Digital Media Management concentration, you need to complete at least 4 of the following Digital Media Management elective courses:
MMM 710 Digital Media Distribution (3)
MMM 720 Producing Digital Media (3)
MMM 810 General Production Pipelines (3)
MMM 831 CG Software Fundamentals (3)
MMM 890 Social Network Marketing & Publishing (3)
MMM 900 Digital Media StartUp (3)
MMM 905 New Media Production (3)
MMM 909 Intro to Game Development (3)
MMM 988 Concept Art and Storyboarding (3)
SEN 991 Computer Graphics (3)

Concentration in Enterprise Resource Planning (ERP)

To graduate with an MBA with an Enterprise Resource Planning concentration, you need to complete at least 4 of the following Enterprise Resource Planning elective courses:
ACTN 925 Accounting Information Systems/ERP (3)*
ERP 901 Introduction to ERP Systems using SAP (3)*
ERP 902 ABAP - Advanced Business Application Programming (3)*
ERP 905 Enterprise Portal technology using NetWeaver (3)*
ERP 907 Enterprise procurement processes (MM) (3)*
ERP 912 Sales order management with ERP (3)*

Joint Recognition Award

Upon completing 3 of the Enterprise Resource Planning courses, the student is rewarded a joint recognition award from ITU and SAP University Alliances.

Concentration in Finance

To graduate with an MBA with a Finance concentration, you need to complete at least 4 of the following Finance elective courses:
FINN 916 Securities Analysis (3)
FINN 918 Financial Institutions (3)
FINN 920 Financial Derivatives and Risk Management (3)
FINN 921 Financial and Socially Responsible Investing (3)
FINN 922 Corporate Valuation (3)
FINN 930 Investment Management (3)
FINN 931 International Financial Management (3)
FINN 932 Corporate Finance (3)
FINN 933 Managerial Finance (3)
FINN 935 Mergers and Acquisitions (3)

FINN 936 Behavioral Finance (3)

Concentration in Health Care Management

To graduate with an MBA with a Healthcare Management concentration, you need to complete at least 4 of the following Healthcare Management courses:

BPS 821 A Regulatory Overview for New Drug Development (3)
HCM 901 Concepts of Healthcare Management (3)
HCM 902 Health Service Delivery (3)
HCM 904 Translating Biomedical Innovation from the Laboratory to the Marketplace (3)
HCM 905 Health Sector Innovation (3)
HCM 906 Health Information Technology (3)
HCM 907 Healthcare sector Marketing (3)
HCM 908 Global Entrepreneurship in the Health Sector (3)
HCM 909 Good Clinical Practice (GCP) (3)
HCM 911 Healthcare Ethics (3)
HCM 912 Healthcare Leadership, Patient Safety and Quality Improvement (3)
HCM 915 Healthcare Strategic Management (3)
HCM 916 Healthcare Environment: Cultural and Behavioral Theories (3)
HCM 918 Principles of Global Healthcare (3)
HCM 919 Aging in America (3)
HCM 921 Principles of Managed Care (3)
HCM 922 Ambulatory Care Administration (3)
HCM 926 Organizational Development in Healthcare (3)
HCM 927 Principles of Health Promotion and Education (3)
HCM 930 Mental Health and Wellbeing (3)
HCM 932 Healthcare Risk Management (3)
HCM 933 Complementary and Alternative Medicine (3)
HCM 934 Health Information and Communications Systems (3)

Concentration in Human Resource Management

To graduate with an MBA with a Human Resource Management concentration, you need to complete at least 4 of the following Human Resource Management elective courses:

HRMG 940 Human Resource Management (3)
HRMG 941 Employee Training and Development (3)
HRMG 943 International Human Resource (3)
HRMG 945 Strategic compensation: issues and opportunities (3)
HRMG 946 Human Resources and Information Technology (3)
HRMG 948 Managing Global Diversity (3)

Concentration in International Business

To graduate with an MBA with an International Business concentration, you need to complete at least 4 of the following International Business elective courses:

INBS 910 Fundamentals of International Business (3)
INBS 911 International Financial Markets (3)
INBS 912 International Law (3)
INBS 913 Global Strategic Management (3)
INBS 916 Global Marketing and Strategy (3)
INBS 921 International Business Management (3)

Concentration in Management of Information Systems

To graduate with an MBA with a Management of Information Systems concentration, you need to complete at least 4 of the following Management of Information Systems elective courses:

MISY 910 Business Database Applications (3)
MISY 911 Business Telecommunications (3)
MISY 912 Information Resource Management (3)
MISY 913 Managing Global Information Systems Projects (3)
MISY 914 Information Systems Innovation (3)
MISY 915 Management Information Systems (3)
MISY 916 Human-Computer Interaction (3)
MISY 917 Business Decision Support Systems (3)
MISY 918 Data Mining and Business Intelligence (3)
MISY 920 Software Development Process Management (3)
MISY 921 Knowledge Management (3)
MISY 925 Public Information Management (3)
MISY 926 Strategic Management of Information Technology (3)
MISY 930 Business Information Systems & Technologies (3)

Concentration in Management

To graduate with an MBA with a Management concentration, you need to complete at least 4 of the following Management elective courses:

MGTN 901 Principles of Management (3)
MGTN 902 Business Statistics (3)
MGTN 915 Organizational Teamwork (3)
MGTN 916 Principles of Public Relations (3)
MGTN 917 Non-Linear Strategies for Business Success (3)
MGTN 920 Production and Operations Management (3)
MGTN 922 Quality Control Management (3)
MGTN 923 Lean Six Sigma (3)
MGTN 925 Impact of Intellectual Property in a Global Economy (3)
MGTN 930 Strategic Operations Management (3)
MGTN 935 Contracts and Purchasing Management (3)
MGTN 942 Critical Thinking Strategies in Decision Making (3)
MGTN 943 High-Technology Entrepreneurship (3)
MGTN 944 International Management (3)
MGTN 945 Pitching a Business Plan to Venture Capitalists / Workshops (3)
MGTN 947 High Performance Leadership (3)
MGTN 948 Project Management (3)
MGTN 949 Organizational Theory (3)
MGTN 950 Project risk management (3)
MGTN 951 Business Communications (3)
MGTN 952 Business Ethics (3)
MGTN 953 Business Law (3)
MGTN 966 Managing Emotions, Managing Self and Others (3)

Concentration in Marketing

To graduate with an MBA with a Marketing concentration, you need to complete at least 4 of the following Marketing elective courses:

MKTN 950 Entrepreneurial Marketing (3)
MKTN 952 Supply Chain Management (3)

MKTN 953 International Marketing (3)
MKTN 954 Marketing Research (3)
MKTN 956 Comparative Studies of MNC, FDI, and International Trade (3)
MKTN 957 Consumer Behavior (3)
MKTN 958 Marketing Management (3)
MKTN 961 E-commerce (3)
MKTN 962 Marketing with Social Media (3)
MKTN 963 Advertising Strategy (3)
MKTN 965 Supplier/Seller Management (3)

Concentration in Project Management
To graduate with an MBA with a Project Management concentration, you need to complete at least 4 of the following Project Management elective courses:
MGTN 948 Project Management (3)
MGTN 950 Project Risk Management (3)
PMGT 904 Project Management & Leadership (3)
PMGT 905 Project Management - Agile Approach (3)
PMGT 912 Management of Organizational Changes (3)

Elective Courses
Accounting
ACTN 900 Financial Accounting (3)
ACTN 910 Managerial Accounting (3)
ACTN 920 Cost Accounting (3)
ACTN 921 Intermediate Accounting (3)
ACTN 922 Forensic Accounting (3)
ACTN 925 Accounting Information Systems/ERP (3)
ACTN 926 International Accounting (3)

Enterprise Resources Management (ERP/SAP)
ERP 901 Introduction to ERP Systems using SAP (3)
ERP 902 ABAP - Advanced Business Application Programming (3)
ERP 905 Enterprise Portal technology using NetWeaver (3)
ERP 907 Enterprise procurement processes (MM) (3)
ERP 912 Sales order management with ERP (3)

Finance
FINN 916 Securities Analysis (3)
FINN 918 Financial Institutions (3)
FINN 921 Financial and Socially Responsible Investing (3)
FINN 922 Corporate Valuation (3)
FINN 930 Investment Management (3)
FINN 931 International Financial Management (3)
FINN 932 Corporate Finance (3)
FINN 933 Managerial Finance (3)
FINN 935 Mergers and Acquisitions (3)
FINN 936 Behavioral Finance (3)

Human Resource Management
HRMG 940 Human Resource Management (3)
HRMG 941 Employee Training and Development (3)

HRMG 943 International Human Resource (3)
HRMG 945 Strategic compensation: issues and opportunities (3)
HRMG 946 Human Resources and Information Technology (3)
HRMG 948 Managing Global Diversity (3)

Information Systems Management
MISY 910 Business Database Applications (3)
MISY 911 Business Telecommunications (3)
MISY 912 Information Resource Management (3)
MISY 913 Managing Global Information Systems Projects (3)
MISY 914 Information Systems Innovation (3)
MISY 915 Management Information Systems (3)
MISY 917 Business Decision Support Systems (3)
MISY 918 Data Mining and Business Intelligence (3)
MISY 920 Software Development Process Management (3)
MISY 921 Knowledge Management (3)
MISY 925 Public Information Management (3)
MISY 930 Business Information Systems & Technologies (3)

International Business
INBS 910 Fundamentals of International Business (3)
INBS 911 International Financial Markets (3)
INBS 912 International Law (3)
INBS 913 Global Strategic Management (3)
INBS 916 Global Marketing and Strategy (3)
INBS 921 International Business Management (3)

Management
MGTN 901 Principles of Management (3)
MGTN 902 Business Statistics (3)
MGTN 915 Organizational Teamwork (3)
MGTN 916 Principles of Public Relations (3)
MGTN 917 Non-Linear Strategies for Business Success (3)
MGTN 920 Production and Operations Management (3)
MGTN 922 Quality Control Management (3)
MGTN 923 Lean Six Sigma (3)
MGTN 925 Impact of Intellectual Property in a Global Economy (3)
MGTN 930 Strategic Operations Management (3)
MGTN 935 Contracts and Purchasing Management (3)
MGTN 942 Critical Thinking Strategies in Decision Making (3)
MGTN 943 High-Technology Entrepreneurship (3)
MGTN 944 International Management (3)
MGTN 947 High Performance Leadership (3)
MGTN 948 Project Management (3)
MGTN 949 Organizational Theory (3)
MGTN 950 Project risk management (3)
MGTN 951 Business Communications (3)
MGTN 952 Business Ethics (3)
MGTN 953 Business Law (3)
MGTN 966 Managing Emotions, Managing Self and Others (3)

Marketing
MKTN 950 Entrepreneurial Marketing (3)
MKTN 952 Supply Chain Management (3)
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MKTN 958 Marketing Management (3)
MKTN 961 E-commerce (3)
MKTN 962 Marketing with Social Media (3)
MKTN 963 Advertising Strategy (3)
MKTN 965 Supplier/Seller Management (3)

Project Management
PMGT 904 Project Management & Leadership (3)
PMGT 905 Project Management - Agile Approach (3)
PMGT 912 Management of Organizational Changes (3)

Other Elective courses:
ECON 920 Macroeconomic Theory (3)
ECON 921 Microeconomics for Business Decisions (3)
ECON 922 Econometrics (3)
ECON 923 International Economics (3)
EBUS 910 Executive Leadership (3)
EBUS 917 Leading and Managing Change (3)
EBUS 918 Regulation, Governance Ethical and Social Responsibility (3)
EBUS 919 Finance for Senior Executives (3)
MBAN 997 Research Methods (3)

Doctorate of Business Administration

Program Requirements
3 Foundation Core Courses: 9 Units
5 Business Core Courses: 15 Units
6 Elective and Seminars: 18 Units
Passing a Qualifying Exam
Dissertation Research: 18 Units
Transfer Credits: Up to 15 Units (counts as electives)
60 Total Units

Foundation Core
DBA 900 Writing and Research Methods.
DBA 901 Quantitative Research Analysis
DBA 902 Qualitative Research Analysis

Business Core
DBA 910 Special Topics in Research Techniques
DBA 911 Management and Organizational Theory
DBA 912 Management as a Behavioral Science
DBA 913 Emerging Issues in Marketing Management and Research

DBA 914 Emerging Issues in Strategic Decision Making
DBA 915 Creativity: A process-oriented approach
DBA 916 Innovation and Creativity: Culture of Group Dynamics
DBA 917 Conflict Resolutions
DBA 918 Creativity as a Linguistic Process
DBA 920 Emerging Issues in Financial Decision Making
DBA 925 Seminar in Organizational Behavior Research with emphasis on Leadership
DBA 930 Seminar in Special Topics in International Business
DBA 940 Seminar in Administrative Policy and Administration
DBA 950 Operations and Information Technology Management

Elective and Seminars
DBA 810 Management Practice and Organizational Behavior
DBA 811 Advanced Managerial Economics
DBA 812 Seminar in the Sociological and Psychological Principles of Management
DBA 813 Leadership Behavior and Motivation
DBA 814 Seminar in Special Topics in Marketing
DBA 815 Leadership and Ethics
DBA 816 Seminar in Strategic Planning in Human Resource Management
DBA 817 Philosophies and Concepts of Total Quality Management
DBA 820 Seminar in Accounting Information Systems
DBA 821 Seminar in Auditing
DBA 822 Current Issues in Accounting Research
DBA 823 Seminar in Corporate Finance
DBA 824 Seminar in Investments
DBA 825 Multinational Business Finance
DBA 830 Management Practice for the International Institution
DBA 831 Seminar in International Business
DBA 832 Seminar in International Marketing
DBA 833 Seminar in International Finance
DBA 834 International Macroeconomics Analysis
DBA 835 International Human Resource Management
DBA 836 International Information Technology Management
DBA 841 Economics and Public Policy
DBA 842 Organization Design
DBA 843 Corporate Planning and Environment
DBA 844 Legal Issues for the Modern Institution
DBA 845 Seminar in Organizational Behavior Research
DBA 846 Seminar in Special Topics in Operations Management
DBA 847 Seminar in strategy and innovation
DBA 848 Leadership Behavior and Conflict Resolutions
DBA 850 Technology, Innovation, and Entrepreneurship
DBA 851 Managerial Applications of Information Technology
DBA 852 Networking Concepts and Applications
DBA 853 Managing Software Development Projects

Dissertation Research
DBA 990 Doctoral Dissertation

COMPUTER SCIENCE AND SOFTWARE ENGINERRING

FACULTY

Cornel Pokorny, PhD, Technical University – Vienna, Department Chair
Min Wu, PhD, Massachusetts Institute of Technology, Core Faculty
Richard Riehle, PhD, Naval Postgraduate School, Core Faculty
Ming Hwa Wang, PhD, Illinois Institute of Technology, Core Faculty
Xiaoshu Qian, PhD, University of Rhode Island, Core Faculty

MASTER OF SCIENCE IN SOFTWARE ENGINEERING

Overview:
Software engineering is a form of engineering that applies principles of computer science and mathematics to achieve cost-effective solutions to software problems. The software engineering curriculum places primary emphasis on the technical aspects of building and modifying high quality software systems.

Definitions:
Software Engineering is “The establishment and use of sound engineering principles (methods) in order to obtain economically software that is reliable and works on real machines” [Bauer 1972].

“That form of engineering that applies the principles of computer science and mathematics to achieving cost-effective solutions to software problems.” [CMU/SEI-90-TR-003]

“The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software” [IEEE 1990].

Software Engineering is an established discipline that comprises requirement analysis, design, construction, testing, as well as the economics, and management issues of the creation and maintenance of software. A Software Engineer has the special knowledge and skills necessary to develop and maintain large, complex software systems. A Software Engineer approaches all of these problems in a pragmatic and organized way and is concerned with the theoretical and practical aspects of technology, cost, and social impact of effective and efficient software.

Degree programs in software engineering have many courses in common with computer science. However, when it comes to techniques concerned with the reliability of software and with developing and maintaining software that is correct from the start of its development, the engineering knowledge and experience provided in SE programs go beyond what general CS programs provide. It is considered a necessity by many professionals and educators in the SE field that students of SE should participate in the development of software to be used in earnest by others.

ITU’s curriculum for a MSSE is concerned with the technical and management issues of SE, but primary emphasis is placed on the technical aspects of building and modifying high quality software systems. It thus allows the students to prepare for careers in

businesses that build and sell computers and/or software, in Internet based companies, electronic business organizations, diverse research and development laboratories, aerospace companies, banks, and insurance companies. The development of this graduate curriculum has taken the recommendations of the Joint Task Force on Computing Curricula of the IEEE Computer Society and the Association for Computing Machinery of August 2004 into consideration.

ITU's curriculum for a MSSE is concerned with the technical and management issues of software engineering, but primary emphasis is placed on the technical aspects of building and modifying high quality software systems. It thus allows the students to prepare for careers in business that build and sell computers and/or software, in Internet based companies, electronic business organizations, diverse research and development laboratories, aerospace companies, banks, and insurance companies.

Job Possibilities:
Jobs within software engineering, including but not limited to: Software Development Engineering, Software Applications Engineering – analysis, design, construction, testing, as well as the economics, and management issues of the creation and maintenance of software. A Software Engineer has the special knowledge and skills necessary to develop and maintain large, complex software systems.

Admission Requirements:
Students interested in any Master's program must first receive an undergraduate degree. If that degree is in the area of computer science 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 degree is in a different field then the minimum grade point average required for all courses that count for the degree is 3.0.

Program Requirements
Required Courses:
4 Core Courses: 12 units
Capstone Project: 3 units
Internship: 1-9 units
ITU Presents: no units but required for graduation (minimum 12 ITU Presents required)
Elective Courses:
Cross Disciplinary Elective: Up to 3 units
Transfer Credits: Up to 9 units (counts as electives)
MSSE Electives: up to 20 Units (a maximum of 3 units of mathematics course will be counted as electives)
36 Total Units

Core Courses
SEN 941 Software Engineering
SEN 942 Advanced Software Engineering
SEN 946 Software Requirements Elicitation
SEN 950 Software Architecture

Capstone Project
SEN 998 Capstone Project

Internship
GRN 900 P/F Internship

MSSE Electives
Electives from the MSSE curriculum must be chosen so that the total number of units in the MSSE program is at least 36. A maximum of 3 units of mathematics course will be counted as electives.
AMN 910 Linear Algebra
AMN 912 Applied Mathematics Methods
AMN 920 Optimization Techniques
AMN 921 Advanced Optimization Techniques
AMN 922 Advanced Applied Mathematics Methods
AMN 930 Numerical Analysis
AMN 940 Discrete Mathematics
AMN 952 Probability & Statistics for Engineers
CEN 943 Digital Image Processing
CEN 951 Computer Architecture
CEN 956 Distributed Computing systems
CEN 960 Computer Communication Networks
CEN 996 Routing in Computer Networks
CS 810 Information Security Countermeasures
CS 820 Principles of Ethical Hacking
CS 830 Cloud Computing Security
CS 831 Data Mining
CS 840 Cloud and Virtualization Security
CS 850 Big Data
CS 901 Network & Data Security
CS 920 Programming Paradigms
CS 921 Semantic Web
CS 922 Natural Language Processing
CS 925 Scala Programming
CS 933 Machine Learning
CS 940 Web Security Fundamentals
CS 960 Introduction to Data Science
CS 961 Advanced Data Science.
SEN 760 SQA/Manual Testing
SEN 860 SQA/manual/auto/perf Testing.
SEN 890 Data Structures
SEN 905 Ruby on Rails
SEN 909 OO Programming with C++
SEN 910 HTML/CSS Programming
SEN 920 Computer Algorithms
SEN 930 SQA/Software Testing Tools
SEN 932 C# Programming
SEN 944 Software Refactoring
SEN 948 User Interface Design & Implementation
SEN 949 JavaScript Programming
SEN 951 Client Programming with JS/jQuery
SEN 953 Compiler Design
SEN 954 Server Programming with PHP
SEN 956 The Unix Operating System

SEN 957 GUI Development with Java.
SEN 958 Android Phone Application Development
SEN 959 Principles of Operating Systems
SEN 960 SQA/Performance Testing
SEN 961 Cloud Computing
SEN 963 Python Programming
SEN 964 OO Programming with Java
SEN 965 iPhone Application Development
SEN 967 Web Programming with Ajax
SEN 968 Design and Maintenance of commercial web sites
SEN 970 OO Programming with Objective-C
SEN 982 Oracle Database Management/Administration
SEN 985 Artificial Intelligence
SEN 991 Computer Graphics
SEN 992 Advanced Computer Graphics
SEN 993 Computer Graphics with WebGL

DIGITAL ARTS

FACULTY

Cedrick Chan, BS, Lehigh University, Department Chair

Wes F. Takahashi, Annie Award-winning Director, Head of Animation Department at Lucasfilm's Industrial Light and Magic, Interim Department Chair

MASTER OF SCIENCE IN DIGITAL ARTS

Program Requirements
1. 4 Core Courses: 12 Units
2. Capstone Project course: 3 Units
3. ITU Presents: no units but required for graduation (minimum 12 ITU Presents required)
4. Internship: 1-9 Units
5. Elective courses: 12-20 Units
- Cross Disciplinary Electives: Up to 3 Units
- Transfer Credits: Up to 9 Units (counts as Elective)
36 Total Units

Core Courses
MMM 720 Producing Digital Media
MMM 810 General Production Pipelines
MMM 900 Digital Media StartUp
MMM 905 New Media Production

Elective Courses

MMM 710 Digital Media Distribution
MMM 749 From Hero to Superhero: The Persistence, Modernization, and Global Dissemination of Classical Archetypes in Global Storytelling
MMM 820 Global Storytelling
MMM 830 Design Fundamentals
MMM 831 CG Software Fundamentals
MMM 823 Editing I
MMM 824 Editing II
MMM 837 Photographic Principles and Advanced Image Manipulation
MMM 860 CG Modeling
MMM 870 Basic Image Manipulation
MMM 890 Social Network Marketing & Publishing
MMM 903 Animation I
MMM 909 Intro to Game Development
MMM 910 Storyboard Design
MMM 911 Web Graphic Design
MMM 916 Animation 2
MMM 920 UI/UX: User Interfaces & User Experiences
MMM 921 Storyboards and Layouts
MMM 923 3D Modeling and 3D Printing
MMM 930 Manufacturing Cinematic Space
MMM 931 Rigging for 3D Animation
MMM 940 Architectural Tours
MMM 950 Lighting and Compositing
MMM 988 Concept Art and Storyboarding .
SEN 991 Computer Graphics

Capstone Courses

Students are required to take at least one capstone course before graduation. If a student takes both capstone courses, the second capstone course will be counted as an elective course.

MMM 999 Master's Project I
MMM 997 Master's Project II

Internship

GRN 900 P/F Internship

ELECTRICAL ENGINEERING AND COMPUTER ENGINEERING

FACULTY

May Huang, PhD, International Technological University, Department Chair
Eric Chen, PhD, University of Waterloo, Core Faculty
Dominik Schmidt, PhD, Stanford University, Core Faculty
Karl Wang, PhD, Massachusetts Institute of Technology, Core Faculty
Avid Farhoodfar, PhD, Queens University, Core Faculty

MASTER OF SCIENCE IN ELECTRICAL ENGINEERING

Program Learning Outcomes
Fundamentals: Enhance up-to-date engineering knowledge and mathematics
Engineering Ability: Develop skills to design on specification, analyze and solve engineering problems
Career Responsibility: Demonstrate competence in engineering mastery through discovery, experimentation, and verification of ideas and concepts
Ethics: Comprehend ethical behavior in fulfillment of professional responsibility and teamwork perspective

Program Requirements
(1). 4 Core Courses: 12 Units
(2). Capstone Course or Thesis Project: 3 Units Minimum
(3). ITU Presents: No units but required for graduation (Minimum 12 of ITU Presents required)
(4). Internship: 1-9 Units
(5). Elective courses: 12-20 Units
- Minimum 6 units of electives in one Specified Field
- Cross Disciplinary Electives: Up to 3 Units
- Transfer Credits: Up to 9 Units (Counts as Elective Courses)
36 Total Units

Core Courses
EEN 900 Fundamentals of Electrical Engineering
CEN 908 Scientific Computing
EEN 911 VLSI Design
EEN 941 Digital Signal Processing and System Analysis

Capstone Courses
Students are required to take one capstone course or complete a thesis before graduation. If a student takes both capstone courses, the second capstone course will be counted as an elective course.
EEN 927 IC Design to Silicon
EEN 946 Embedded System Design

Internship
GRN 900 P/F Internship

Elective Courses
Minimum 6 credit units of courses in one specified field:

VLSI DESIGN
EEN901 Fundamentals of Semiconductor Physics
EEN904 Integrated Circuit Manufacture Processing
EEN905 Digital Design in HDL
EEN912 Memory Design
EEN913 Microprocessor Design
EEN914 Advanced Microprocessor Design
EEN916 Mixed Signal IC Design
EEN920 ASIC Design I
EEN921 FPGA Design
EEN922 Design Verification
EEN925 ASIC Design II
EEN926 Design for Testability
EEN928 Low Power IC Design
EEN929 System On Chip (SOC) Design
EEN930 Quantum Devices
EEN931 Nanotechnology
EEN938 Signal Integrity of High-Speed Digital Circuits
Or other approved courses

ANALOG, MEMS & RF IC DESIGN
EEN901 Fundamentals of Semiconductor Physics
EEN903 Semiconductor Devices and Modeling
EEN906 Electromagnetic Fields and Waves
EEN915 Analog Circuit Design
EEN916 Mixed Signal IC Design
EEN917 Advanced Analog IC Design
EEN918 RF IC Design
EEN919 Advanced RF IC Design
EEN928 Low Power IC Design
EEN929 System on Chip (SOC) Design
EEN930 Quantum Devices
EEN931 Nanotechnology
EEN932 Advanced Nanotechnology
EEN935 Introduction to MEMS Design
EEN936 Advanced MEMS Design
EEN949 Advanced Digital Signal Processing
EEN951 Circuit Design and PCB Implementation
Or other approved courses

DSP & COMMUNICATION
EEN906 Electromagnetic Fields and Waves
EEN921 FPGA Design
EEN949 Advanced Digital Signal Processing
EEN958 Advanced System Design
EEN961 Fundamentals of Communication Systems
EEN966 Advanced Communication Systems
EEN970 Introduction to Microwave Engineering

EEN971 Introduction to Wireless Communication Systems
EEN974 Advanced Wireless Communications
EEN976 Introduction to Near Field Communication
CEN910 Algorithms
CEN940 Network Security Techniques
CEN948 Computer Network Systems
CEN956 Distributed Computing systems
CEN961 Parallel Computing
Or other approved courses

SYSTEM DESIGN
EEN913 Microprocessor Design
EEN914 Advanced Microprocessor Design
EEN921 FPGA Design
EEN929 System on Chip (SOC) Design
EEN949 Advanced Digital Signal Processing
EEN951 Circuit Design and PCB Implementation
EEN952 Digital System Design
EEN953 Advanced Machine Learning Engineering
EEN958 Advanced System Design
EEN971 Introduction to Wireless Communication Systems
EEN977 Green Energy
CEN910 Algorithms
CEN941 Introduction to Computer Vision
CEN942 Digital Image Processing
CEN943 Advanced Digital Image Processing
CEN948 Computer Network Systems
CEN951 Computer Architecture
CEN961 Parallel Computing
SEN920 Computer Algorithms
SEN956 Unix Operating System
SEN961 Cloud Computing
SEN964 OO Programming with Java
SEN985 Artificial Intelligence

Any courses in the EE or CE curriculum or from following list can be accepted as elective courses
CS 831 Data Mining
CS 850 Big Data
CS 921 Semantic Web
CS 923 Programming Language Theory
CS 925 Scala Programming
CS 933 Machine Learning
SEN 905 Ruby on Rails
SEN 909 OO Programming with C++
SEN 920 Computer Algorithms
SEN 941 Software Engineering
SEN 953 Compiler Design
SEN 956 Unix Operating System
SEN 958 Android Application Development
SEN 959 Principles of Operating Systems

SEN 961 Cloud Computing
SEN 964 OO Programming with Java
SEN 970 OOP with Objective-C
SEN 985 Artificial Intelligence
SEN 991 Computer Graphics I
SEN 992 Computer Graphics II
MISY 915 Management Information Systems

Mathematics Courses
Any Mathematics Course Can Be Accepted as an Elective Course:
AMN 910 Linear Algebra
AMN 912 Applied Mathematics Methods
AMN 914 Fast Fourier Transformation & Applications
AMN 920 Optimization Techniques
AMN 922 Advanced Applied Mathematics Methods
AMN 930 Numerical Analysis
AMN 940 Discrete Mathematics AMN 952 Statistics, Probability and Reliability for Engineers
AMN 960 Advanced Optimization Techniques
AMN 965 Advanced Engineering Mathematics

Electrical Engineering
EEN 900 Fundamentals of Electrical Engineering
EEN 901 Fundamentals of Semiconductor Physics
EEN 905 Digital Design in HDL.
EEN 906 Electromagnetic Fields and Waves
EEN 911 VLSI Design
EEN 912 Memory Design
EEN 913 Microprocessor Design
EEN 914 Advanced Microprocessor Design
EEN 915 Analog Circuit Design
EEN 916 Mixed Signal IC Design
EEN 917 Advanced Analog IC Design
EEN 918 RF IC Design
EEN 919 Advanced RF IC Design
EEN 920 ASIC Design I EEN 921 FPGA Design
EEN 922 Design EEN 925 ASIC Design II
EEN 926 Design for Testability
EEN 927 IC Design to Silicon
EEN 928 Low Power IC Design
EEN 929 System on Chip Design (SOC)
EEN 930 Quantum Devices
EEN 931 Nanotechnology
EEN 932 Advanced Nanotechnology
EEN 935 Introduction to MEMS Design
EEN 936 Advanced MEMS Design
EEN 938 Signal Integrity of High-Speed Digital Circuits.
EEN 941 Digital Signal Processing and System Analysis
EEN 946 Embedded System Design
EEN 949 Advanced Digital Signal Processing
EEN 951 Circuit Design and PCB Implementation

EEN 953 Advanced Machine Learning Engineering
EEN 958 Advanced System Design.
EEN 961 Fundamentals of Communication Systems
EEN 966 Advanced Communication Systems
EEN 970 Introduction to Microwave Engineering
EEN 971 Introduction to Wireless Communication Systems
EEN 974 Advanced Wireless Communications
EEN 976 Introduction to Near Field Communication.
EEN 977 Green Energy
EEN 992 Special Topics in Electrical Engineering
EEN 996 Independent Study
EEN 998 Research Project
EEN 999 Master's Thesis

Doctor of Philosophy in Electrical Engineering

Program Learning Outcomes
Fundamentals: Master comprehensive knowledge in specialized aspects of electrical engineering
Research Ability: Conduct independent scholarly researches and contribute innovative ideas and concepts to engineering field
Career Responsibility: Demonstrate analytical thinking, in-depth knowledge, and communication skills to fulfill professional positions
Ethics: Produce mastery skills of professional teaching and research leadership to contribute to academic, industry or society

Admission Requirements
Related Master's Degree with minimum 3.50 GPA
GRE Score
Three letters of recommendation from professionals

Program Requirements
60 credit units beyond master's degree including
• 30 units of course work and independent study
• 30 units of dissertation
• Maximum 15 credit units with grade B or above may be transferred from Ph.D.-level courses of an accredited school with approval of department chair
• Publication in international academic journals is required to complete Ph.D. dissertation

Procedures of Program Completion

1. Dissertation Advisor
   It is the student's responsibility to obtain consent from a faculty member in the student's major department to serve as his/her prospective dissertation advisor as soon as being accepted as a Ph.D. student. A Ph.D. student and his/her dissertation advisor jointly develop a study plan for courses and research in a particular area, and submit to the department chair.

2. Study Plan
   The students are expected to complete a minimum of 60 credit units of graduate

credit beyond the master's degree. Of these, 30 credit units may be earned through course work and independent study, and 30 through the dissertation. All dissertation units are graded on a Pass/No Pass basis. A maximum of 15 semester units may be transferred from other accredited institutions at the discretion of the student's advisor and the department chair.

3. Qualification Examination
   The qualification exam is required to be taken within two years from the time of admission for full-time students and three years for part-time students. The qualification exam can only be retaken once. The qualification examination will be provided in written form. Students must choose the field of Mathematics, and two technical fields from the following four:
   • VLSI Design
   • Analog, MEMS and RF IC Design
   • Digital Signal Processing and Communication
   • System Design
   Each field will cover at least three courses as for example:
   Mathematics:
   • AMN912 Applied Mathematics Methods
   • AMN952 Probability & Statistics for Engineers
   • AMN960 Advanced Optimization Techniques
   VLSI Design:
   • EEN911 VLSI Design
   • EEN913 Microprocessor Design
   • EEN927 VLSI Design to Silicon
   Analog, RF and MEMS Design:
   • EEN903 Semiconductor Devices & Modeling
   • EEN915 Analog IC Design
   • EEN918 RF IC Design
   Digital Signal Processing and Communication
   • EEN941 Digital Signal Processing and System Analysis
   • EEN961 Fundamentals of Communication Systems
   • EEN971 Introduction to Wireless Communication Systems
   System Design
   • CEN951 Computer Architecture
   • EEN946 Design of Embedded Systems
   • EEN958 Advanced System Design

4. Advancement to Candidacy
   A student who passes the qualification examination is considered as a Ph.D. candidate. A Ph.D. candidate should promptly ask the dissertation advisor to form a doctoral committee.

5. Doctoral Committee
   On the student's request, the dissertation advisor will form a Doctoral Committee. The committee will consist of at least five members, including the dissertation advisor, the department chair and at least one member of the electrical engineering department. The committee must also include at least one member from outside of the department, preferably from outside the university. The dissertation advisor will serve as the chair of the committee. The Doctoral Committee will review the

proposed dissertation topic, determine any further changes, and approve the research objective.

6. Comprehensive Examination
   After completing the preparation of a dissertation topic, a Ph.D. candidate shall request for comprehensive examination. The examination shall be an oral exam with presenting sufficient preparation in depth and breadth for advanced research for the proposed dissertation topic. The comprehensive examinations must be completed within one year after passing qualification examination. Comprehensive examinations may be repeated only once, in whole or in part, at the discretion of the dissertation advisor.

7. Dissertation Research
   The period following the comprehensive examination is devoted to the dissertation research, although the research may begin before the examination is completed. After the research topic approved by the Doctoral Committee, the Ph.D. candidate should conduct the dissertation research toward the objective defined.

8. Publication
   One or more refereed articles based on the dissertation research must be accepted for publication in an international academic journal, such as IEEE, IEE, ACM, or other journals approved by the Doctoral Committee.

9. Teaching Requirement
   The Ph.D. Candidate must teach at least one regular course to show teaching capability. The teaching must be completed before dissertation defense.

10. Dissertation Defense
    The dissertation must be made available to all examiners one month prior to the examination. The oral examination shall consist of a presentation of the dissertation results and the defense. Dissertation defense is open to the public. At the conclusion of the defense, a vote is taken and the chair of the Doctoral Committee tallies the votes of the members. Only members of the Doctoral Committee have a vote. In order to pass the dissertation defense, the decision of the Doctoral Committee must be unanimous.

11. Program Completion
    At least one month before the degree is to be conferred, the candidate must submit to the Doctoral Program Council of the School two copies of the final version of the dissertation describing the research in its entirety. The dissertation will not be considered as accepted until it is approved by the Doctoral Committee and it is accepted for journal publication. Each member of the Doctoral Committee must sign-off the dissertation to indicate approval. The University reserves the right to evaluate the undertakings and the accomplishments of the degree candidate in total, and award or withhold the degree as a result of its deliberations.

12. Time Limit for Completing Degrees
    All requirements for the doctoral degree must be completed within eight years following acceptance for the Ph.D. program. Extensions will be allowed only in unusual circumstances and must be approved in writing by the Doctoral Program Council of ITU.

Curriculum of Ph.D. in Electrical Engineering
CEN 908 Scientific Computing (3 credit units)
CEN 910 Algorithms (3 credit units)
CEN 943 Advanced Digital Image Processing (3 credit units)
CEN 951 Computer Architecture (3 credit units)
CEN 961 Parallel Computing (3 credit units)
CEN 980 Signal Processing and System Analysis (3 credit units)
EEN 914 Advanced Microprocessor Design (3 credit units)
EEN 916 Mixed Signal IC Design (3 credit units)
EEN 917 Advanced Analog IC Design (3 credit units)
EEN 918 RF IC Design (3 credit units)
EEN 919 Advanced RF IC Design (3 credit units)
EEN 927 IC Design to Silicon (3 credit units)
EEN 928 Low Power IC Design (3 credit units)
EEN 929 System on Chip Design (SOC) (3 credit units)
EEN 930 Quantum Devices (3 credit units)
EEN 932 Advanced Nanotechnology (3 credit units)
EEN 936 Advanced MEMS Design (3 credit units)
EEN 946 Designs of Embedded Systems (3 credit units)
EEN 949 Advanced Digital Signal Processing (3 credit units)
EEN 953 Advanced Machine Learning Engineering (3 credit units)
EEN 958 Advanced System Design (3 credit units)
EEN 966 Advanced Communication Systems (3 credit units)
EEN 974 Advanced Wireless Communications (3 credit units)
EEN 996 Independent Study (1-3 credit units)
EEN 1999 Doctoral Dissertation (1 to 6 credit units)
SEN 953 Compiler Design (3 credit units)
SEN 956 The Unix Operating System (3 credit units)
SEN 985 Artificial Intelligence (3 credit units)
SEN 961 Cloud Computing (3 credit units)
AMN 952 Probability & Statistics for Engineers (3 credit units)
AMN 960 Advanced Optimization Techniques (3 credit units)
AMN 962 Advanced Applied Mathematics Methods (3 credit units)

MASTER OF SCIENCE IN COMPUTER ENGINEERING

Program Learning Outcomes
Fundamentals: Demonstrate knowledge of computer architectures, computer networks and software skills
Engineering Ability: Apply the skills to analyze and solve contemporary engineering problems
Career Responsibility: Understand current developments in computer engineering and prepare to face advanced industry challenges
Ethics: Comprehend ethical behavior in fulfillment of professional responsibility and teamwork perspective

Program Requirements
1. 4 Core Courses: 12 Units
2. Capstone Course or Thesis Project: 3 Units Minimum

3. ITU Presents: No units but required for graduation (Minimum 12 of ITU Presents required)
4. Internship: 1-9 Units
5. Elective courses: 12-20 Units
- Minimum 6 units of electives in Computer Engineering
- Cross Disciplinary Electives: Up to 3 Units
- Transfer Credits: Up to 9 Units (Counts as Elective Courses)
36 Total Units

Core Courses
CEN 900 Computer Engineering
CEN 910 Algorithms
CEN 951 Computer Architecture
CEN 980 Signal Processing and System Analysis

Elective Courses
COMPUTER ENGINEERING:
Minimum 6 credit units from the following courses:
CEN 908 Scientific Computing
CEN 940 Network Security Techniques
CEN 941 Introduction to Computer Vision
CEN 943 Advanced Digital Image Processing
CEN 948 Computer Network Systems
CEN 950 Computer Control Engineering
CEN 956 Distributed Computing Systems
CEN 961 Parallel Computing
CEN 964 Computer Interface and Firmware Engineering
CEN 965 Introduction to Medical Image Systems
CEN 966 Routing in Computer Networks
CEN 967 Local Area Networking
CEN 968 Network Storage Systems
EEN 941 Digital Signal Processing and System Analysis
EEN 958 Advanced System Design

OTHER ELECTIVE COURSES:

Any Courses in the CE or EE Curriculum and from the following list can be accepted as elective courses
CS 831 Data Mining
CS 850 Big Data
CS 921 Semantic Web
CS 923 Programming Language Theory
CS 933 Machine Learning
SEN 905 Ruby on Rails
SEN 920 Computer Algorithms
SEN 941 Software Engineering
SEN 953 Compiler Design
SEN 956 Unix Operating System
SEN 958 Android Application Development
SEN 961 Cloud Computing
SEN 964 OO Programming with Java

SEN 985 Artificial Intelligence
SEN 991 Computer Graphics I
SEN 992 Computer Graphics II
MISY 915 Management Information Systems

Mathematics Courses
Any Math Course Can Be Accepted as Elective Course
AMN 910 Linear Algebra
AMN 912 Applied Mathematics Methods
AMN 914 Fast Fourier Transformation & Applications
AMN 920 Optimization Techniques
AMN 922 Advanced Applied Mathematics Methods
AMN 930 Numerical Analysis
AMN 940 Discrete Mathematics
AMN 952 Statistics, Probability and Reliability for Engineers
AMN 960 Advanced Optimization Techniques

Capstone Courses
Students are required to take one capstone course or complete a thesis before graduation. If a student takes both capstone courses, the second capstone course will be counted as an elective course.

EEN 946 Embedded System Design
CEN 942 Digital Image Processing

Internship
GRN 900 P/F Internship

ENGINEERING MANAGEMENT

FACULTY

Barbara Hecker, PhD, Nova Southeastern University, Department Chair
Tom Tafolla, JD, University of San Francisco, Core Faculty

MASTER OF SCIENCE IN ENGINEERING MANAGEMENT

The scope and complexity of engineering management responsibilities have changed dramatically during the past few years. Strong competition in the marketplace and the need to eliminate the trade and service deficit have put an emphasis on technology. It is the source of new products and improved productivity in manufacturing and service delivery.

Today's engineering management must incorporate technological innovation, satisfy design and safety requirements, manage human resources to boost productivity, use natural resources efficiently, stay on top of other environmental concerns and emphasize total quality in operations.

The Engineering Management program is designed to prepare technical managers from fields of engineering, science and math, and computer science to manage more effectively within technologically based organizations.

ITU's curriculum for the MSEM program is concerned with the management issues of Software Engineering, with the primary emphasis placed on the management aspects of building and modifying high quality software systems. It thus allows the student to prepare for careers in businesses that build and sell computers and/or software, in Internet based companies, electronic business organizations, diverse research and development laboratories, aerospace companies, banks, and insurance companies.

An undergraduate degree is required for admission. If the undergraduate degree is in an area of Computer Science, Software Engineering or a related technical 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.

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.

Program Requirements
1. 4 Core Courses: 12 Units
2. Capstone or Thesis Project course: 3 Units
3. ITU Presents: no units but required for graduation (minimum 12 ITU Presents required)
4. Internship: 1-9 Units
5. Elective courses: 12-20 Units (minimum of 6 units of any Business and minimum of 6 units of any Engineering classes)
- Cross Disciplinary Electives: Up to 3 Units
- Transfer Credits: Up to 9 Units (counts as Elective)
36 Total Units

Core Courses
EM 900 Engineering Management I
EM 901 Engineering Management Project
SEN 941 Software Engineering
MGTN 942 Critical Thinking Strategies in Decision Making

Capstone Course or Thesis
EM 998 Capstone
EM 999 Thesis

Internship
GRN 900 P/F Internship

Elective Business Courses
Any MBA class can be used as an elective for the Engineering Management Program.

Elective Engineering Courses
Any Software Engineering class can be used as an elective for the Engineering Management Program.

Doctor of Philosophy in Interdisciplinary Sciences

Application
Student who completed his/her master degree in the subject field with GPA 3.0 or above is eligible to apply for the Ph.D. program. Exceptions may apply to select individuals upon Academic Quality Committee approval.

Dissertation Advisor
It is the student's responsibility to obtain consent from a full-time faculty member in the student's major department to serve as his/her prospective dissertation advisor. Students are required to find a dissertation advisor as soon as possible after being accepted as a Ph.D. student. The student and the dissertation advisor jointly develop a complete program of studies for research in a particular area. The complete program of studies (and any subsequent changes) must be submitted to the AQC and approved by the student's advisor.

Course Work and Study Program
The students are expected to complete a minimum of 60 trimester units of graduate credit beyond the master's degree. Of these, 30 trimester units may be earned through course work and independent study and 30 through the dissertation. All dissertation units are graded on a Pass/No Pass basis. A maximum of 15 trimester units may be transferred from other accredited institutions at the discretion of the student's advisor.

Comprehensive Examination
After completion of the formal course work approved by the Doctoral Committee, the student shall request for the comprehensive examination. The examination shall be a written exam representing sufficient preparation in depth and breadth for advanced research in the major. The comprehensive examinations normally must be completed within four years from the time of admission. Comprehensive examinations may be repeated only once, in whole or in part, at the discretion of the dissertation advisor.

Admission to Candidacy
A student who passes the comprehensive examinations is considered as a Ph.D. candidate. A Ph.D. candidate should promptly ask the dissertation advisor to form a doctoral committee.

Doctoral Committee
On the student's request, the dissertation advisor will form a Doctoral Committee. The committee will consist of at least five members, including the dissertation advisor and at least two members from the consilience science department. The committee must also

include at least one member from outside the department. The Doctoral Committee will review the proposed dissertation topic, and determine any further changes to approving the research objective.

Dissertation Research
The period following the comprehensive examinations is devoted to research for the dissertation, although such research may begin before the examinations are complete. After research topic proved by the Doctoral Committee, the students should conduct the dissertation research toward the objective defined.

Publication
One or more refereed articles based on the dissertation research must be accepted for publication in a professional or scientific journal approved by the Doctoral Committee.

Dissertation Defense
The dissertation must be made available to all examiners one month prior to the examination. The oral examination shall consist of a presentation of the results of the dissertation and the defense. Dissertation defense is open to all faculty members of the university, but only members of the Doctoral Committee have a vote.

Program Completion
At least one month before the degree is to be conferred, the candidate must submit to the Academic Quality Committee two copies of the final version of the dissertation describing the research in its entirety. The dissertation will not be considered as accepted until approved by the Doctoral Committee and publication acceptance. All doctoral theses must also be reproduced on microfilm, for responding to requests for copies by individuals and libraries. The University reserves the right to evaluate the undertakings and the accomplishments of the degree candidate in total, and award or withhold the degree as a result of its deliberations.

Time Limit for Completing Degrees
All requirements for the doctoral degree must be completed within ten years following acceptance for the Ph.D. program. Extensions will be allowed only in unusual circumstances and must be approved in writing by the Committee on Graduate Programs and the dean of the School of Engineering.

COURSE DESCRIPTIONS

MASTER OF BUSINESS ADMINISTRATION

BIOM 900 Concepts of Clinical Research Management (3)
Clinical Research Management will be focused on a wide spectrum of clinical research and research processes. General principles and issues of clinical research design will lay foundation to the following topics: study design, patient monitoring, quality assurance, disease etiology, causation, diagnostic testing, evaluation of treatment efficacy, and Food and Drug Administration (FDA) issues. The course content is designed to enhance student's theoretical and practical understandings as they relate to Clinical Research Management. In addition, the topic of ethical conduct, critical thinking and of problem-solving skills will be covered. Ultimately, the course is designed to actively engage students to become familiar with practical and basic management of clinical research.

BIOM 901 Concepts of Modern Medicine and Biology (3)
In this course we will explore the cross-pollination of ideas and advances in biology and how it transforms medicine, both at the bedside and in drug development. Many of the advances in biology have radically transformed our understanding of disease states and how medicine is practiced. For example, genomic sequencing is now being widely adopted as a method for diagnostics as well as for drug development. Bioinformatics is another area where huge data management and mining is paving way to understand the complex biological pathways and signaling mechanisms in cells and organs. Other advances in the field of computer science and algorithm development have been adopted to unravel these complex connections and arrive at a better understanding of cellular and molecular physiology. Physical and mechanical innovations drive devices that have better resolution in the areas of imaging for diagnostics. As we go through this course, we will explore the molecular base of disease, gene hunting, genetic information and epigenetics. Delving deeper we will excursion into protein structure and function, proteomics and metabolomics research that are moving from laboratory methods to clinical practice in a quest to find cures for various diseases. As a prophylactic, vaccines have evolved from the days of Jenner and Pasteur and we will begin to appreciate advances in modern vaccines. In addition we will also discuss transgenics, pharmacogentics, gene therapy, stem cells and tissue engineering along with perspectives of future developments. However, during this course we will not be setting out to explain the minutiae of the techniques themselves, but rather the rationale behind these techniques. We would interrogate why they are useful in a clinical context and consider their potential uses, limitations and ethical considerations. As a healthcare management professional, you will learn, understand, and appreciate the investment and innovations in basic research that lead to advances in medicine.

BIOM 903 Business and Scientific Writing (3)
Scientific, Business, and Technical Writing offers students practice in the forms and discourses of scientific and technical writing as they develop, research, and revise an independent project. The purpose of the class is to prepare students for their professional lives in professional, scientific, technical, or public service fields by helping them organize their knowledge while exploring ways of applying it, thus developing their professional expertise. We begin by working on the resume and cover letter, both as a professional document and as an example of writing for a specific audience. Then each

student develops an independent class project through several stages of revision, culminating in a final paper. Topics are freely chosen, though students taking the course usually propose experiments, construction projects, or education initiatives.

BIOM 905 Human Ecology (3)
This course examines human adaptation and plasticity (the ability of an individual with a given genotype to evolve under certain conditions). We will explore human physiology and motivational mechanisms. Topics covered include urbanization, social networks, infectious diseases, nutrition, reproductive value, and exponential growth. Application of the Laws of Thermodynamics and other unifying principles will be investigated. Course participants will also learn the optimal age-profile for vaccinations in relationship to population dynamics. To fully enjoy and develop the contents of this class, the course participants will be engaged in lively discussions and in-class activities as related to Human Ecology.

BIOM 906 Biological Management (3)
Conservation Biology is a multidisciplinary field that seeks to identify, understand and counter threats to the earth's biodiversity. For example, conservation biologists routinely deal not only with elements of the basic biological sciences, but also the physical and social sciences. The purpose of this course is to provide students with an understanding of conservation-related issues ranging from recognition of threats to biodiversity to preserve selection, design and management. Throughout the semester we will examine a wide range of topics as we seek to understand the numerous issues faced by scientists, policy makers and others involved in conservation of species, communities and ecosystems.

BIOM 908 Bioethics and policy (3)
Students will be exposed to an overview of bio-ethics – past, present, and future. Participants will identify and analyze forces that have influenced the evolution of bio-ethics and policy-making. The course also aims to identify the fundamental ethical questions that underlie contemporary biomedical practice. In the middle of the course, students will be exposed to the relationship of insurance and ethics. We will explore bio-ethics in the clinical environment and bio-ethics on a global aspect. All in all, the course culminates in students' views, opinions, and predictions, on the trajectory (as well as form and shape) of bio-ethics and policy-making in the future.

BIOM 909 Biotech industry fundamentals (3)
This course will introduce students to biotechnology – its principle and application. A solid knowledge of basic molecular biology is required to gain a complete understanding of the concept and its application. Biotechnology has a broad reach – from agriculture, to biofuels, waste management, medical, forensics and food. Students will learn to apply modern biological principles and understand the trends in modern medicine, food and green technologies. This course is a pre-requisite course for students in Healthcare Management, Green MBA and Bio Management streams. Students will benefit immensely if they enroll in this course first before taking any of the other advanced courses below. This course complements BIOM 901 – Modern Biology – that provides an in-depth understanding of cellular and biological processes. Suggested follow on courses: (HCM 904), (HCM 905), (BIOM 905), (BIOM 914), (GMBA 920), (GMBA 921), and (GMBA 922). By the end of the course, you will be able to critically assess current and future applications of biotechnology in agriculture, drug development and environmental management. (Junior-level chemistry and biology is recommended.)

Covered in this Course are: 1. The Biotechnology Century and Its Workforce 2. An Introduction to Genes and Genomes 3. Recombinant DNA Technology and Genomics 4. Proteins as Products 5. Microbial Biotechnology 6. Plant Biotechnology 7. Animal Biotechnology 8. DNA Fingerprinting and Forensic Analysis 9. Bioremediation 10. Aquatic Biotechnology 11. Medical Biotechnology 12. Biotechnology Regulations 13. Ethics and Biotechnology.

BIOM 910 Bio Market Study (3)
Students will learn about the basic principles of market study as it applies to life. The issues of economic principles and human psychological principles will be examined in the context of behavioral responses to economic factors. Students will explore the concepts of supply and demand, human systems, medical technology, business marketing, and how it all relates to the healthcare professionals and healthcare industry.

BIOM 914 Innovation and R&D Bio Management (3)
The course focuses on Innovation and Research and Development activities that lead to product development in the broad areas of Bio Management. In this course we will discuss how ideas and concepts lead to innovation. The road to product development is based on ideas and concepts. Using some of the well developed products in the Biotechnology area as case studies, the course will highlight research and development activities. The course is designed to be highly interactive where students are required to research topics of interest and discuss the evolution of a product.

BIOM 915 Regulatory Management in Biopharma (3)
Biopharmaceuticals, or biotech drugs are defined as any substance produced by natural organisms or recombinant techniques consisting of proteins and other products derived from living organisms for the treatment or management of diseases or injuries. These treatments are created through fermentation, recombinant DNA technology, and other bioprocesses. In this course, students will obtain an introduction to a wide range of regulatory issues affecting the biopharmaceuticals industry, including those related to clinical trials, manufacturing facilities, manufacturing processes, product testing, sterilization, biosafety, and therapeutic and research uses of biopharmaceuticals.

BPS 821 A Regulatory Overview for New Drug Development (3)
This course will offer a summary of the drug development procedure. The emphasis will be on drug development science, regulation, and business from the U.S. standpoint. Most the lectures will be a concise educational outline of today’s subject, followed by dialogue of a main scientific publication that highlights the significant theories covered.

HCM 901 Concepts of Healthcare Management (3)
This course invites students to learn the basic concepts needed to understand the status of the healthcare industry in the United States. Topics to be covered include: leadership, motivation, strategic planning, marketing, quality improvement, information technology, and teamwork. Both theories and practical applications will be discussed. The goal is to prepare leaders to take charge of implementing best practices over the entire range of multi-disciplinary healthcare careers. A clinical background is necessary to make best use of this knowledge.

HCM 902 Health Service Delivery (3)
This course is intended to provide knowledge and skills needed to develop and implement systems capable of delivering accessible, high quality, efficient healthcare

services. It will draw upon relevant information from disciplinary areas and application areas of study including strategy, operations, marketing, finance, law, human resources, quality improvement, and information technology.

HCM 904 Translating Biomedical Innovation from the Laboratory to the Marketplace (3)
The subject of the course is the translation of medical technologies into new products and services for the healthcare system. The course begins with a rigorous study of intellectual property, licensing and the core aspects of planning, creating, funding and building new entrepreneurial ventures. Concepts and tools are presented for assessing new technologies and their potential to be the basis for a new entrepreneurial venture. Comparisons will be made of how technologies can be sourced and commercialized out of three very different environments: universities, national laboratories and corporate laboratories. Cross-disciplinary teams of students will be formed to evaluate translational research projects currently being developed at Boston University and their potential for transformation into a start-up company to commercialize the technology, providing a unique linkage between the scientific research activities of the university and the professional schools.

HCM 905 Health Sector Innovation (3)
The course will provide a forum to foster the development of effective health sector innovations. Participants will develop strategic frameworks, in a team-building environment. We will discuss evidence-based healthcare innovations, delivery, products, and services. The goal is to instill a sense of pro-activeness and learn how to craft and execute value-creating innovations – taking ideas to successfully realized implements ("Win-Win-Win").

HCM 906 Health Information Technology (3)
With increasing cost constraints and demands for improved quality of care, information technology has become essential to manage healthcare organizations and systems. This course is intended to provide students with knowledge of extant healthcare information systems for operations management, financial management, performance appraisal, and strategic planning. It will also investigate analytical frameworks and methods that can be used to evaluate information systems, determine information system requirements, and plan system changes to meet future requirements. The perspective of the course is that of the chief information officer and other managers of healthcare information systems, not that of the technical specialist.

HCM 907 Healthcare sector Marketing (3)
This elective provides an in-depth understanding of health sector marketing in the for-profit and not-for-profit sectors for both products and services. The course explores how the tools of marketing (e.g., consumer behavior, pricing, promotion, channels, branding, segmentation, etc.) can be employed in the rapidly changing health sector with particular attention to changing organizational structures, financing, technologies, market demands, laws, channels of distribution, on-line applications, and regulations which require new approaches to marketing. Topics to be addressed include marketing to physicians, DTC (Direct-to-Consumer) Marketing, new product development particularly for pharmaceuticals and medical devices, adoption of medical and service innovations, typical decision making units in the health sector, and social marketing, The course will further have you keep in mind always while making marketing decisions that medicine, in the purest sense, is a profession with an intellectual discipline, a tradition of service, and an ethical code of conduct, and that service to the patient, as individuals and in the

aggregate, is foremost in marketing decision making. Using care analysis, this course explores how marketing principles apply to management decisions. It covers product development, pricing and distribution, consumer behavior analysis, market definition and forecasting and development of marketing plans focusing on application of these concepts to healthcare organizations.

HCM 908 Global Entrepreneurship in the Health Sector (3)
The 2009 Institute of Medicine (IOM) Report, The US Commitment to Global Health, defined global health as "improving health for all people by reducing avoidable disease, disabilities, and death." Three United Nations Millennium Development Goals (MDGs) pertain to the health sector: reducing child mortality, improving maternal health, and combating HIV/AIDS, malaria and other diseases. Using the IOM definition, and concentrating on the UN MDGs, this course will cover the basics of building a business plan to meet a global health need. Concepts and techniques of social entrepreneurship will provide the foundation for learning and communicating. Bring your resume to the first class because you will be applying for a critical role on an entrepreneurial team.

HCM 909 Good Clinical Practice (GCP) (3)
Good Clinical Practice (GCP) refers to a set of international ethical and scientific quality standards for designing, conducting, recording, and reporting trials that involve human subjects. GCP compliance ensures the protection of the rights, safety, and well-being of trial subjects and the credibility and integrity of clinical trial data. This course reviews the standards used in clinical studies from start-up to post-study audits.

HCM 911 Healthcare Ethics (3)
This course invites students to explore issues in medical ethics from a personal and professional career perspective. Materials will include case studies of actual situations encountered by healthcare administrators and providers. Emphasis will be on learning useful approaches for decision-making.

HCM 912 Healthcare Leadership, Patient Safety and Quality Improvement (3)
This course invites students to join an interprofessional educational community to give them the skills to become change agents in healthcare improvement. The course curriculum incorporates materials from the nationally-recognized Institute for Healthcare Improvement (IHI).

HCM 915 Healthcare Strategic Management (3)
This course invites you to learn about strategic management in healthcare businesses. Topics covered include: basic strategy concepts, external environmental assessments, strategic plans, and process improvements. Spot quizzes will identify successful learning transfers and possible gaps. Special attention will be paid to students' demonstration of successful presentation techniques and solid knowledge of using APA format.

HCM 916 Healthcare Environment: Cultural and Behavioral Theories (3)
Recognize individual biases and challenge personal assumptions as they relate to the process of professional communications in a healthcare setting.

HCM 918 Principles of Global Healthcare (3)
This course will provide the student with an overview and analysis of American healthcare and medical delivery systems. Cultural, political, economic and environmental factors that affect health care delivery will be explored from historic and contemporary

perspectives. Specific forces influencing healthcare delivery including reimbursement, labor shortages, the impact of health maintenance organizations, aging population and access to healthcare will be discussed. A look at structure, access, organization and functions will provide the student with an introduction to the complexity and unique elements of healthcare systems.

HCM 919 Aging in America (3)
The aim of this course is to provide a comprehensive overview of issues surrounding aging in contemporary America. An interdisciplinary focus will be utilized in examining these issues. Social and developmental perspectives will be explored in order to discover their assumptions about aging and their spheres of influence. These perspectives will be integrated by applying them to specific conditions encountered in later life.

HCM 921 Principles of Managed Care (3)
This course invites you to learn about the principles of managed healthcare systems in the United States. Topics covered include: health insurance, network contracting, provider payment, management of utilization and quality, and laws and regulations. Spot quizzes will identify learning transfer and possible gaps. Both interim midterms and a comprehensive exam will ensure overall paced learning. Special attention will be paid to the details of and latest news about the federal Patient Protection and Affordable Care Act of March 2010.

HCM 922 Ambulatory Care Administration (3)
Student is familiarized and helped to develop their knowledge in the areas of ambulatory care administration. National and local trends will be identified, as well as practical applications needed to administer outpatient care programs and facilities.

HCM 926 Organizational Development in Healthcare (3)
This course discusses core concepts in the field of Organizational Development (OD) in healthcare organizations. Emphasis is on gaining an understanding of practical implications of various theories and assessment instruments about workers and the workplace environment. Specific topics include leadership, strategic planning, customer focus, measurement, analysis and knowledge management, workforce focus, operations focus and results.

HCM 927 Principles of Health Promotion and Education (3)
Overall introduction to the growing profession of health promotion and education specialists. Covers the roles and responsibilities of health educators, the settings where health educators are employed, and the ethics of the profession. In addition to covering the history of health, health care, and health education, the course provides a preview of future career possibilities."

HCM 930 Mental Health and Wellbeing (3)
This course invites students to explore issues in mental health and wellbeing from a personal and professional career perspective. Topics will include materials on support organizations (both local and online), self-care activities, and current important issues. Emphasis will be on learning useful approaches.

HCM 932 Healthcare Risk Management (3)
Identifying of a risk as an opportunity is a major issue in healthcare. This course helps

timely and relevant management with Enterprise Risk Management (ERM), a set of processes and procedures used to evaluate and manage risk. The course covers operational, financial, technical and legal aspects of a healthcare industry. Patient safety, employment law and other ethical and moral aspects are discussed.

HCM 933 Complementary and Alternative Medicine (3)
Modern medicine is evidence-based, scientifically rationalized, and follow a reductionist approach while many of the alternative medicines are not. However, there is increasing body of scientific work related to the systematic study of alternative medicine in disease states. We will investigate the research findings to understand, rationalize and develop a higher order of thinking to how we can benefit from the adoption of these practices and integrate them with modern medicine. Healthcare cost and health management can be more effective with the integration of the old with the new, forging new paths for management of disease and developing new paradigms for a healthy life. The emergence of complementary and alternative medicine in the waning decades of the twentieth century to fill in the void where modern medicine fails to make an impact. From pre-historic times man had practiced medicine to alleviate discomfort to the body – however limiting their knowledge was. After a brief lull during the medieval times, the practice of medicine and development of drugs and vaccines grew at a brisk pace in the nineteenth century with the advances in chemistry and biology that supported the growth. This growth accelerated in the twentieth century bringing more insights about the workings of human body at a cellular level. Many paradigms developed in the 18th and 19th century was no longer applicable as the knowledge of biology became more complex. However, looking back at the early days of medicine, we begin to re-explore some of the concepts and rationale of medicine and practice of medicine in those days. Given the complexity of the human body, modern drugs developed with the paradigm: one protein – one compound is no longer applicable. As we begin to understand this complexity, the resurgence of popularity of time-honored therapies like acupuncture, homeopathy, ayurvedic medicine and nutritional supplements as way to restore aspects of compassion, safety and time that was lost in a reductionist approach. In this course we will evaluate the effects of traditional medicines through investigating the facts behind these claims. This course is open to all students with an interest in either alternative medicine or looking to develop models for managing healthcare costs, newer medical practices by integrating complementary and alternative methods and medicine. Also those who would like to review the scientific basis of some of the alternative medicines and develop new scientific enquiry of others.

HCM 934 Health Information and Communications Systems (3)
Different types of information systems available in healthcare and their applications to healthcare are dealt both in theory and practical. It includes an overview of various health care networks, patient-centered information systems, and imaging systems, electronic medical records, and computer assisted instruction. Students discuss the integration of health information systems with communication systems, such as e-mail, fax, pagers, and wireless telephones.

ACTN 900 Financial Accounting (3)
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 give the managers the ability to use them for decision making.

ACTN 910 Managerial Accounting (3)
Prerequisite: ACTN 900 or equivalent
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, other topics are discussed such as the decision making involving joint costs, decentralization, product costing, job and process costing, and performance evaluation.

ACTN 920 Cost Accounting (3)
Prerequisite: ACTN 900 or equivalent
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.

ACTN 921 Intermediate Accounting (3)
Prerequisite: ACTN 900 or equivalent
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, the income statement with separated reported items, such as discontinued operations, extraordinary items, and the cumulative effect of a change in accounting principle (net of tax effect) are presented.

ACTN 922 Forensic Accounting (3)
Prerequisite: ACTN 900
This course explores the forensic accountant's role in today's economy. The course is designed to enhance a student's understanding of the emerging field of forensic accounting. The course is structured to enhance the ability of students to think critically and to develop the knowledge, skills and attitudes necessary to compete effectively in the rapidly changing world of accounting using the traditional method of detecting fraud and using the current technology. By the end of the course, students are able to understand the causes of fraud and white-collar crime, examine the types of fraud and fraud schemes, explore methods of deterring and detecting fraud, and examine the financial impact to businesses and the economy.

ACTN 925 Accounting Information Systems/ERP (3)
Prerequisite: ACTN 900
The course addresses the development and use of accounting information systems for managerial control and external reporting, focusing 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. Students get to work on SAP central component of financial information system that

incorporates sales, audit, cash management, etc. Students will be given few case studies to work on. Also, the course will incorporate case studies provided by SAP in the course.

ACTN 926 International Accounting (3)
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.

ERP 901 Introduction to ERP Systems using SAP (3)
Introduction to ERP using SAP is pre-requisite course for students who want to pursue other ERP courses. This course is designed for students to get basic understanding of all the Functional Departments that exist in business scenario. It gives an idea about how these functional departments work and how they are integrated in ERP systems to avoid duplication of work, and to provide efficiency and effective use of resources. It is a three Unit course consisting of 16 weekday sessions of 3 hours of each. The course is presented in lecture format with open discussion and hands-on problem solving exercises. SAP was founded in 1972 in Walldorf, Germany. It stands for Systems, Applications and Products in Data Processing. Over the years, it has grown and evolved to become the world premier provider of client/server business solutions for which it is so well known today. The SAP Business suite for open client/server systems has established new standards for providing business information management solutions. This course is a general overview of the SAP ERP System concepts and tools. This course introduces SAP as one of the ERP systems. Explains how the fundamental business processes interact in SAP ERP in the functional areas of Sales and Distribution, Materials Management, Production Planning, Financial Accounting, Controlling, Human Capital Management.

ERP 902 ABAP - Advanced Business Application Programming (3)
SAP ABAP (Advanced Business Application Programming) is an application specific language. ABAP is used by developers to enhance SAP feature and customize to the customer needs. Students get to learn from basics of ABAP which includes language basics, report-writing, and transaction-writing, making screens and window lines, creating dictionary definitions, producing library tasks, and designing client/server functions. Though this course starts from basics it's useful if students have basic programming knowledge with object oriented concepts and knowledge of relational database design. A student also gets hands on experience with scenarios which will be discussed and worked in class on SAP system. Students will be given programming task to work on. ABAP is the language for programming SAP's Web Application Server, part of SAP's NetWeaver platform for building business applications. This course introduces the ABAP language environment, including the syntax checking, code generation and runtime system, and various features of ABAP Programming.

ERP 905 Enterprise Portal technology using NetWeaver (3)
ITU/SAP University Alliance
SAP NetWeaver is SAP's integrated technology platform and is the technical foundation for all SAP applications since the SAP Business Suite. SAP NetWeaver is marketed as a service-oriented application and integration platform. SAP NetWeaver provides the development and runtime environment for SAP applications and can be used for custom development and integration with other applications and systems. SAP NetWeaver is built using open standards and industry de facto standards and can be extended with, and interoperate with, technologies such as Microsoft .NET, Sun Java EE, and IBM WebSphere.

ERP 907 Enterprise procurement processes (MM) (3)
ITU/SAP University Alliance
This course introduces the external procurement process. During the course, the students go through the entire procurement process with its typical steps - purchase order, entry of goods receipt, and entry of incoming invoice - several times. The students get to work on SAP course will quickly build through each of these concepts using Fitter Snacker case study or Quazi case study and configuration so that by the final day of class, each student will have hands on configuration experience in procurement processes. In doing so, the students will focus on different aspects and become acquainted with additional functions. (MM) Enterprise procurement process is entire procurement process with its typical steps- Purchase order, entry of goods receipts, and entry of incoming invoice- several times. The course will quickly build through each of these concepts and configuration. In doing so, the students will focus on different aspects and become acquainted with additional functions. Students get a hand on with SAP central component and learn how to configure procurement process.

ERP 912 Sales order management with ERP (3)
ITU/SAP University Alliance
Today's enterprises face increasingly complex ordering processes with orders consisting of component parts, customized configuration, make-to-order systems and the inclusion of services. This course give an insight of the procedure of sales order management using SAP. This course introduces the sales order management process with the SAP ERP Central Component. During the course, the students learn the entire sales order process starting from a sales inquiry, entering sales orders, creating outbound deliveries, posting goods issue and invoicing the customer and entering the incoming payment. The course will quickly build through each of these concepts and configuration using the Quazi Computer case study and by the final day of class, each student will have fully walked through the Sales and Distribution process using the SAP system. In doing so, the students will focus on different aspects and become acquainted with additional functions in the sales order management process chain.

FINN 916 Securities Analysis (3)
Prerequisite: FINN 932, FINN 933
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.

FINN 918 Financial Institutions (3)
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.

FINN 920 Financial Derivatives and Risk Management (3)
Prerequisite: FINN 932, FINN 933
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.

FINN 921 Financial and Socially Responsible Investing (3)
Socially responsible investing is a course that examines one of the fastest growing areas in the global financial markets. The global financial crisis of the 2000s have shown that socially responsible investments (SRIs) have a place in building financially sound investment portfolios while doing social good. The course utilizes financial and global macroeconomics to support developing the basic investment mechanics and strategies. With this foundation the course continues its focus into socially responsible investing using classical social and behavioral theories of Bandura (1969, 1977); Maslow (1954, 1998); and Skinner (1953, 1971) et al to discuss social-financial behaviors and motivations for investing into various financial assets. This completes our framework that is used to study the current theories of socially responsible investing in financial markets using instruments like hedge funds and derivatives (Statman, M., 2000, 2003, 2006, 2008 and 2009; Jo, H., 2003; Starr, M., 2006, Abumustafa, N., Alfadly, M., and Alshamali, M., 2008 et al).
The initial objective of this course is to develop your qualitative and quantitative skills for understanding the basic principles of socially responsible investing. In order to accomplish these objectives we use a variety of textbooks and scholarly peer-reviewed journals that offer both classical and current pedagogy into socially responsible investing. The materials offer a rich set of concepts and theories that are used to develop critical thinking and reasoning skills into why and how socially responsible investing works and for whom. Our final objective is to build towards a framework that can be used personally and professionally for your critical praxis in socially responsible investing.

FINN 922 Corporate Valuation (3)
There is no major corporate investment decision that can be made without first asking and answering the question - “What is it worth?” The goal of this course is to build your skills and confidence in answering that question. In these turbulent times, it might appear that understanding market behavior is paramount. But as Mr. Buffett notes above, even so, the ability to value a business is still indispensable. Regardless of the career path you choose post-MBA valuation is among the handful of essential tools you want to have in your skill set.

The focus of the class is on making investment decisions in real (as opposed to financial) assets. It will acquaint you with the widely-used ideas that have revolutionized the practice of valuation during the past few decades. By the end of the course, I expect you to be comfortable in answering the question: What is a real asset - a new product, a new project, a division, or a company - worth? The class is broadly divided into three segments. - The first segment serves as a quick recap and reinforcement of the ideas that drive all valuations: free cash flows, cost of capital, growth rates, terminal value, DCF models (WACC vs. APV, FCFF vs. FCFE), trading and transaction multiples. - The second segment applies these ideas to practice in various valuation scenarios: project/divisional valuation, IPO valuation, valuation for mergers and acquisitions and valuation for private firms. - The final segment introduces real options and their application in corporate investment, focusing on how to identify, conceptualize and value them. We will discuss options to delay, expand and abandon using different techniques such as binomial tree, Black-Scholes, and Monte-Carlo simulation. Classes will consist of a combination of lectures, discussions and student presentations.

FINN 930 Investment Management (3)
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.

FINN 931 International Financial Management (3)
This course provides students with the framework for making corporate financial decisions in an international environment. Topics include: measurement of currency exposure and 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.

FINN 932 Corporate Finance (3)
Prerequisite: FINN 933
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.

FINN 933 Managerial Finance (3)
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.

FINN 934 Financial and Economic Analysis
Units: 3
The course discusses the processes and tools analyzing company performance. Factors such as the efficiency and profitability of the use of resources and productivity are emphasized. The course is an in-depth study of selected topics in finance and economic, including ratio analyses, capital structure and leverage, working capital management, reorganization and bankruptcy. This course focuses on the application of economics to determine the profitability of the firm. In addition, the course will help the students define effectiveness, rates of return and economic concepts. During the course, students will develop proficiencies to make conclusions and recommendations for additional enhancement of organization's financial results.

FINN 935 Mergers and Acquisitions (3)
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.

FINN 936 Behavioral Finance (3)
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. We will also discuss Dual Motive Theory in terms of Ego/Empathy, greed/positive financial impact to understand how brain functions can impact financial behavior and relationships.

HRMG 940 Human Resource Management (3)
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. We will also discuss Dual Motive Theory in terms of Ego/Empathy, ethical/unethical behavior to understand how brain functions can impact human behavior and relationships.

HRMG 941 Employee Training and Development (3)
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. We will also discuss Dual Motive Theory in terms of Ego/Empathy, self/other behavior to understand how brain functions can impact human behavior and relationships.

HRMG 943 International Human Resource (3)
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.

HRMG 945 Strategic compensation: issues and opportunities (3)
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.

HRMG 946 Human Resources and Information Technology (3)
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.

HRMG 948 Managing Global Diversity (3)
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.

MISY 910 Business Database Applications (3)
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.

MISY 911 Business Telecommunications (3)
The course offers an overview of communications technology used in many business applications - local area network, wide area network, broad band 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.

MISY 912 Information Resource Management (3)
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. We will include a review of Dual Motive Theory, understanding how brain functions of ego and empathy can impact behavior and relationships.

MISY 913 Managing Global Information Systems Projects (3)
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.

MISY 914 Information Systems Innovation (3)
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.

MISY 915 Management Information Systems (3)
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 of understanding 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.

MISY 916 Human-Computer Interaction (3)
The course focuses on key factors in Human-Computer interaction. Topics include design elements, test procedures, experimental tools, and human-computer environments contributing to the development of successful user interfaces are discussed. Additionally, research topics will be explored in the areas of design principles, methodologies, implementation, and evaluating of user interfaces.

MISY 917 Business Decision Support Systems (3)
The focus of this course is to study decision making process in business environment. The managerial role in decision making and steps involved in the process will be discussed. Theoretical modeling of decision making and practical applications will be explored using Microsoft Excel and/or other software packages. For part of the course, decision support models such as break-even analysis, goal seeking, linear

programming, decision tree analysis, statistical modeling, etc. will be used in defining decision support systems to address various business scenarios.

MISY 918 Data Mining and Business Intelligence (3)
This course teaches students the business potential of big data and analytic, data warehousing, how to develop and retain data warehouses, and how to use this data for business benefit and as a source for business intelligence. Business intelligence is the use of logical software devices to study big data about an organization and its competitors in business planning and decision-making. In developing data warehouses, the course will teach the students the inter-relationships among operation, decision support structures, plan and the removal and cleaning process used to create a high quality data warehouse. Data mining theories and the use of data mining devices and techniques for decision-making and for creating business intelligence are discussed.

MISY 920 Software Development Process Management (3)
This course helps students to understand the software development process at both the project and organization levels. In addition, it provides 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 and software risk management.

MISY 921 Knowledge Management (3)
The course helps students to understand a framework and a clear language for knowledge management(KM) concepts, and define the Knowledge Management Cycle and Knowledge Management Models. In addition, students will be able to describe how valuable individual, group and organizational knowledge is managed throughout the knowledge management cycle. This course will equip the students with the skills to define the different knowledge types and how they are captured and stored, to identify some of the key tools and techniques used in knowledge management applications, to evaluate major KM issues such as knowledge ownership vs. authorship, intellectual property and knowledge sharing incentives, and to know the major roles and responsibilities in knowledge management implementations.

MISY 925 Public Information Management (3)
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.

MISY 926 Strategic Management of Information Technology (3)
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.

MISY 927 Technology and Operations Management: Creating value (3)
The course explains the design, management, and development of technology and operating systems. It explores a diverse quantitative problems that occur often in the

business environments. It discusses how such problems can be properly solved with a join business insight and technology tools. Topics such as capacity management, service operations, organized decision making, limited optimization and simulation are included. This course teaches the model of complex business situations and the tools to enhance business performance. This course offers an outline of the field of operations technology. A managerial perception is assumed and highlight is placed on the understanding of how technologies for manufacturing, distribution, and service developments are used for competitive advantage.

MISY 930 Business Information Systems & Technologies (3)
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.

INBS 910 Fundamentals of International Business (3)
This course provides an introduction to globalization and the cultural, economic, political and legal environments of international business. The course helps students understand international trade, the role of the government in trade and have an understanding of the international financial system. It will familiarize students with concepts of international strategy, marketing products in the international arena and international staffing policy.

INBS 911 International Financial Markets (3)
This course analyses the international financial markets. Topics include foreign currency, international money markets, banking, and capital markets.

INBS 912 International Law (3)
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.

INBS 913 Global Strategic Management (3)
This course examines 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.

INBS 916 Global Marketing and Strategy (3)
This course will study marketing and strategy from a global perception. It will focus on the results of international trade and the political, legal, financial and cultural situations on marketing join decisions. The course will help students understand the analysis and plan of marketing strategies for various international environments.

INBS 921 International Business Management (3)
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.

MGTN 901 Principles of Management (3)
This course features traditional management principles such as planning, managing, leading and controlling. Two textbooks will be utilized during the semester: one for theory and practical tactics of management, and another for self and other-awareness of people principles of management. Students will read and discuss the two texts and engage in classroom activities and business writing. There will be individual and group written essay and oral presentation assignments. We will include a review of Dual Motive Theory, understanding how brain functions of ego and empathy can impact behavior and relationships.

MGTN 902 Business Statistics (3)
With many unfamiliar concepts and complex formulas business statistics can be a confusing and demotivating experience for students that do not have a strong mathematics background. They can have trouble recognizing the importance of studying statistics and making connections between business problems and the statistical tool that can be used to solve them. This seventh edition of Business Statistics: For Contemporary Decision Making has been designed to provide students with better explanations and examples thus providing a smoother path to understanding and the ability to choose the correct techniques to apply for a given problem.

MGTN 903 Organizational Leadership theories (3)
The course will help the students to do an in-depth examination of the organizational leadership. This course will explain the principles and elements of the increasing organizational leadership concepts. It will discuss consilience leadership which introduces business leaders and changes the art of leadership to the science of leadership. Leadership theories are examined in the environment of the contemporary organization. The students will get the essential knowledge and skills to be efficient in the various organizational environments. Students will build an understanding of the work of the organizations and the leaders' roles at all levels to enhance organizational performance. In addition, the course will discuss human behavior in organizations, the role of leaders, and the developments of organizational change and progress.

MGTN 915 Organizational Teamwork (3)
In this course, students will learn and apply the skills required for effective teamwork that apply in many industries. This course provides the student with the opportunity to apply course concepts to organizations in the private, non-profit, and public sectors. It examines the role of teamwork in organizations including: the rationale for teams, communicating, effective team meetings, resolving team problems, motivating, collaboration and intercultural implications. We will read current periodicals, analyze case studies and source online material to gain a better understanding of organizational teamwork in the different sectors. Students are expected to participate in discussion and teamwork online. We will include a review of Dual Motive Theory, understanding how brain functions of ego and empathy can impact behavior and relationships.

MGTN 916 Principles of Public Relations (3)
This course invites students to learn the language of the field of public relations. Also, students will learn to distinguish between the field of public relations and its related fields: marketing, advertising, public affairs, publicity, and propaganda. Students will compile actual research data about a hypothetical public relations campaign. Students will apply basic public relations principles to case studies. For the final exam, students will deliver effective public relations presentations. Students must come to class with their computers. Submit your resume to the ITU EMS (ems.itu.edu) before the first class because you will be introducing yourself to your classmates.

MGTN 917 Non-Linear Strategies for Business Success (3)
This course is designed to give students an edge in tomorrow's hyper competitive business landscape revolving around entrepreneurship, innovation, and leadership. Knowledge of the underlying operating system of field engagement is key for tapping innovation, unlocking potential and activating the hidden drivers required to succeed. For decades researchers such as Stanford's William Tiller and Columbia's Brian Greene have been studying these unseen forces and their profound implications for everyday life. Successful next-generation leaders require practical strategies born of an understanding of these concepts of entangled fields, game theory, chaos theory, quibits and waves. Students will walk away with a new framework to use for their careers and personal lives. Moreover, students will discover how to leverage a new triple bottom line that benefits not only themselves, but the world.

MGTN 920 Production and Operations Management (3)
The course covers the transformation of product and service requirements into capacities, processes, and operating organizations. It consists of product design, production options, quality control, facilities location and design, supply requirements planning, and project management. This course will help students to understand theories, problems and methods applicable to the operations of various business organizations. The focus is on decision making in operational areas such as: facility conditions and use, control and manage resource inputs and outputs, types of transformation procedures, and performance evaluations.

MGTN 922 Quality Control Management (3)
This course focuses on the understanding of the effective quality management. It provides the quality basics, benefits of quality and quality philosophies. It also provides a basis approach to teamwork, team types, team building dynamics, to the analysis of continuous improvement. The problem solving process, and customer-supplier relationships are addressed in quality control management. The responsibility and roles of the leaders, including managers and facilitators is emphasized. The course discusses the methods of quality control and improvement tools. The key factors of the course are defining quality principles, and developing effective systems or processes for monitoring and improving quality control. Emphasis is on decision making and applications in quality improvement.

MGTN 923 Lean Six Sigma (3)
Six Sigma has been a proven methodology for solving problems in many of the business areas in many fields. The methodology helps in producing a high quality product or service, using techniques and principles that ensure excellence. The Six Sigma methodology incorporates many of the business, statistical, quality, and project management principles and practices with a goal of creating a systematic and data-

driven decision making environment. Many of the successful companies utilize the principles of Six Sigma to meet growing customer expectations and to deliver survive and excel in today's competitive marketplace. This course covers an overview of the Six Sigma principles, process, and implementation, and provides required information for taking six-sigma certification examination such as Green Belt/Black Belt.

MGTN 925 Impact of Intellectual Property in a Global Economy (3)
This course provides an overview of intellectual property law, including trade secrets, patents, trademarks, and copyright. Key objectives are to help students develop an appreciation for the importance of intellectual property as a key economic driver in the modern global economy and to assist them in developing competence in IP management, whether they are technology or business professionals.

MGTN 930 Strategic Operations Management (3)
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.

MGTN 935 Contracts and Purchasing Management (3)
According to the United States Bureau of Labor Statistics, the employment of purchasing managers, buyers, and purchasing agents is expected to increase 7% through the year 2018. This course addresses the expanding needs of private industry, local, state and federal agencies for professionally trained procurement and contract specialists. More specifically, this course provides an overview of the basic concepts and practices in procurement and contract management, with an emphasis on these activities in the small business environment.

MGTN 942 Critical Thinking Strategies in Decision Making (3)
This course applies corporate finance concepts and accounting tools to make management decisions. Students learn to evaluate organizational performance from accounting information, methods to evaluate financial alternatives, and create financial plans. Other topics include financial statements, concept of depreciation and inventory methods, cash flows, business valuation, working capital, cost behavior, cost allocation, budgets, and control systems. We will also discuss Dual Motive Theory in terms of Ego/Empathy, ethical/unethical behavior to understand how brain functions can impact human behavior and relationships.

MGTN 943 High-Technology Entrepreneurship (3)
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.
Gain an overview of the entrepreneurial process. Topics covered include: addressing new business opportunities, global trends, high technology, business model design, start ups, venture capital process and tools. This course will cover the basics of building a business plan to meet emerging needs. Concepts and techniques of social

entrepreneurship will provide the foundation for learning and communicating.
Bring your resume to the first class because you will be applying for a critical role on an entrepreneurial team. Topics that your team will address are a consensus choice among: • Case Studies • Principles Special attention will be paid to students' demonstration of successful presentation techniques. Dual Motive Theory: Student project: Consilience, Entrepreneurship and You is about the CEO in you. You represent a set of assets that you are in charge of – mental, emotional, informational and intellectual.

MGTN 944 International Management (3)
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.

MGTN 945 Pitching a Business Plan to Venture Capitalists (3)
Prerequisite: Department approval and completion of 27 units of the program
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 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 MGMT945 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.
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. Consilience and Entrepreneurship Outcomes (CEO): ACTIONS Framework

MGTN 947 High Performance Leadership (3)
What does it take to build a high-performance unit? The focus of the course is on individuals who are in 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.

MGTN 948 Project Management (3)
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.

MGTN 949 Organizational Theory (3)
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. We will include a review of Dual Motive Theory, understanding how brain functions of ego and empathy can impact behavior and relationships.

MGTN 950 Project risk management (3)
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.

MGTN 951 Business Communications (3)
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. We will include a review of Dual Motive Theory, understanding how brain functions of ego and empathy can impact behavior and relationships.

MGTN 952 Business Ethics (3)
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. We will also discuss Dual

Motive Theory in terms of Ego/Empathy, ethical/unethical behavior to understand how brain functions can impact human behavior and relationships.

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.

MGTN 966 Managing Emotions, Managing Self and Others (3)
This course will describe the aspects of Emotional Intelligence and managing yourself and others, starting with self-awareness, empathy, and regulating emotions for self and others to sustain healthy and authentic relationships. Other aspects include positive and negative emotional contagion, EI's effect on morale, leading and professionalism. We will include a review of Dual Motive Theory, understanding how brain functioning of ego and empathy can impact behavior and relationships. Finally the class will study evaluations of cognitive, emotional and social competencies and scholarly research showing how humans flourish.

MKTN 950 Entrepreneurial Marketing (3)
This course provides entrepreneurs with an understanding of marketing for new and small enterprises. It addresses marketing strategies. 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.

MKTN 951 Competitive Marketing Strategies (3)
This course presents ways of finding new marketing opportunities and enhancing marketing performance. Competitive marketing strategy describes how firms identify opportunities to create customer value and communicate this value efficiently. The key issue is to understand the drivers of greater customer and creating competitive advantage in the marketplace. The course explains the efficiency of strategic marketing decisions. 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.

MKTN 952 Supply Chain Management (3)
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. A comprehensive study of the concepts, processes, and strategies used in the development and management of global supply chains. Supply-chain management (SCM) is a systems approach to managing the entire flow of information, materials, and services from raw material suppliers through factories and warehouses to the final end-customer. Specific topics include global supply chain management, procurement, electronic commerce, information technologies, and logistics activities. SCM represents a philosophy of doing business that stresses processes and integration. This course will be taught through the use of textbook materials, outside readings, and case analysis. Overview of technologies for SCM will be discussed with focus on SAP SCM solution. Benefits of technology for the companies to run their Supply Chain in global environment.

MKTN 953 International Marketing (3)
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.

MKTN 954 Marketing Research (3)
This course introduces the methods for collecting, analyzing, and interpreting data relevant to 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.

MKTN 956 Comparative Studies of MNC, FDI, and International Trade (3)
Close linkages between ITU's offerings and the current needs and technologies of industry through active involvement with Silicon Valley leaders. 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. Proficiency in public speaking, technical writing, and critical thinking are integral parts of degree requirements. The course emphasizes technologies and studies pertaining to sustainability and environmental protection.

MKTN 957 Consumer Behavior (3)
The course focuses on how to assess customer behavior and interprets this knowledge into marketing strategies. Topics include customer satisfaction and dissatisfaction and 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. We will also discuss Dual Motive Theory in terms of Ego/Empathy, ethical/unethical behavior to understand how brain functions can impact human behavior and relationships.

MKTN 958 Marketing Management (3)
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.

MKTN 961 E-commerce (3)
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. Fundamentally this ecommerce (ebusiness) course is designed for learners who want to become proficient in understanding the business transactions on the Internet. Students study how to integrate the Internet into broader company marketing and strategy efforts including both the starting of an

ebusiness and the adding of an ecommerce element to an existing business or organization.

MKTN 962 Marketing with Social Media (3)
Marketing with Social Media is a course for current and would be entrepreneurs, startups and well-established enterprises big and small who want to learn how best to spend time in social media. Facebook, Twitter, LinkedIn, Google+ and, of course, the king of all social media, business blogging will be explored in this course. Discussion will be given to the pros and cons of each social medium with conclusions drawn on where best to spend time to get maximum ROI on time spent. How best to use social media to get real leads, real clients and real business will be at the heart of the course. Time will be spent on the developing the personality of the online marketer, Search Engine Optimization best practices and dynamic web site building and traffic generation. Real world case studies will be explored and theory will be put into practice to see what works and what does not.

MKTN 963 Advertising Strategy (3)
The course will teach the students the new world of Marketing Communication, and the importance of advertising and e-advertising. Topics include analyzing advertising campaigns, advertisements in a structured way, brand equity through advertising strategy, advertising effectiveness and creativity, and end-to-end advertising strategy campaign.

MKTN 965 Supplier/Seller Management (3)
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. We will also discuss Dual Motive Theory in terms of Ego/Empathy, self/other behavior to understand how brain functions can impact human behavior and relationships.

PMGT 904 Project Management & Leadership (3)
This course covers an overview of project management with an emphasis on Leadership, theory and practice. Through in-class activities and assignments, you will learn how to apply Leadership theory to realistic project management environments. You will develop a long-range plan for reaching your individual leadership objectives, so that when you leave this course you have a roadmap to help you in your leadership quest. You will be given self-assessment activities to help you understand your current leadership traits. One of the most important aspects of this course is that you will understand yourself from a leadership perspective.

PMGT 905 Project Management - Agile Approach (3)
This course provides you with the knowledge and tools to manage projects by providing an overview of the basics of agile project management. It provides the theory and core methodology you will need to manage projects or participate on project teams that are time sensitive and require agile project management principles. This course does not make use of any project management software application, but instead focuses on the

conceptual understanding that students need to know in order to successfully manage a project in a fast paced technical environment.

PMGT 912 Management of Organizational Changes (3)
The course covers the different reasons for management changes and presents the factors of organizational styles management. It is designed to show the diverse structure of Operation Management that rises upon strategic or drastic changes in case of mission achievement or crisis management. After this course the students will learns how to respond on requests of changes (RFC) that acquires in running certain projects or managing organizational operation.

ECON 920 Macroeconomic Theory (3)
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.

ECON 921 Microeconomics for Business Decisions (3)
Course examines supply and demand theory for consumers, firms, and industry. It studies consumer utility and demand theories, production, cost and profitability theories, and theories on market structure (perfect competition, monopoly, monopolistic competition and oligopoly) for decision-making as a manager. Course includes using econometric techniques and software package to estimate demand/cost equations and solve practical problems requiring microeconomic analysis.

ECON 922 Econometrics (3)
Prerequisite: Basic statistics, and one course in macro- or micro-economics
The course offers understanding and application of fundamental econometrics with highlight on the practice and less focus on advanced econometric theory. Econometrics comes within the economics knowledge that joins economic theory, statistics and mathematics. The course introduces econometric theory at the fundamental level to let students apply the processes with the use of real world information. The purpose of the course is to teach the students how to perform experimental learning in economics. Hence, the focus of the course is on practical functions.

ECON 923 International Economics (3)
This course examines basic principles and theories of international economics (the standard trade model and the Heckscher-Ohlin theory); international trade policies (tariff and non-tariff barriers); balance of payments, foreign exchange markets, and exchange rate determination; and the relationship between exchange rates, current accounts, and the economy as a whole, including fiscal and monetary policies in an open-economy.

EBUS 910 Executive Leadership (3)
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.

EBUS 917 Leading and Managing Change (3)
This class will focus on individual, team, and organizational leadership and will provide

students with the foundation for exploring and developing their own individual leadership style. Major areas we will discuss this term are leadership, values, ethics and decision making. Change and a leader's goal is to continually improve and look forward and provide the positive changes for the organization, being the visionary is critical to success in any organization, and a key attribute for any organizational leader.

EBUS 918 Regulation, Governance Ethical and Social Responsibility (3)
The overall goal of this course is to better prepare students to become responsible business leaders. In this class, we explore the relationship between business and society, and we argue that to create a business that will endure business leaders must take into account the needs of the broader society, as well as those of their employees, and other stakeholders.
The major areas of study in this class will include: Business Ethics, the Legal Regulation of Business, Corporate Governance, and Corporate Social Responsibility

EBUS 919 Finance for Senior Executives (3)
The comprehension of corporate finance entails an understanding of basic finance theory and financial institutions. An understanding of money, its value in relationship to risk, return, and cost of capital is invaluable. Moreover, financing sources from venture capital to IPOs play critical roles to long-term planning, mergers, acquisitions, and international financial management. With the evolution of the information and internet age, this course strives to offer the theory and future predictions of finance and its relation to the history, influence, and diverse forces from such institutions as government and politics, banking, securities, insurance, futures and other derivative markets. Students or learners will draw on their executive experience in the boardrooms and executive offices to compile perspectives and knowledge on financial markets and financial institutions, corporate financial functions, and practices. Students or learners will also review and examine American and International finance research journals internet articles, and the Shiller Text Irrational Exuberance (2009). Besides the Wall Street Journal, Barron's, Business Week, and Economist Magazine, a wealth of related sources of information will be derived from current news and articles. The goal is to look inside from the outside and vice versa from the perspective of a CEO or CFO. The theoretical and basic framework of corporate finance will be examined with different lenses to apply economic finance equations and theories. The texts will serve as the foundation of knowledge and vital reference. Chapter problem sets and related question will be posed throughout the course to confirm learned principles for the topics and outcome of the semester. Other requirements for the learning will include elementary algebra and advanced math concepts. Other skills which learners will develop in this course include: 1. Time management and preparation for EBUS919 term papers and review. 2. Quizzes and midterm assessments, final exam. Problem solving and analytical thinking. 3. Comprehension of corporate finance through understanding and knowledge based on journals, (e.g. Wall Street Journal) assigned reading from texts

MBAN 997 Research Methods (3)
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

MBAN 999 MBA Thesis (3)
Prerequisite: Department approval and completion of 27 units of the program
Preparation of independent research or thesis and defending it before a committee composed of a number of faculty designated by director of the MBA program.

Doctorate of Business Administration

DBA 810 Management Practice and Organizational Behavior (3)
This course discusses individuals and groups behavior within organizations. It focuses on leadership, team creation, change management and ongoing enhancement processes. Topics consist of change business practices and development, decision making, needs and incentive, interpersonal communications, human knowledge, morale, ethical and the value of work life. The students will learn essential, inventive and pioneering proficiencies in day-to-day financial, prepared, realistic and decision-making international economy. They will also learn how to build up theories, views and principles of organizational behavior to study difficult conditions, recognize problems and distinguish important achievement issues. In addition, they will understand how to assess resolutions and build up proper suggestions. We will include a review of Dual Motive Theory, understanding how brain functions of ego and empathy can impact behavior.

DBA 811 Advanced Managerial Economics (3)
This course discusses Managerial Economics and Foundations of Management, and seeks insights from economics with current communications of approach in management. The course will be arranged in four topics: (1) Organizational economics and management, (2) Competitive approach, (3) Joint relationships among firms, (4) Strategy in the current world economy. Topics also include an analysis of the application of economic methods to the decision-making issues of managers in private and public organizations; purposes of business institutions; capital budgeting; theories of competition; costs and revenues; applying microeconomic practice and study to improve managerial decision-making.

DBA 812 Seminar in the Sociological and Psychological Principles of Management (3)
This course discusses various approaches to management as they progress from different topics such as, psychology, sociology and anthropology. Topics consist of entry into the institution (staffing, selection, education, socialization); managerial psychology (incentive, manners, management); and efficiency in the workplace (value of work, performance evaluations, absenteeism, revenue). The study of the sociological and the psychological suppositions and suggestions of different hypothesis of management and leadership is discussed. Discussed subjects include choosing and training workers, varying the behavior of managers, and persuading organizational methods. We will also discuss Dual Motive Theory in terms of Ego/Empathy, self/other behavior to understand how brain functions can impact human behavior.

DBA 813 Leadership Behavior and Motivation (3)
This course examines theories of action and of motivation as they relate to discourse and ethical behavior, and explores their application to everyday activities in business. Course discusses theoretical and practical aspects of motivation and action on the individual, group, and organizational levels. Moving beyond conventional positivist treatment of organizational and ethical behavior, this course focuses on an interpretive

approach that integrates biological, anthropological, linguistic, philosophical, and systems perspectives in a trans-disciplinary fashion. We will include a review of Dual Motive Theory, understanding how brain functions of ego and empathy can impact behavior.

DBA 814 Seminar in Special Topics in Marketing (3)
The course explain the principles, theories, and practice of the marketing purpose. The students will learn problem-solving methods for useful application through cases and techniques, and will study contemporary developments in marketing from educational and practitioner viewpoints. The course concentrates on the marketing purposes; recognition of consumer and organizational needs; clarification of economic, sociological, psychological, and global problems; and explanation and study of the value of marketing research.

DBA 815 Leadership and Ethics (3)
This course examines theories and applications of leadership and business ethics. Course reviews traditional leadership and ethical theories, discusses organizational leadership-ethics models from individual and systems perspective. Course analyzes specific common ethical problems encountered in business at the individual, manager, and organization levels. In addition, students will be introduced to critical hermeneutic participatory research conversations as a qualitative research approach for problem analysis and decision-making in the leadership-ethics field.

DBA 816 Seminar in Strategic Planning in Human Resource Management (3)
This course addresses in detail current human resource philosophies, guidelines and practices that concentrate on single areas of ability management in a diversity of organizational surroundings.

DBA 817 Philosophies and Concepts of Total Quality Management (3)
This course discusses the historical creation of quality assumption and practice; studies quality planning methods; emphasizes the value of getting organization dedication to quality standards; studies efficient quality control methods; explains the effect of successful Quality Management on organizations. This course also explains the theory and importance of Total Quality Management and to relate the quality management standards to current and future operations management philosophies. Topics include quality assurance, strategic quality development, statistical quality control, employee participation, customer fulfillment, supervision and study of quality data, and ongoing improvement.

DBA 820 Seminar in Accounting Information Systems (3)
Students examine the financial methods and models. Financial analysis software is an essential part. Students will get skill using financial analysis software while finishing assignments. The course focuses on resolving realistic issues. Students will know the application problems using financial analysis software, write abstracts on financial articles, and do a proficient project studying a company’s financial statements. The course focuses on the application of financial and non-financial data to a broad choice of business decisions. A range of financial decision-making devices will be used in the study of these decision-making procedures. Problem recognition, study, and decision are applied to present unsolved useful and specialized business issues.

DBA 821 Seminar in Auditing (3)
This course introduces auditing. Topics consist of the discussion of auditing purpose, audit standards, the process of auditing, audit planning, the collection of audit data, audit reporting, and current developments in auditing. A study of the topic of auditing is focusing on the audit of financial statements used for external reporting. Topics also include expert ethics, internal and prepared auditing, and assurance services. A study of an independent auditing with a concentration on audit planning, risk assessment, internal controls, evidence, audit reports and professional responsibilities is considered.

DBA 822 Current Issues in Accounting Research
This is an interdisciplinary course. The readings draw from finance and economics (market effectiveness, bounds to arbitrage, and behavioral finance); and from the accounting literature (equity estimation, earnings management, and analyst behavior). In addition, the course will concentrate on present issues in accounting research. The topics include accounting history, ethics, and international accounting.

DBA 823 Seminar in Corporate Finance (3)
This course discusses financial decision making in the current corporation. Topics include credit procedures, financial operation, transaction financing, corporate venture, corporate resources of funding, capital budgeting, capital structure, financial risk management, dividend guidelines and corporate conditional claims, and international finance. Theories are incorporated into the standard concepts of risk and return, evaluation of assets and market structure. In addition, the course studies financial procedures related to corporate financial decision making and the forms of short-term and long-term financial decisions made by managers.

DBA 824 Seminar in Investments (3)
This course explains the student's knowledge of finance related to investments, asset pricing and the appropriate research methods. The course also discusses the student's endeavor to publish in a refereed journal. The academic research cover the areas of portfolio concept, equilibrium and arbitrage pricing forms consisting of mergers and acquisitions, corporate hedging, capital asset pricing model (CAPM), and efficient market hypotheses (EMH). A summary of securities and their analysis is presented with a focus on basic theoretical models such as risk and return.

DBA 825 Multinational Business Finance (3)
This course studies the international financial situation within which international and financial institutions work. It also explains the concepts and practices of global financial management. Currency options, forwards, futures, and operating exposures are taught to help students build up main proficiencies in running transaction exposures to exchange rate risk. In addition, the course explains global financing plans, interest rate tools such as futures, options, and swaps, which describe international investment strategies. The aim of the course is to teach students to assess the global financial and monetary structure, to examine and resolve issues occurring in the global financial functions of a firm, to utilize the theories of exchange rate and interest rate risk management and to create global financing and investment strategies.

DBA 830 Management Practice for the International Institution (3)
This course observes global institutions arrangements and purposes, parts of strategic planning, proper control; business and government affiliations, strategic agreements, and problems such as global agreements. The course will study legal problems related

to increasing body of global institutions that reflect the interdependence of current world business. Such institutions are the United Nations, the World Trade Organization, the International Criminal Court, and many other local entities. The Management focus provides managers with the conditions required to both recognize and work within the emergent global setting of current institutions. It is very important to understand the results of strong global competition in home markets, the chances existed abroad, the consequences of currency instabilities and global capital movements with the issues and chances available by the different languages and cultures.

DBA 831 Seminar in International Business (3)
The course shows how global business is different from carrying out business within nationwide boundaries. The seminar will develop both a historical and contemporary viewpoint of international business management: the development of the regulation, determining theory and research, hypothetical viewpoints that continue to influence global business management performance, and the application's understanding of the hypothetical answers in a business enterprise. In addition, the course reviews the legal systems in many countries, which have impacted the business conducted in those countries.

DBA 832 Seminar in International Marketing (3)
This seminar develops marketing theories and competencies in international context. The course also discusses marketing instruments and research in global context. Students will know how companies apply their marketing procedures, while defining the risks and chances of global marketing. Students will study the present economic, political, and social forces in world markets, and how they have negatively changed the surroundings of marketing in such markets. In addition, the course covers the study of the creation of product, promotion, pricing, distribution approaches proper for international markets, sales management, and research in terms of company concerns and opportunities.

DBA 833 Seminar in International Finance (3)
This seminar studies global monetary economics and finance. The focus is on the learning of worldwide monetary and financial agreements, the financial area, and financial volatility and monetary and fiscal policy problems. Topics consist of problems, such as, exchange rate instability and its effect on the actual and financial segment, currency runs, overseas liability, capital flows, and international portfolio option; World Bank and IMF rules and problems regarding financial market; worldwide financial rules; and global financial planning.

DBA 834 International Macroeconomics Analysis (3)
This course concentrates on the study of the forces that form the U.S. global stability of payments. It will provide an analysis of the effect of U.S. expansion and U.S. inflation on home and overseas interest rates, trades in, sales abroad, the dollar’s rate related to foreign currencies, and the net flow of wealth involving U.S. and other countries. The course studies the application of macroeconomics instruments to the decision making practice in the world economy. Topics consist of expenditure and investment theory, government expenses and budget deficits, asset pricing, the propositions of global capital market incorporation, expansion, price increases, guidelines integrity, actual and nominal exchange rate.

DBA 835 International Human Resource Management (3)
This course discusses human resource management areas such as recruitment, education, reward, and labor in terms of doing business on international level. The course explains the goals, roles of personnel programs. Topics, such as training and development, job examination, salary administration, performance evaluation, corrective structures, safety and health are discussed. The course discusses the political, economic and social reasons that affected the global human resource management. Students will identify the human resource challenges and chances that impact international enterprises, and they will assess global human resource management strategies and policies.

DBA 836 International Information Technology Management (3)
The course explains the usage of technology in developed and developing countries. The course will review the use of technology as a deliberate and strategic competitive advantage. It will discuss precise transnational problems in implementing and using of technology including cross-cultural explanations of technology; the result of infrastructure on technology; and the accomplishment of difficult information technology projects in various countries.

DBA 840 Emerging Issues in Organizational Behavior and Human Resources (3)
An organization consists of a purpose, people, a structure, a vision and objectives. Therefore the science of organizational behavior (OB) came to understanding how individuals and groups behave, react and communicate in the framework of an organization. Topics of organizational Behavior includes topics such the organizational theory, individual behavior, motivation, team & groups dynamics, Management & leadership, organization structure and organizational culture. We will also discuss Dual Motive Theory in terms of Ego/Empathy, self/other behavior to understand how brain functions can impact human behavior and relationships.

DBA 841 Economics and Public Policy (3)
This course discusses the concepts of prices and markets and studies macroeconomics government rules that affect the business decisions. It looks at the hypothetical origins of competing rule options in subjects such as fiscal and monetary policy, international trade, antitrust regulation, and taxation. In addition, it evaluates the insinuations for business decisions of different government laws as they affect the efficiency and overall work of the private sector. The course studies the difficult boundary between the public and private sectors in the current American society, in a comparative context, both historical and international. Real world case studies offer students with a realistic understanding of the methods for organizing business-government relations at the local, state, federal, and international level.

DBA 842 Organization Design (3)
The Course discusses the Management Training Program to plan the view for enhancing managerial decision making. Organization design is a major resource of competitive advantage. Building an efficient organization structure and deliberately supporting organizational structures to sustain business strategy and results in, lower costs, enhanced customer happiness, faster time to market, better capability to adjust to changes in the market, and increased efficiency. The content clarifies how environmental features, strategic options, and technical causes impact the design of organizations. It consists of an explanation of four conventional organization designs - practical, place, product, and multidivisional -, and of four newer designs - environment,

international, network, and virtual.

DBA 843 Corporate Planning and Environment (3)
The course discusses corporate responsibility and accountability of companies' environmental impacts. It studies the different drivers for corporate responsibility and the function of corporations related to the environment. The course explains the nature and efficiency of corporate answers to environmental accountability and the function of strategic planning in accomplishing outcomes. This course concentrates on the problems of building a strategic corporate planning form for an organization. Topics consist of distinctions among the function of internal and external data bases; modeling, planning and forecasting; and establishing measures of efficiency.

DBA 844 Legal Issues for the Modern Institution (3)
This course concentrates on the study of the legal procedures, trends and suggestions of rules, laws and latest court decisions affecting business. It will conduct survey and comparative study of the legal structures of nations contributing into global finance, trade and commerce. In addition, the course teaches students the political, legal and regulatory management that describes, support and limit business practice chances. There will be an emphasis on basic interactions of politics, law, ethics and corporate social accountability. Topics consist of basis of business ethics; business and the legal structure; law of private business behavior; possession and control of business; trade practices and consumer safeguard; and the official environment of global business.

DBA 845 Seminar in Organizational Behavior Research (3)
This course focuses on the organization's capability to compete over the long term. It discusses individual, group, and organization involvements raising efficiency and quality, enhancing competitiveness, increasing proficiencies, improving morale, and renewing dedication to employee participation. It will include both the scientific and systems view of behavioral science knowledge. We will include a review of Dual Motive Theory, understanding how brain functions of ego and empathy can impact behavior.

DBA 846 Seminar in Special Topics in Operations Management (3)
This seminar incorporates the assumption, study and practice of processes and technology management with a concentration on the use of technology structures into manufacturing and service related procedures. Students will discover the basic problems and current developments of processes management along with theories of technology and data transfer. The theories will be used in the assessment of the study and application of developing operations theories and methods, efficiency and competitiveness programs, planning and execution of operations and technology structures in defining the work of the organization.

DBA 847 Seminar in strategy and innovation (3)
This seminar introduces the innovation of new technology to build new business forms, products, and services. The course demonstrates that innovation is accountable for the stable enhancement in consumers' normal of living all over history. Essential innovation makes new markets and enhances the value of products while decreasing prices. Firms as leading the innovation have a tendency to control world markets and support the global competitiveness of their own economy. Therefore, innovation contributes to firms' achievement, economic expansion, and consumer wellbeing. This seminar will help students to understands the problems, challenging perspectives, research techniques, main answers, and unanswered issues in the area of innovation strategy.

DBA 848 Leadership Behavior and Conflict Resolutions (3)
This course studies conventional theories that leaders utilize to analyze and effectively resolve conflicts that arise on an interpersonal and organizational levels. In addition, new conceptual approaches are discussed that emphasize creativity, identity, and meaning-making within a critical hermeneutic framework, linking linguistic, cultural, philosophical, and ethical elements; and enable new strategies for negotiation and conflict resolution within business and community settings. The critical hermeneutic participatory research conversation will be the preferred approach used for its capacity to reframe situations, reach new understandings, and generate new possibilities in conflict resolution.

DBA 850 Technology, Innovation, and Entrepreneurship (3)
This course discusses the function of technology and innovation of competitive business. Students will learn processes for developing and maintaining managerial change and innovation with methods for managerial design and learning. In addition, the course discusses problems with a variety of phases in the entrepreneurial procedure. Topics, demonstrated by case studies, consist of new venture formation, marketing requirements, the business plan, ethics issues, economics of the business and financial support sources. The course also teaches students how to outline research questions focusing on the origin causes of general issues in innovation.

DBA 851 Managerial Applications of Information Technology (3)
The course teaches students file organization, information systems, hardware, software, database concepts, and data communications. In addition, the course will discuss the theory of a database and database management systems to design databases; store and recover data; show data and create reports in different business information practicing applications. Designing and implementing web pages using HTML and incorporating information in a web page are explained. Assignments examine how technology is altering the way communication is conducted, decisions are made, people are managed, and business procedures are improved. Students access the Internet to collect data, and study business decisions using decision support techniques.

DBA 852 Networking Concepts and Applications (3)
The course concentrates on plan, building and operation of a data communications structure and computer network, and highlights data distribution. The course consists of important parts of networks with hardware, software and interfaces. In addition, the course explains the networking field. Topics incorporate local-area networks, wide-area networks, network terms and protocols, router programming, Ethernet, OSI model, cabling, IP addressing, and network standards. At the end of the course, students will be able to achieve tasks in relation to language, networking mathematics, and forms, media, Ethernet, sub-netting, and TCP/IP Protocols.

DBA 853 Managing Software Development Projects (3)
This course explains basic software project management methods. Students will learn contemporary and conventional software development methods and policies. The course also discusses the mathematical and instinctive processes used to establish the most possible plans and designs for difficult and large scale structures and projects. Focus will be on the theory and methods of directing and controlling sources for a fixed term project founded to accomplish particular objectives and goals. Students will learn the newest methods for scheduling, estimating and budgeting, selecting proper work techniques, examining and controlling, and development reporting of real results against founded

budgets.

DBA 900 Writing and Research Methods (3)
This is a doctoral level course. This course brings together knowledge gained from core areas in business and will help you perform research in these topics and thereby provide the foundation to become academic researchers capable of contributing on the cutting edge of research in business areas, particularly within your area of expertise and your research interests.

DBA 901 Quantitative Research Analysis (3)
The course offers topics in survey and experimental design and data; statistical analysis including variance's analysis, multiple regression, linear model, and factor analysis; and time series study. Students will learn how to understand the statistical results included in academic papers and articles. In addition, they will learn how to relate these techniques using statistical software through practical analysis of research data sets.

DBA 902 Qualitative Research Analysis (3)
This course provides you with the doctoral level principles of social science / business practices research and the relationship between theory and methods. Particular attention will be placed on qualitative research methodologies. Topics that will be covered include conceptualization and measurement, ethical research techniques, survey design, content analysis, and field studies. Course assignments will be used to apply the methods learned and complement the theoretical knowledge gained from the lectures.

DBA 910 Special Topics in Research Techniques (3)
This course provides knowledge and proficiencies related to development-oriented business research. Students will study advanced research processes, which will teach them statistical methods, and study of qualitative data. In addition, it covers important research project development, including creating topic, problem statement and explained bibliography, review and creation of literature, gathering of information, study of data and understanding. The course help students look in detail at data gathering methods, measurement tools, example processes and data analysis methods.

DBA 911 Management and Organizational Theory (3)
This course invites you to discover the most progressive thinking about organizations with proven classic theories and effective business practices. The course will provide students and prospective managers with the opportunity to examine contemporary organizational designs and theories, and to focus on companies that are successfully using these design concepts in a highly dynamic environment. Students will also examine, diagnose and solve real-life organizational problems using current organizational situations.

DBA 912 Management as a Behavioral Science (3)
The course offers an applied methods course in behavior management and self-control. Students acquire techniques for the management of both positive and negative behaviors in themselves (behavioral self-control) and in others (behavior management). Cognitive methods are included, as well as techniques for self-control of emotions and teaching emotional self-control to others. This course introduces students to the dual motive theory, and to the field of management, focusing on principles and concepts applicable to all types of organizations. The evolution of functional and behavioral aspects of management and organizational theory are presented in the context of

political, societal, regulatory, ethical, global, technological and demographic environmental forces. The course also discusses the analysis and application of group dynamics, motivation theory, leadership concepts, and the integration of interdisciplinary concepts from the behavioral sciences. We will include a review of Dual Motive Theory, understanding how brain functions of ego and empathy can impact management behavior.

DBA 913 Emerging Issues in Marketing Management and Research (3)
This course is designed to expose DBA/PhD students to the cutting-edge advanced research topics in marketing in order to help them to define and advance their research interests. The course is designed to help DBA/PhD students candidates develop both an appreciation for the intellectual growth of marketing as an academic discipline and a set of skills related to the practice of marketing management. Students will be exposed to the role of marketing in a modern organization and, through the use of case, seminar, and market assignments, will develop skills in planning and executing marketing programs. Students will examine the intellectual underpinnings of marketing as a discipline by examining the development of marketing theories from both a historical as well as philosophical basis. In doing so, they will also be exposed to the basic issues involved with doing scientific research in the social sciences.

DBA 914 Emerging Issues in Strategic Decision Making (3)
This is a doctoral level course. This course brings together knowledge gained from the various functional areas in business administration in ways that will enhance your strategic decision making skills, both at the personal and organizational level. Students will be expected to bring current case studies and or readings to each class meeting in order to discuss the most current and salient points of strategic decision-making. This course also reinforces the following overarching, integrative doctoral program outcomes so that at its completion all students will be able to: 1) Demonstrate high level proficiency for problem solving, decision-making, self-directed learning, coaching, mentoring, and critical thinking skill applications in organizational settings when interacting in a leadership capacity; 2) Utilize the appropriate theoretical foundations and contributions of strategic decision-making researchers when actively participating in the development of strategic business planning; 3) Understand the use and application of statistical measures for strategic decision-making contributions to overall organizational productivity. 4) Conduct doctoral level research for making life-long contributions through publication and conference presentations in the integrative discipline of strategic decision-making. 5) Demonstrate capability to electronically locate, retrieve, and integrate strategic decision-making information resources.

DBA 915 Creativity: A process-oriented approach (3)
This course explores the process of creativity and invention by reviewing the way creative people work and live. The approach is multi-faceted and involves introspective reports, descriptive interpretation, and analytical accounts. During the review phase, the course attempts to cover the wide range of views on creativity and invention. During the later phase, the students will learn how to be more creative. The teaching approach will include lecture, discussion, student journals, group activities, and projects. Students' performance will be evaluated based on their eagerness to learn and apply the concepts and principles to their own fields.

DBA 916 Innovation and Creativity: Culture of Group Dynamics (3)
The main objective is to explore mechanisms of innovation in the social setting, and

especially in working environment. Research overview will cover characteristics of the creative process from various perspectives. Applying principles of group dynamics and Creativity Signposts, the students will fashion appropriate action plans for cultivating innovative situations. We will also discuss Dual Motive Theory in terms of Ego/Empathy, self/other behavior to understand how brain functions can impact human behavior.

DBA 917 Conflict Resolutions (3)
This course introduces the student to Conflict Resolution. This course focuses on conflict theories, methods of conflict management, exams case studies using contemporary and historical perspectives and analyzes conflict. Upon completion of this course students will be able to map out and analyze a conflict situation using theoretical concepts and frameworks. Course assignments are used to apply the methods learned and complement the theoretical knowledge gained from the textbook, case studies and lectures. We will also discuss Dual Motive Theory in terms of Ego/Empathy, ethical/unethical behavior to understand how brain functions can impact human behavior.

DBA 918 Creativity as a Linguistic Process (3)
This course examines human creativity from a philosophical and linguistic perspectives, using the metaphor, writing, and action as text, as the heuristic process tied to creativity in the context of business. Starting with Saint Augustin's concept of time, Aristotle's mythos and mimesis, and ending with Ricoeur's dynamic concepts of emplotment and mimeses, the course examines forms of imaginative practices in the human sciences that constitute the intermediary steps in the process of understanding and creativity. Interpretation is discussed as an intermediary between surface meanings and depth meanings (creativity and innovation), and as an ontological act (of appropriation) in which the thinker must go beyond logical knowing and commit to re-understanding existing values and history on a personal, interpersonal, and institutional levels, and to project into the future. Practical applications of how creativity works, through analysis of videos, business plans, financial reports, statistical models, scientific, models, and critical hermeneutic participatory research conversations, are used as media through, by, and in which new actions can be delineated and transposed from a fictive to a concrete reality in a variety of business and educational situations.

DBA 920 Emerging Issues in Financial Decision Making (3)
The course looks at current financial theories and their applications. Financial Decision Making concepts teach students key skills required for financial management joining strategic decision making theories with daily management decisions. Financial Decision Making is important to on-going development of every organization in the industry. The efficient financial management of firms, large or small, private or public is critical to the growth and financial health of any economy. Topics include three key decisions facing business: Investment, Financing, and Dividend. These topics will include: risk and return, financial decision making, project evaluation, measurement of securities and of the organization, cost of capital, a study of leverage, capital structure and dividend policy.

DBA 925 Seminar in Organizational Behavior Research with emphasis on Leadership (3)
This course presents a comprehensive, integrative, and practical focus on leadership in new era organizations. It is based on an organizing framework which shows how key components work together to form a holistic view of leadership within organizations. The course presents definitions and new perspectives of leadership that have emerged in a

global era. It provides students the opportunity to review major concepts and theories of leadership; an exploration of the historical underpinnings and current concepts and practice of shared leadership; the impetus for organizational leadership; leadership and culture; inclusion; capacity-building and leadership development; and finally, the new responsibilities of organizational leadership through social activism.

DBA 930 Seminar in Special Topics in International Business (3)
The course discusses the theory and process of building up and realizing approaches for getting competitive advantage in the international business environment. Students will gain knowledge in the fields of strategic management and global business. In the development of the study of this hypothetical work, students will also consider a diversity of empirical methods used to study the global competitive strategy practice. Students will discover the speeding up globalization of industries, and regionalization of competition, that at the same time make easy and delay the creation and accomplishment of strategies internationally.

DBA 940 Seminar in Administrative Policy and Administration (3)
The course discovers the function of public administration in current society by way of observing its hypothetical basis, ethical problems, and political environment. Topics include theoretical study and analysis of administration; the development of management theory and its following function in the public sector; managerial design, manners and change; decision making forms and active group; public administration and policy practice; the principles of public service; administrative management; and the official basis of public administration.

DBA 950 Operations and Information Technology Management (3)
The course covers the fundamental theories, principles, and issues related to the operations and management of information technology in support of the firm's business processes. You will explore the role of information technology and systems in contributing to the productivity and competitiveness of business enterprises and in enabling organizational restructuring as needed. You will explore and critique current body of knowledge, the information technology literature, and research methods.

DBA 990 Doctoral Dissertation (1 to 6 units)
Students may start their dissertation research only after completing all required coursework and passing the Qualifying examination. Students will organize, prepare, present and defend their completed DBA dissertation paper.

MASTER OF SCIENCE IN SOFTWARE ENGINEERING

AMN 910 Linear Algebra
Prerequisites: Knowledge of C or Java.
Units: 3
This course covers the algebraic basic concepts of matrices and matrix operations, determinants, systems of linear equations, Gauss elimination, LU decomposition, vector spaces with inner product. Change of bases, transformations. Gram-Schmidt orthonomalization. Meaning and purpose of eigenvalues, eigenvectors and algorithms for computing them.

AMN 912 Applied Mathematics Methods
Prerequisites: AMN 910
Units: 3
This course is intended to provide introduction and accessibility to ordinary and partial differential equations, linear algebra, vector analysis, Fourier analysis, special functions, and eigenfunction expansions for their use as tools of inquiry and analysis in modeling and problem solving.

AMN 920 Optimization Techniques
Units: 3
Basic concepts, unconstrained optimization, linear programming, simplex method, degeneracy, multidimensional optimization problems involving equality or inequality constraints by gradient and non-gradient methods.

AMN 921 Advanced Optimization Techniques
Units: 3
Combinatorial optimization, Hopfield neural network model, Simulated Annealing and Stochastic machines, mean field annealing, genetic algorithms, Applications to: Tabu 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.

AMN 922 Advanced Applied Mathematics Methods
Prerequisites: AMN 920
Units: 3
This course has not been taught since the switch to Moodle in 2007. No related data are available in the EMS.

AMN 930 Numerical Analysis
Units: 3
Numerical solution of linear system of equations by direct method and iterative method, numerical least square problem, eigenvalue problem, numerical solution of non-linear systems of equations and optimization problem.

AMN 940 Discrete Mathematics
Prerequisites: Knowledge of C or Java.
Units: 3
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 combinatorics and discrete probabilities analysis and statistical quality control.

AMN 952 Probability & Statistics for Engineers
Units: 3
This course covers the fundamentals of probability and statistics, as well as some widely-used probabilistic models and statistical analysis methods for applications in the areas of engineering. Topics include probability axioms, random variables, densities, basic discrete and continuous distributions, sampling distribution and data descriptions, inferences on means and variances, one- and two-sample tests of hypotheses, linear regression, and analysis of variance. A free statistical computing and graphics software, R, will be used in this course.

CEN 943 Digital Image Processing
Prerequisites: Prerequisites: Knowledge of C or Java.
Units: 3
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.

CEN 951 Computer Architecture
Units: 3
This course focuses on principles of computer architecture, offering students an overview of computer systems, CPU design, computer arithmetic, instruction set architecture, pipelining, microprogramming techniques, memory hierarchies and management, input/output subsystem organization, and performance measurement. Its purpose is to prepare students to understand internal organization of computers and how it affects performance.

CEN 960 Computer Communication Networks
Units: 3
Overview, examples, ISO model, physical layer, delay analysis, data link protocols, point-to-point networks, multiple-access networks, local area networks, and selected topics.

CEN 996 Routing in Computer Networks
Prerequisites: The code for this course in the catalog is CSN 866.
Units: 3
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).

CS 810 Information Security Countermeasures
Units: 3
The course covers Cyber Ethics, Basic Network Terminologies, Information Gathering & Footprinting, various attach methods like Trojans, Backdoors, Viruses & Worms, Phishing & its Prevention; System Hacking & Security, Cryptography - the most important methods without going into mathematical details, Google Hacking, Secure

Coding Practices, Firewalls, IDS, Evading IDS, Wireless Hacking & Security, Bluetooth Hacking; Introduction to Cyber Crime Investigation & IT ACT 2000, Investigation Methodologies & Case Studies, Cyber Forensics.

CS 830 Cloud Computing Security
Units: 3
The Cloud Computing Security class provides students a comprehensive understanding cloud security fundamentals & advanced expertise in cloud environments. Starting with a detailed description of cloud computing, the course covers all major domains in the latest Guidance document from the Cloud Security Alliance, and the recommendations from the European Network and Information Security Agency (ENISA) with expanded material and extensive hands-on activities. Students will learn to apply their knowledge as they perform a series of exercises as they complete a scenario bringing a fictional organization securely into the cloud.

CS 831 Data Mining
Units: 3
This course provides an introduction to the theoretical concepts and practical applications of data mining. Data mining facilitates the extraction of hidden predictive information from large complex databases. It is a powerful new technology with enormous potential to help organizations and institutions extract and interpret important information. The course content includes the conceptual framework of data mining, descriptions and examples of standard methods used in data mining. Internet related data mining techniques are also covered. Data processing, statistical modeling, data warehousing and online analytical processing, data conditioning and cleaning, data transformation, text and web mining, mining massive datasets, data stream mining, data mining algorithms, association and correlation, pattern mining, classification, cluster analysis, outlier detection, knowledge discovery, knowledge representation, and validation.

CS 850 Big Data
Units: 3
The Big Data course will introduce the basic concepts, tools, techniques, and applications. This course will cover the most up-to-date Big Data Technology including Hadoop Distributed File System (HDFS) and MapReduce engine as well as Business Intelligence tools.

CS 901 Network & Data Security
Units: 3
The objective of this course is to provide the students with a sound knowledge of modern network security principles and techniques. Students will learn about modern cryptographic principles that are used to implement network security. The students will also learn about network perimeter security, anti-malicious software, and intrusion detection systems.

CS 920 Programming Paradigms
Units: 3
The course covers the fundamental concepts of programming languages, their design, their architecture, their purposes, and their unique properties. Students learn about the historical development of programming languages, starting even before Fortran. That development is traced through the Assembler period, the introduction of high-order

languages, and various approaches of language designers. The course takes a cursory overview of a large number of languages, but at least five languages will be studied in depth. At least one (possibly two) of those languages will be a functional language such as Lisp, Scheme, or Haskell. However, some other functional languages will be examined as well. The course also looks at C++, Java, Smalltalk, Ada, and Eiffel. If time permits, a unit on logic languages such as Prolog will be included.

CS 921 Semantic Web
Units: 3
Introduction to semantic web for inclusion of semantic content in web pages or special domain documents to make semantic searching (instead of pure keyword searching) possible. Subjects include XML, RDF, OWL, SPARQL, logical, ontology, linked data, semantic extraction, tagging automation, semantic inference, and search optimization.

CS 922 Natural Language Processing
Units: 3
Introduction to natural language processing including formal language theory, statistical methods, probabilistic models, hidden Markov models, computational linguistic, machine translation, speech recognition and synthesis, spoken language understanding, question answering, conversational agents, and human-machine interaction.

CS 925 Scala Programming
Units: 3
This course is an introduction to software programming using Scala, a programming language evolved from Java. The main advantage of Scala is its versatility. It has combined features of scripting language, objective oriented language and functional programming language. The last feature is particularly useful in Web and multicore applications that require concurrent data processing. Scala has been adopted by some leading high-tech companies. For example, in 2009, Twitter announced that it had switched large portions of its backend from Ruby to Scala and intended to convert the rest. To make learning easier, we will first introduce scala as a scripting language. We will then describe its objected oriented features (including class, object, inheritance, polymorphism, etc.) and finally move on to its main functional programming features (including currying, pattern matching, lazy evaluation, tail recursion, immutability, etc.).

CS 933 Machine Learning
Units: 3
Machine learning is a fast-moving field with many recent real world commercial applications. The goal of Machine Learning is to build computer model that can produce useful information whether predictions, associations, or classifications. The ultimate goal for many machine learning researchers is to build computing systems that can automatically adapt and learn from their experience. This course will study the theory and practical algorithms in Machine Learning. It reviews what machine learning is about, how it evolved over the past 60 years, why it is important today, basic concepts and paradigms, what key techniques, challenges and tricks. It also cover examples of how machine learning is used/ applied today in the real world, and expose students to some experience in building and using machine learning algorithms. This course will also discuss recent applications of machine learning, such as to robotic control, speech recognition, face recognition, data mining, autonomous navigation, bioinformatics, and text and web data processing.

CS 940 Web Security Fundamentals
Units: 3
This course introduces students to the fundamentals of computer security as the first step towards learning how to protect computers from hackers. The course begins by explaining the very basic concepts of computer security and provides substantial technical details to keep students interested and involved. It includes hands-on labs and graded and non-graded assignments for each unit that provide an opportunity to practice what the students learn. It also includes a few security games to make learning more exciting and interactive. Students are expected to be familiar with standard computer operations (e.g., login, cut & paste, email attachments, etc.) before enrolling in the course. This course will give students a clear vision on how all seven layers will work in IOS model and different levels of security in each layer.

CS 960 Introduction to Data Science
Units: 3
A practitioner of data science is called a data scientist. Data science leverage all available and relevant data to effectively predict a model that can be easily understood by non-practitioners. A major goal of data science is to make it easier for others to find and coalesce data with greater ease. Data science technologies impact how we access data and conduct research across various domains, including the biological sciences, medical informatics, social sciences and the humanities.

SEN 890 Data Structures
Units: 3
Definition, design, and implementation of abstract data structures, including arrays, stacks, queues, heaps, and linked structures. Structures include hash tables, trees, and graphs. Algorithms for manipulating theses structures, searching, and sorting, and the simpler graph algorithms; introduction to the analysis of some sorting and searching algorithms.

SEN 905 Ruby on Rails
Units: 3
This course offers a comprehensive introduction to Ruby on Rails, an open source web application framework for the Ruby Programming language.

SEN 909 OO Programming with C++
Prerequisites: Knowledge of C.
Units: 3
This class teaches Objected Oriented Programming using C++. A prior exposure to C is helpful but not required as the basic concept of C programming will be reviewed. The topics covered include: Syntax of C++, classes and objects, encapsulation, inheritance, polymorphism, design for reuse, programming with objects, the standard template library, namespaces, exceptions, type casting and file input/output.

SEN 910 HTML/CSS Programming
Units: 3
This course will examine how to create web pages using HTML code. The use of Cascading Style Sheets (CSS) will also be covered. Basic website development tools and website design will be studied though the creation of several HTML/CSS web site projects.

SEN 920 Computer Algorithms
Units: 3
Algorithm design, sorting, searching, graph algorithms, stacks, queues, and dictionary implementations, divide and conquer algorithms, dynamic programming, randomized algorithms, amortized analysis, lower bound analysis, NP-Completeness.

SEN 930 SQA/Software Testing Tools
Units: 3
This course introduces the QA with test methodologies and procedures. During the course, the students go through the Manual Testing and Automation of Client/server and web based applications. The course will quickly build through each of these concepts and configuration so that by the final day of class, each student will have fully tested the application manually and convert manual test cases into automation scripts. In doing so, the students will focus on different aspects and become acquainted with additional functions.

SEN 932 C# Programming
Units: 3
This course introduces C# as a programming language and as a platform for web and Win 8 mobile app development. We will talk about C# basics, like data type, variables, functions OOP using C#. Programming in C# for mobile Win 8 app development will be explored. Students will create a variety of programs and apps using C#

SEN 941 Software Engineering
Units: 3
The student learns the elements of engineering and the relationship of engineering to software practice. It also covers how those principles and practices apply to the design, development, and maintenance of software throughout the entire software lifecycle. The course introduces traditional and contemporary approaches to software engineering practice. These include: requirements development, architecture and detailed design, modeling, testing strategies, process selection, project management, how to interact with other engineers on large-scale systems, and more. This course includes a capstone team where students gain practical experience designing a software system from start to finish using software modeling techniques such as UML, as well as a variety of project management methods and tools. This is not a programming course, but a background in object-oriented programming (OOP) will be valuable in helping the student understand the demands of the capstone project.

SEN 942 Advanced Software Engineering
Prerequisites: SEN 941
Units: 3
This class goes into greater depth in learning the practices and principles of software engineering. The course also includes a brief review of some of the material from SEN 941. In this course, we expand our understanding of software modeling to include real-time, concurrency, and embedded systems software engineering. We also go into more depth in software metrics, project estimation techniques, risk management, software reliability, new and emerging directions for software development. This is also a team-oriented capstone project course, and one of the deliverables at the end of the semester is a fully-formed, professional level software design from the project team.

SEN 943 Software Risk Management
Units: 3
This course introduces the field of software risk management which includes the software estimation, planning and control process. Risk management in software includes critical factors that impact estimates, methods for selecting metrics and measures, proper software sizing, as well as processes that identify and manage risks in the software development process as well as the operational phase of the software life cycle. Risk management and software estimation and measurement, when used properly in the software engineering context expedite the software estimation process, help generate more accurate estimates, and contribute to safe and resilient software engineering projects. Risk techniques also mitigate safety and security issues and form a total software success paradigm for software development projects.

SEN 944 Software Refactoring
Prerequisites: SEN 941
Units: 3
Here is a definition by Fowler 1999: Software Refactoring is a change made to the internal structure of software to make it easier to understand and cheaper to modify without changing its observable behavior. Improving the design of existing code. Various techniques and refactoring patterns. 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 946 Software Requirements Elicitation
Prerequisites: SEN 941
Units: 3
Requirements Elicitation is the process of identifying the real problems that the software stakeholder tries to solve, of defining a system and its technical environment, and of identifying the requirements of that system such that it solves these problems for users, customers and other stakeholders. The objective of SEN 946 is to prepare software engineers for the task of developing effective requirements under a variety of development modalities. The student, at the conclusion of this course will understand requirements engineering for Waterfall, V-Model, Spiral Model, Agile Methods, Cleanroom Engineering, the [Rational] Unified Process, as well as other approaches. The student will also understand, and gain experience with, the Unified Modeling Language, including use cases and other facilities of UML. Finally, we will introduce the student to the concepts necessary to moving from requirements to architecture, to design, to implementation. This is not a design or programming course, but an understanding of the principles and practices of software engineering are essential for the software requirements engineer.

SEN 948 User Interface Design & Implementation
Units: 3
This course introduces the principles of user interface development and the iteration of design-implementation-evaluation. We will study the important design principles to design good UI. We will see different techniques for prototyping user interfaces. We will learn techniques for evaluating and measuring usability.

SEN 949 JavaScript Programming

Units: 3
This course introduces JavaScript as a programming language. We will talk about variables, data types, functions JavaScript OOP how to use JavaScript to access and manipulate BOM how to use JavaScript to access and manipulate DOM JavaScript event handling AJAX.

SEN 950 Software Architecture
Prerequisites: SEN 942
Units: 3
Every computer software system has an architecture, even if it is an ad hoc architecture. Modern software systems are larger, include more interoperability of their components, and often involve many programmers and engineers, working together to achieve a predictable design. When there is no coherent architecture for the design, the engineers and programmers often find themselves working at cross-purposes, constantly reworking their product to satisfy previously undefined requirements. This class is focused on the high-level concern of the architecture of a software system. Therefore, we will not be doing any computer programming. Our interests will include the requirements development, system context, and relationships between the various components and structures in a software architecture. At the end of this course you will be prepared to participate in a software (or systems) engineering project at the high level of development where we design the fundamental architecture for that system. You will understand requirements development, project strategies and tactics, patterns of architecture, and architectural styles and idioms.

SEN 951 Client Programming with JS/jQuery
Prerequisites: SEN 949 or previous programming experience in JavaScript
Units: 3
jQuery is a JavaScript library designed to simplify the client-side scripting of HTML. It is designed to make it easier to navigate a document, select DOM elements, create animations, handle events, and develop Ajax applications. The topics of the course include: Basic jQuery syntax, jQuery element selectors, jQuery event handling, Ajax using jQuery, jQuery UI library.

SEN 953 Compiler Design
Units: 3
This course is an introductory course on the design and implementation of compilers. It covers 4 main topics (1)The front end section includes scanning, parsing and context-sensitive analysis of the source program; (2) The infrastructure section provides the background knowledge needed to generate intermediate code in the front end, to optimize that code, and to transform it into code for a target machine; (3) The optimization section introduces optimizer, a compiler's middle section; (4) The code generation section includes instruction selection, instruction scheduling and register allocation.

SEN 954 Server Programming with PHP
Units: 3
PHP is one of the best server-side technologies for handling Web content easily and efficiently. PHP is a free, open-source language devoted primarily to handling dynamic web pages and used by millions of sites worldwide. It can be integrated with HTML and handle databases. The course starts with the development environment and the language syntax. It introduces the concepts of OOP in PHP at different levels. It also

covers the interactions with HTML web pages and databases. PHP Ajax support is introduced as the advanced topic. Practical examples and sample codes will be given. Upon successful completion of this course, students will gain hands-on experience with PHP syntax and constructs such as variables, arrays, strings, loops, user-defined functions and how to integrate HTML and PHP code to manage and process data.

SEN 956 The Unix Operating System
Prerequisites: Knowledge of C.
Units: 3
This course focuses on the practical usage of the basic Unix operating system features. It introduces the student to the general principles of modern operating systems: preemptive multiprocessing; and of Unix in particular: shells, environment, shell variables, processes, threads, interprocess communication, the Unix file system, and shell scripts. Upon completion of this course the student will be able to work efficiently in a Unix environment, to tailor an environment to specific needs, to understand the basiCS of Unix system administration, to understand security risks, to write C programs that use system calls, and to write scripts for the C shell.

SEN 957 GUI Development with Java
Prerequisites: SEN 964
Units: 3
Teaches the principles of Graphical User Interfaces (GUI) and develops GUIs using Java's AWT and Swing libraries. Knowledge of 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, considered by many as the best, simplest and most elegant of all GUI development tools and libraries. (Most Java GUI developers don't use any visual development tools, since the design and concept of Java's GUI libraries itself is so natural and easy to understand, that visual development tools become redundant). Teaches 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 Sen961 except for the language and component libraries used.

SEN 958 Android Phone Application Development
Prerequisites: SEN 964
Units: 3
Teaches the use of SDKs released by Google to facilitate the development of applications for the Android Phone. Android Phones are Linux based and are programmed in Java. This alone bodes very well for any software development on that platform: The Linux OS, the most powerful and easiest to manage of all operating systems, and the Java programming language with its superior GUI development capabilities. Knowledge of SDKs is certainly an advantage when developing for the Android platform.

SEN 959 Principles of Operating Systems
Prerequisites: knowledge of some programming language
Units: 3
This course covers the basic principles of operating system design and implementation. Topics include concurrent processes, inter-process communication, job and process scheduling, deadlock and various other operating systems concepts. Issues in memory

management (virtual memory, segmentation, and paging) and auxiliary storage management (file systems, directory structuring, and protection mechanisms) will also be covered.

SEN 961 Cloud Computing
Units: 3
Introduction to cloud computing, cloud architecture and service models, the economiCS and benefits of cloud computing, horizontal/vertical scaling, thin client, multimedia content distribution, multiprocessor and virtualization, distributed storage, security and federation / presence/ identity/ privacy in cloud computing, disaster recovery, free cloud services and open source software, and example commercial cloud services.

SEN 963 Python Programming
Units: 3
Programming and problem solving using Python. Emphasizes principles of software development, style, and testing. Topics include procedures and functions, iteration, recursion, arrays and vectors, strings, an operational model of procedure and function calls, algorithms, exceptions, object-oriented programming.

SEN 964 OO Programming with Java
Units: 3
This course focuses on the Java language as a tool for object-oriented programming. It introduces the student to the basic features of the Java language: primitive data types, terminal window-keyboard I/O, file I/O, classes, constructors and initialization, references vs. objects, access modifiers, memory maps, control structures, arrays, inheritance, function overloading and overriding, dynamic binding, interfaces, command line arguments, and exception handling. Some instruction to the platform-independent Java GUI API with Swing will be provided.

SEN 965 iPhone Application Development
Prerequisites: Knowledge of C.
Units: 3
This course provides a training in iPhone application development including: Introduction to Objective-C; iPhone technologies: multi-touch interface, accelerometer, GPS, maps, proximity sensor, dialer, address book and calendar. It helps students to understand the business aspects of an application development.

SEN 967 Web Programming with Ajax
Units: 3
This course provides a comprehensive introduction to AJAX, the most popular web technique for creating better, faster and more interactive and user-friendly web applications. The students will not only learn the basic concepts and the low-level implementation of AJAX technology but also be introduced a set of popular AJAX toolkits.

SEN 968 Design and Maintenance of commercial web sites
Units: 3
This course focuses on the basic concepts of setup, 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.

SEN 970 OO Programming with Objective-C
Prerequisites: Knowledge of C.
Units: 3
This course focuses first on teaching the Objective C language, its syntax, design, features, and capabilities, then on introducing the Cocoa Library, then on developing GUI applications using Interface Builder. Objective C is the principal language for application development on Apple's Mac OS X and iPhone. On the Mac OS it is used together with Cocoa (the NS class library) and on the iPhone together with the UI class library. The course teaches in detail the syntax and features of the language, supported by many programming examples, drill quizzes and homework. It will use the Cocoa API and the Interface Builder to develop example applications for the Mac with a graphical interface. It starts with development of OC programs on the command line. Later the X-code IDE together with the Cocoa library and IB will be used for development. No textbook is used for the lecture, instead the student is given lecture notes on this website, that explain the whole material.

SEN 982 Oracle Database Management/Administration
Prerequisites: None
Units: 3
This course introduces Oracle as a practical example of a widely used database system, teaches basic database concepts, data definition and manipulation languages (SQL), general architecture of database management systems, transaction management, concurrency control, security, distribution, and query optimization.

SEN 985 Artificial Intelligence
Prerequisites: Knowledge of some programming language.
Units: 3
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 networks, support vector machines and other learning paradigms.

SEN 986 Software Design Using UML
Units: 3
This course introduces the field of software modeling and design using a use case driven UML based method for the modeling, analysis, and design of software architectures including object oriented software architectures, client/server architectures, service oriented architectures, component based software architectures, concurrent and real time software architectures, and software product line architectures. This course provides a unified UML based approach to software design and describes the special considerations for each category of software architecture with extensive use of case studies. This course utilizes a UML based modeling and design methodology called the Collaborative Object Modeling and Architectural Design Method which is a highly iterative object oriented software development methodology that addresses the requirements, analysis, and design modeling phases of the software development life cycle. This course emphasizes both static and dynamic modeling, use cases, and sound architectural design patterns to ensure high software quality.

SEN 991 Computer Graphics
Units: 3
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.

SEN 992 Advanced Computer Graphics
Prerequisites: SEN 991
Units: 3
The course gives students hands-on experience and thorough understanding of the most important computer graphiCS principles. It uses Java and its built-in graphiCS capabilities to give the student programming experience in 2D and 3D computer graphics, coordinate transformations, linear 2D and 3D transformations, projections, 3D geometry; color computations, RGB and CMYK color systems, simulation of curved surfaces through Gouraud and Phong shading, hidden surface removal through the Z-buffer technique; also, some animation principles. Introduction to the most important Computer GraphiCS hardware.

SEN 993 Computer Graphics with WebGL
Prerequisites: SEN 991
Units: 3
HTML5, released in March 2011, brings with it a variety of enhancements, including enhancements to the JavaScript language and powerful 2D and 3D graphiCS capabilities. They consist of a library of function calls of the canvas element's rendering context that are embedded in JavaScript. Another feature is the use of shaders that are programmable portions of the rendering pipeline. These must be programmed in the OpenGL shading language.

SEN 998 Capstone Project
Prerequisites: Department approval and completion of 27 units of the program
Units: 3
A "capstone" is the summative component of the masters degree program submitted by a graduate student. The Capstone Project is designed to demonstrate the in-depth learning and higher-order thinking of the student. It is meant to be an analysis of knowledge, breaking the information down into its component parts, and also the synthesis of new knowledge, assembling the parts into a new coherent whole. The capstone is also meant to be practical and useful. The student should choose an area that is uniquely and personally important and research or perform a project in that area. The Capstone Project is performed by arrangement with the project advisor. The student must conduct independent research in an approved topic in software engineering, prepare a report and defend it before a faculty advisor.

MASTER OF SCIENCE IN DIGITAL ARTS

MMM 710 Digital Media Distribution
Units: 3
The business of media is distribution. It is the art and method of maximizing profits in the delivery and consumption of your work. But the business model and methods of media distribution now change and evolve at ever increasing rates. This course will expose students to industry concepts of networks, life-cycles, ultimates and windows, as well as how those concepts apply to new media such as VOD, apps, tablets, clouds and beyond. Upon completion, students will have an understanding of media business model fundamentals and be prepared to position themselves at the vanguard of the rapidly changing world of digital media distribution.

MMM 720 Producing Digital Media
Units: 3
The skills necessary to produce today's media are more demanding than ever. Whether it is movies, games, motion graphics, interactive apps and other new media, this class will help students apply universal business production processes essential to take a media project from concept to completion. Topics covered in this course include concept and story development, pre-visualization, bidding, budgeting, financing, scheduling, talent and asset management, and distribution.

MMM 749 From Hero to Superhero: The Persistence, Modernization, and Global Dissemination of Classical Archetypes in Global Storytelling
Units: 3
This course will investigate a key to successful, meaningful storytelling -- the heroic archetype, from its origins in classical mythology, to its development in literature, to its importance in today's international dramatic or comedic properties (including blockbuster film franchises) and advertising via cross-media and transmedia. The course will illustrate the ways such characters provide audience identification, while inspiring empathy and understanding and evoking the emotional spectrum, whether through cinema, TV or portable devices. Students will be given an opportunity to learn about the heroic archetype in its many forms, and create their own heroes, as well as develop narrative properties and model campaigns for global impact and distribution, generating a skill set to make use of this crucial element of storytelling.

MMM 810 General Production Pipelines
Units: 3
This course covers the general procedures and methodologies to produce a production pipeline from start to finish. One will be lead through the production process breaking down each phase in a step-by-step fashion and will be introduced to easily applied principles of scheduling each task. Students will learn to apply these principles to breakdown and schedule in either real-time rendering projects — such as a video game or image rendered projects— from animated shorts to features.

MMM 820 Global Storytelling
Units: 3
In a world where the noise of mass and personal communications can overwhelm any message and idea, the role of storytellers who can tell inspiring, persuasive stories and is more important than ever. This course will demonstrate how to apply the universal

heroes' journey in a way that transcends global cultures and civilizations. Students will explore the universal communication tool known as "stories" from its traditional forms such as fairytales, folklore and mythology through today's digital, augmented transmedia as a means of entertainment, education and communication.

MMM 830 Design Fundamentals
Units: 3
This course focuses on the fundamental visual language of design and its application in the media and tech industries. There will be a focus on traditional design fundamentals, such as type and composition, but these fundamentals will be taught in the context of modern digital methodologies, techniques and productions. Course projects will include designing mobile apps, video games, digital films or other industry specific applications.

MMM 831 CG Software Fundamentals
Units: 3
This course will provide an overview of the computer graphics process utilized today in print, commercials, games, television and movies. The course will offer the student a hands-on tutorial covering modeling, rendering, lighting, animation and compositing. Students will get to construct a 3D model and take it through all phases of the computer graphic process culminating in a finished scene realistically composited into a 2D background. Other subjects covered include principles of rigging, animation, motion tracking and camera moves with examples provided. Lab fees may apply.

MMM 823 Editing I
Units: 3
An understanding of editing principles is one of the core competencies of cinematic storytelling for movies and video games. Logical, intelligent editing is essential for clearly communicating story information. The theory, practice, history, and techniques of editing will be covered in this comprehensive overview, in which students will explore the art and function of cutting the moving image for both narrative and documentary projects.

MMM 824 Editing II
Prerequisite: MMM 823
Units: 3
The techniques learned in Editing 1 are now applied to the creation of short videos. Students will write and plan short narratives, shoot these projects with basic video cameras, then assemble their work using editing software. The class will cover the technical foundations of nonlinear editing and its software, and provide an introduction to image adjustment tools such as digital mattes, color correction, time remapping (slow and fast motion), title generators, and motion graphics. Video compression and codecs will also be covered.

MMM 837 Photographic Principles and Advanced Image Manipulation
Units: 3
Course Description: In this modern digital age, the basic principles of photography have not changed. But, the tools and techniques of how we arrive at our final image continue to evolve. This class will introduce students to the principles of photography and then explore the tools and aesthetics employed by artists to alter or enhance their images.

Advanced image editing and manipulation techniques and skills acquired will then be applied to projects involving still imagery including 2D compositing and basic matte painting. This class requires a laptop computer or tablet running Adobe CC Photoshop.

MMM 860 CG Modeling
Prerequisites: MMM 831, MMM 923
Units: 3
Computer Graphic (CG) 3D modeling involves digitally constructing shapes in a virtual space and is utilized in fields ranging from movies, animation, video games, architecture, medical and industrial visualizations, and a host of new applications and media such as creating virtual actors and Augmented Reality (AR). In this course, students will learn the techniques used by movie and video game industry experts to create professional 3D Models. They will use industry techniques and applications to create new worlds by designing and modeling their own objects, creatures, and environments.

MMM 870 Photographic Principles and Advanced Image Manipulation
Units: 3
Course Description: In this modern digital age, the basic principles of photography have not changed. But, the tools and techniques of how we arrive at our final image continue to evolve. This class will introduce students to the principles of photography and then explore the tools and aesthetics employed by artists to alter or enhance their images. Advanced image editing and manipulation techniques and skills acquired will then be applied to projects involving still imagery including 2D compositing and basic matte painting.

MMM 890 Social Network Marketing & Publishing
Units: 3
In the vast sea of opportunities offered by today's technology and networks, how can you most effectively use social media to achieve your career goals? Many traditional forms of media and networking are simply not enough to reach and captivate today's media savvy audience. To successfully reach your online and offline audiences you must fully utilize creative, problem-solving, design and communication skills. This class will explore established concepts of personal narrowcasting, blogs and tweets as well as modern takes on subjects such as data visualization and vanity metrics vs. validated learning. Finally, all of these concepts and skills will be applied utilizing affordable and accessible digital publishing tools to deliver the latest apps and media.

MMM 900 Digital Media StartUp
Units: 3
The state of innovation sets the tone, direction and growth of jobs and entire new industries. The heart of new and innovative ideas is the modern start-up. Master the creative, technical and business skills required to conceive and create one's own disruptive idea, then launch it into a new start-up. This is project-driven and can be a companion class to the Digital Arts Master Project where students conceive and produce a project from their own original ideas and designs.

MMM 903 Animation I
Prerequisites: MMM 831
Units: 3
Students will develop an understanding of a wide variety of applications used in animation and learn the principles behind 2-D, 3-D, stop motion and motion capture. Through an exploration of animation history and 2-D animation concepts, design and techniques, each student will become familiar with animation language and eventually garner the basics used for modeling, positioning and rendering 3-D objects using Autodesk Maya, one of the leading animation software packages for the film and gaming industries.

MMM 905 New Media Production
Units: 3
An introduction to digital media production providing design theory and hands-on experience. The course will cover basic principles of graphic and interface design, which will be applied to the course deliverables, including print, web, mobile, and video productions. Students will also learn about the big picture of project development, including vital skills such as scheduling, budgeting, creating and working within deadlines, and operating in a team-based environment.

MMM 909 Intro to Game Development
Units: 3
What are the different elements to a game? What makes a great game? Computer game development requires all facets of Computer Science, including Computer Graphics, Artificial Intelligence, Algorithms, Data Structures, Networking, and Human-Computer Interaction. It also requires knowledge of other disciplines including Economics, Mathematics, Physics, and Psychology. The value of this course goes beyond culminating Computer Science. It is largely a hands-on course where real-world skills including design, teamwork, management, documentation, and communications are critical. This course will delve into topics such as the game engine, rendering, user interfaces, sound, animation, and game hacking. This course will also cover designing MMORPGs and mobile games.

MMM 910 Storyboard Design
Units: 3
Today, storyboards are not just employed in film and animation, but are also used in video games, interactive GUI's, product presentations and so much more. Using stories, designs and flowcharts from actual productions, this course will show students of any drawing skill level how to effectively design and construct storyboards from thumbnails to presentation layouts.

MMM 911 Web Graphic Design
Units: 3
This course provides students with instruction in graphic editing software. Projects will use tools, layers and filters to design, edit and create digital images for the Web, apps and digital and interactive media. Topics covered will include: Basic Web design tenets, Using color effectively, Understanding fonts, Designing navigation, Creating graphics that don't distract from your site, and Using multimedia (sound, animation, and other media) on your site.

MMM 916 Animation 2
Prerequisites: MMM 831, MMM 903, MMM 931
Units: 3
Course Description: Using principles introduced in MMM 903 Animation 1, this class offers more advanced and detailed explorations into animation concepts, techniques and processes including acting, gesture, storytelling, 2-D and 3-D forms, software proficiency and project management from concept through to completion of an animated project. This will lead to final projects where students will work individually and with others to complete an animated project which be included in one's student showreel.

MMM 920 UI/UX: User Interfaces & User Experiences
Units: 3
Course Description: From PC's, smartphones, and tablets to common consumer products like TVs, cars, and refrigerators, the user interface (UI) is more prolific than ever and demand for great UI designers is higher than ever. This course will interweave topics such as fundamental design, navigational flow, psychological and interactive principles in order to give students the greatest exposure and guidance to delivering the greatest user experience (UX).

MMM 921 Storyboards and Layouts
Units: 3
In this course, students will be introduced to storyboarding and the animation layout process as it relates to the narrative structure. Emphasis is placed on the full storyboard process from initial sketch (thumbnails) to final, sequential panels. Using supplied stories, designs and flow charts, students will learn to apply the essentials of drawing to the production of both single layouts and short layout sequences. Through interactive lectures, discussions, demonstration and studio work, students will be able to translate narrative concepts into effective visual communications for multimedia apps, video games and motion video productions.

MMM 923 3D Modeling and 3D Printing
Units: 3
This course instructs students in the best industry standard practices and production pipelines for creating 3D assets using Autodesk Maya, one of the leading software packages for the film and gaming industries. We will explore the tools and techniques needed to model a wide array of characters, objects, architectures, and environments. Students will build a strong understanding of the methods and principles of 3D modeling. Aspects of the production pipeline will be covered, but the main focus will be from concept design to final sculpture. In addition to learning the basics of 3D modeling with Maya, we will be learning some basics of 3D printers, such as MakerBot Replicator 2. We will learn the differences between printing materials, techniques to have more predictable results, limitations of current 3D printers and even will be able to print out some objects by the end of the class session!

MMM 930 Manufacturing Cinematic Space
Units: 3
As an entry-level design studio course, it uses the familiar language of film to teach volumetric thinking and design principles. The semester is divided into three projects: Analysis (1D), Construction (2D), and Space (3D). (1D) Students begin by analyzing a

film through reading, writing, abstracting, and diagramming. (2D) Next, they choose a specific scene within their film to explore in depth through orthographic drawing and traditional architectural representation. (3D) Finally, they use the themes from their film as a catalyst for a design proposal. The final project is modeled physically and digitally, using design software and CAD/CAM/CNC equipment. Students are expected to participate in weekly discussions, presentations, and critiques, and use design software and tools. Some knowledge of the Adobe Creative Suite, CAD, and Rhinoceros, or equivalent, is not expected, but will be beneficial.

MMM 931 Rigging for 3D Animation
Pre-requisites: MMM 831, MMM 923
Units: 3
This course introduces the basic techniques of character set-up and rigging as used in 3D animation. This course will cover such principles and skills as how to set up a skeleton for an animated character, joint hierarchies, forward kinematics, inverse kinematics, constraints, and how to create facial rigs and blendshapes for facial animation.

MMM 940 Architectural Tours
Units: 3
Locus Operandi: methods of urban surveillance. This seminar brings the city to the foreground. Through a series of site visits, the built environment becomes the classroom itself. Students will complete field trips to six locations in San Francisco, and one in San Jose. Each trip will include the following methods of urban surveillance: walking, reading, viewing film, researching, and representing. These activities will be catalogued into a book and a phone application, and will serve as field research for the final project, the design of an urban intervention. Students will be expected to attend all classes, and lead an hour of each visit. Work will be completed using pens, sketchbooks, Adobe Creative Suite, and Rhinoceros, and other related medium.

MMM 950 Lighting and Compositing
Prerequisites: MMM 831
Units: 3
This course covers the art and science of lighting, shading, and compositing to create computer graphics images (CGI). The lighting and shading portion of the course investigates the look, shading, and atmosphere techniques that brings characters and scenes to life. The compositing portion of the course focuses on the integration of CGI elements with live action footage. The course begins with introduction to the history of photographic lighting and compositing and ends with students learning to create and integrate their own CGI elements through both individual and team based projects.

MMM 988 Concept Art and Storyboarding
Units: 3
A critical phase for cinema pre-production is in design, planning and storyboarding. Stories unfold in locations, sets and environments. Designing for cinematic spaces share similar qualities to architectural design. No matter what the size of your cinematic project, this course will get you ready for production and a unique integrated approach to quick, realistic and aesthetic designs relevant to your story and characters.

MMM 997 Master's Project II
Prerequisites: Successfully completed MMM 999 Master's Project 1, Approval from a faculty advisor
Units: 3
This is a capstone project culminating in applying and demonstrating the knowledge base and skillets acquired throughout the MSDA program and meeting all departmental Program Learning Outcomes. One is eligible for Master's Projects only within the final two semesters prior to graduation. One will need to get approval and work closely with a faculty advisor to map out a study plan and create Student Learning Outcomes for a Master's Project before enrolling in this capstone program.

MMM 999 Master's Project I
Prerequisites: MMM 905 and Approval from a faculty advisor
Units: 3
This is a capstone project culminating in applying and demonstrating the knowledge base and skillets acquired throughout the MSDA program and meeting all departmental Program Learning Outcomes. One is eligible for Master's Projects only within the final two semesters prior to graduation. One will need to get approval and work closely with a faculty advisor to map out a study plan and create Student Learning Outcomes for a Master's Project before enrolling in this capstone program.

MASTER OF SCIENCE IN ELECTRICAL ENGINEERING

AMN 910 Linear Algebra
Units: 3
This course covers algebraic basic concepts of matrices and matrix operations, determinants, systems of linear equations, Gauss elimination, LU decomposition, vector spaces with inner product, change of bases, transformations, and Gram-Schmidt orthonormalization. Meaning and purpose of eigenvalues and eigenvectors and algorithms for computing them are also introduced.

AMN 912 Applied Mathematics Methods
Units: 3
Prerequisites: AMN 910
The course emphasize on applying mathematical methods to analyze and solve engineering problems. The course starts with a review of Linear Algebra and its applications, and goes to introduction of some numerical methods including eigenvalue problems, ordinary differential equations (ODE's), and partial differential equations (PDE's), etc. Optimization and minimization methods are important consideration in applied math. Examples of equations and methods of Minimum Degree and Nested Dissection, Convection-Diffusion Equation, Conservation Laws, Multigrid Method, Investigations into Direct Methods for Solving Large Sparse Systems of Linear Equations, Thermal Analysis of the Heating of a Fiber Optic via Concentrated Solar Energy, Numerical Methods for Initial-value Problems, Comparison of Multigrid Methods for the One-Dimensional Convection-Diffusion Equation, Finite Difference Acoustics Modeling for Waveguide Loudspeaker Design, Poisson-Boltzmann Equation, Efficiently Solving the Two-way Wave Equation, etc. will be introduced. Students are encouraged to use applied math on engineering applications through group projects.

AMN 914 Fast Fourier Transformation & Applications
Units: 3
The course provides 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.

AMN 920 Optimization Techniques
Units: 3
The course covers basic concepts of unconstrained optimization, linear programming, simplex method, degeneracy, multidimensional optimization problems involving equality or inequality constraints by gradient and non-gradient methods.

AMN 922 Advanced Applied Mathematics Methods
Units: 3
Prerequisites: AMN 912
The course will emphasize on the connection between mathematics and applied and natural science and technologies. Applied mathematics and computational methods encompass some of the most diverse and interdisciplinary research in the physical, engineering, and biological sciences, and are broadly used for the design and optimization of products and processes.

AMN 930 Numerical Analysis
Units: 3
The course covers numerical solution of linear system of equations by direct method and iterative method, numerical least square problem, eigenvalue problem, numerical solution of non-linear systems of equations and optimization problem.

AMN 940 Discrete Mathematics
Units: 3
The 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 combinatory and discrete probabilities analysis and statistical quality control.

AMN 952 Statistics, Probability and Reliability for Engineers
Units: 3
This course provides an introduction to the field of statistics and how engineers use statistical methodology as part of the engineering problem-solving process. It covers the basic concepts of probability, discrete, probability distributions, random sampling and data description techniques. The course also addresses the hypothesis tests, ANOVA, linear regression, and factorial design of experiment to build a solid foundation of statistical analytics skills. Furthermore, the course will, through statistical analysis, cover the engineering applications including measurement system analysis, process capability analysis, robust design verification, statistical process control, and statistical data mining. Reliability concept, block diagram, and reliability modeling are also introduced to predict and ensure the reliability performance.

AMN 960 Advanced Optimization Techniques
Units: 3
Prerequisites: AMN 920
Combinatorial optimization, Hopfield neural network model, Simulated Annealing and Stochastic machines, mean field annealing, genetic algorithms, Applications to: Tabu 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.

AMN 965 Advanced Engineering Mathematics
Units: 3
Prerequisites: AMN 912 or 920
The course will emphasize on required mathematical knowledge for PhD students in Electrical Engineering. The course covers the contents of Probability & Statistics for Engineers, Advanced Optimization Techniques, and Advanced Applied Mathematics Methods.

EEN 900 Fundamentals of Electrical Engineering
Units: 3
This course provides general review of technical concepts and current developments in electrical engineering, with concentrations relevant to Integrated Circuit (IC) design in VLSI/ULSI; Analog and RF IC design and MEMS design; Signal Processing and Communication in telecom and wireless; Intelligent control and system design. Experts in the fields teach the course.

EEN 901 Fundamentals of Semiconductor Physics
Units: 3
Prerequisite: Physics in College
This course introduces semiconductor physics, device and device modeling. It covers the theoretical and processing issues of metal oxide semiconductor (MOS) capacitors, p-n junction diodes and field-effect transistors. It emphasizes deep submicron and Nano technology MOS devices. CMOS and SOI technologies and 3-D devices such as the FINFET are also covered. Quantum mechanics and other techniques potentially applied on integrated circuit manufacture are discussed.

EEN 905 Digital Design in HDL
Units: 3
The course introduces VHDL and Verilog, two IEEE standards of hardware design languages, skills of design and verification, synthesis consideration, timing/power effective designs.

EEN 906 Electromagnetic Fields and Waves
Units: 3
Prerequisite: Physics in College
This course introduces 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 911 VLSI Design
Units: 3
Prerequisite: EEN900
This course covers IC (Integrated Circuits) circuit and physical designs. The course introduces IC process, basic analog and digital circuits, operational principles, schematic and layout techniques, circuit simulation, clock distribution, power distribution, high-speed circuits and low-power techniques. Course project to provide students hands-on practice is required with circuit design and layout implementation to enable career opportunity as entry-level IC chip designers. EDA tools consistent with industry usage are introduced for design and verification.

EEN 912 Memory Design
Units: 3
Prerequisite: EEN911
The course introduces advanced circuit design consideration and implementation. It focuses on various memory design concepts, techniques, and applications involved DRAM/SDRAM, SRAM/SSRAM, ROM, EPROM, FLASH, etc.

EEN 913 Microprocessor Design
Units: 3
Prerequisite: CEN951 The course introduces various microprocessor architectures, characteristics, and applications, and deliver to students a specific microprocessor design to understand each functional block design and design considerations.

EEN 914 Advanced Microprocessor Design
Units: 3
Prerequisite: EEN913
The course provides a comprehensive guide for system designers and computer engineers. It covers broad and in-depth topics from computer architecture and operating system designs to system implementations. It is a fast paced course intended for graduate students in Electrical and Computer Engineering, as well as Embedded System professional. Design flow will be covered and EDA tools will be used in practice. Microprocessor architectures from MIPS, Intel, and ARM will be discussed and evaluated, as well as Operating Systems such as uC-Linux . Computer interfaces such as UART, I2C, SPI, USB, PCI, and Ethernet etc will also be discussed in detail.

EEN 915 Analog Circuit Design
Units: 3
Prerequisite: EEN900
This is the introductory course to analog circuit design and starts by giving a thorough grounding in solid-state physics and basic circuit concepts. Transistor device characteristics are explored in depth as well as simple transistor stages. The course also involves 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. Each student will be assigned a small design project to be completed before the end of the course.

EEN 916 Mixed Signal IC Design
Units: 3
Prerequisites: EEN911 or EEN915
The course focuses on the intersection of the digital and analog design worlds. The course will introduce various SPICE simulators for circuit analysis as well as Matlab for system analysis. 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 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
Units: 3
Prerequisite: EEN915
The course provides 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.

EEN 918 RF IC Design
Units: 3
Prerequisite: EEN906 or EEN915
This course covers fundamentals of CMOS RFIC design. The course will start with basic electromagnetics like high-Q inductor design, and then move into device modeling and layout issues. It will examine in detail the primary CMOS RF subcircuits like LNAs, power amplifiers, fractional N synthesizers, mixers and filters. A design practice will be done using SpectreRF, with the passive components designed using Sonnet or equivalent modeling tool. The circuits will be laid out using Cadence Virtuoso and the parasitic parameters will be extracted using Assura.

EEN 919 Advanced RF IC Design
Units: 3
Prerequisite: EEN906 or EEN915
This advanced course introduces designs of local oscillators and baluns, supporting mixed signal circuits like A/D converters and baseband filter-amplifier blocks. 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, the circuits will be laid out using Cadence Virtuoso, and the parasitic parameters will be extracted using Assura.

EEN 920 ASIC Design I
Units: 3
Prerequisites: EEN900
The course focuses on ASIC design principle, consideration, and design implementation with logical design, verification, synthesis, and 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.

EEN 921 FPGA Design
Units: 3
The course introduces the principle of Field Programmable Gate Array, various FPGA architectures, design flow, and application advantages vs. limitations. Practicing with course projects, students will develop solid understanding and hands-on experience in this exciting digital design area.

EEN 922 Design Verification
Units: 3
Prerequisite: CEN908
The course introduces logical verification concepts, considerations and applications. Advanced algorithms applied to coverage, challenges of speed, scalability, verifiability, and skills and trade-offs will be discussed.

EEN 925 ASIC Design II
Units: 3
Prerequisite: EEN920
The course emphasizes on back-end ASIC design implementation with floorplan, placement and routing, layout verification and parameter extraction, design for manufacture and post-layout analysis with consideration of timing-driving and power-aware layout. A design project with a back-end ASIC design flow will be assigned for practice.

EEN 926 Design for Testability
Units: 3
Prerequisite: EEN900
The course teaches students the fault modeling 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 and memory testing. Commercial tools and capabilities are introduced.

EEN 927 IC Design to Silicon
Units: 3
Prerequisite: EEN911 or EEN915
The course provides 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. Designs with LPE and whole chip post-layout verification will be taped out for manufactory, and then chips will be packaged and tested.

EEN 928 Low Power IC Design
Units: 3
Prerequisite: EEN900
This course covers design consideration and techniques for low power IC design, power estimation and consumption analysis at different design stages, techniques and tradeoffs in high-performance and low-power critical IC designs.

EEN 929 System on Chip Design (SOC)
Units: 3
Prerequisite: EEN913
The course introduces method, consideration and analysis of System on Chip design fundamentals. VLSI architectures, systolic arrays, self-timed systems, system verification, design flow and implementation will be covered. System C and/or System Verilog will be applied for practice.

EEN 930 Quantum Devices
Units: 3
Prerequisite: EEN901
The course introduces the knowledge of principles and operational characteristics of modern semiconductor devices, especially nanometer scale structured semiconductor devices. Topics include 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
Units: 3
Prerequisite: EEN901
Nanotechnology is the field of fabrication, characterization and manipulation of nanometer scale objects. The course analyzes a detailed description of equipment, facilities processes and process flow needed to fabricate small devices and structures. The course covers fabrication challenges and break-through nanotechnology in semiconductor. Students will learn processing and manufacturing considerations including process control, contamination, yield, and processing interaction. Case study of design process flow to build micro- and nano-scale devices and systems.

EEN 932 Advanced Nanotechnology
Units: 3
Prerequisite: EEN931
The course is 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 and integration of Nano devices and systems.

EEN 935 Introduction to MEMS Design
Units: 3
Prerequisites: EEN900
The course introduces MEMS design fundamentals, microfabrication techniques and analyze a variety of MEMS structures including switches, accelerometers and microcavities. The focus will be on hands-on design using COMSOL and Matlab and modeling the resulting structures' electromechanical properties. The class will have a design project.

EEN 936 Advanced MEMS Design
Units: 3
Prerequisites: EEN935
The course applies parametric design and optimal design to micro-electro-mechanical systems with an emphasis on design and micro-mechanical simulation. The primary thrust of the course will be experimental, with an actual design and fabrication project to be built in a local MEMs fabrication facility. The design will be analyzed for electromechanical properties and compared to the simulations.

EEN 938 Signal Integrity of High-Speed Digital Circuits
Units: 3
Prerequisites: EEN900 The course introduces 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.

EEN 941 Digital Signal Processing and System Analysis
Units: 3
Prerequisites: EEN900
The course focuses on time and frequency analysis of discrete-time signals in both time and frequency domains, modeling of electrical systems, and the design of finite impulse response (FIR) discrete filters. The sampling theorem, continuous-to-discrete and discrete-to-continuous converter, discrete Fourier transform (DFT) and its computation with the fast Fourier transform (FFT) and applications are discussed. Design and implementation of FIR and IIR filters and multirate signal processing, decimation, interpolation and sample rate conversion, and efficient implementation are covered. Principle, analysis and application of communication systems, both digital and analog, are introduced. Students will learn Fourier techniques and applications in communication systems and implementation of software and hardware in analyzing signal processing systems.

EEN 946 Embedded System Design
Units: 3
This course is an introduction course on embedded system designs. The students will learn the principles of embedded systems design by working with Linux operating system, ARM microprocessor cores, and peripherals e.g. GPIO, UART, I2C, SPI, and USB, and application programming in Python and C. Students will be introduced to system design through a series of labs and work on projects web camera, robotics, and IOT (Internet Of Things) using Arduino and Raspberry Pi boards. These labs are designed to give students hands-on experience in embedded system designs.

EEN 949 Advanced Digital Signal Processing
Units: 3
Prerequisite: EEN941
The course focuses on advanced techniques in signal processing. Stochastic signal processing, parametric statistical signal models, and adaptive filtering will be discussed. Application to spectral estimation, speech and audio coding, adaptive equalization, noise cancellation, echo cancellation, and linear prediction will be covered.

EEN 951 Circuit Design and PCB Implementation
Units: 3
Prerequisite: EEN900
The course focuses on practical circuit design, spice simulation and printed circuit board (PCB) layout. It covers basic analog circuit design, spice introduction, spice simulation, impedance calculation, high-speed circuit design consideration and basic PCB layout. The software tool is based on Cadence Allegro.

EEN 953 Advanced Machine Learning Engineering
Units: 3
Prerequisite: CEN908
The course introduces Artificial intelligence theories, algorithms, and applications. The course covers detection and analysis, self-learning system, Bayesian network, sensor data analysis, pattern recognition, observation-based self-localization, map learning, environment reconstruction, motion planning and motion control. Project of robot system design will be applied as practice.

EEN 958 Advanced System Design
Units: 3
Prerequisites: EEN946
The course intends to expose students to the state-of-the-art design and analysis techniques for embedded systems. Fueled by advances in semiconductor technology and consumer demands, many embedded systems have become so complex that the design capability simply prevents such systems to be realized. In the last decades, new research areas targeting advanced embedded system design have emerged. In this course, major results in this field will be discussed. The main topics include system modeling, performance and power/energy analysis and estimation, system-level partitioning, synthesis and interfacing, co-simulation and emulation, and reconfigurable computing platforms. Research papers with significant impacts on the above topics are studied in detail. Class discussions and research project participation are integral parts of the course.

EEN 961 Fundamentals of Communication Systems
Units: 3
Prerequisites: EEN900
The course focuses on the analysis, principle, and application of 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.

EEN 966 Advanced Communication Systems
Units: 3
Prerequisite: EEN961
The course focuses on up-to-date digital communication systems and technologies. It covers introductory information and coding theory, baseband transmission systems, optimum receiver structures, intersymbol interference, equalization, various modulation and corresponding demodulation schemes and application of digital systems.

EEN 970 Introduction to Microwave Engineering
Units: 3
Prerequisite: EEN906
The course introduces 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, the basis and use of Smith chart, and filter designs.

EEN 971 Introduction to Wireless Communication Systems
Units: 3
Prerequisite: EEN961
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.

EEN 974 Advanced Wireless Communications
Units: 3
Prerequisite: EEN971
This course is an advanced course of EEN 971. The topics include: capacity of wireless channels, multi-user capacity and multi-user diversity, MIMO channel capacity and spatial channel modeling, MIMO receiver design. The concepts are illustrated using examples from the WiMax and LTE systems.

EEN 976 Introduction to Near Field Communication
Units: 3
Prerequisite: EEN971
The course introduces the fundamentals of Near Field Communication (NFC). It starts with general applications such as those that can be integrated into users' smartphones: payment, coupon redemption, ID card, bus/train/boarding pass, car key, etc. The course focuses on the technology aspects of NFC: its standardization, architecture, operation modes, physical layer and security element.

EEN 977 Green Energy
Units: 3
The course focuses on solar energy, specifically 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.

EEN 992 Special Topics in Electrical Engineering
Units:1- 3
The course offers a relatively new subject that is not currently available in the catalog, but will be of great relevance to electrical engineering. It consists of lectures, readings, homework, presentations and projects determined by the instructor.

EEN 996 Independent Study
Units:1- 3
Prerequisite: Department chair approval
Independent Study is arranged with an instructor. The study topic could be special interest in electrical engineering under the direction of an instructor who is knowledgeable in the field. It will consist of readings, homework, tests, presentations and project reports assigned by the instructor.

EEN 998 Research Project
Units:1- 3
Prerequisite: Department chair approval
Research Project is arranged with project advisor. Student will conduct independent research of an approved topic in electrical or computer engineering, prepare a technical report, and defend it in front of a faculty advisor.

EEN 999 Master's Thesis
Units: 3-6
Prerequisite: Department chair approval
Thesis research is arranged with a thesis advisor. A research will be expected toward the M.S. or PhD degree if thesis topic is approved. Students will conduct independent research in electrical or computer engineering, prepare a thesis, and defend it in front of a committee consisting of a number of faculty designated by the department chair.

CEN 908 Scientific Computing
Units: 3
This course covers fundamental scientific computing and optimization techniques used in various computer and electronic engineering fields. The techniques include interpolation methods (linear and non-linear interpolation, piece-wise interpolation, Splines, surface interpolation), solving linear systems of equations and partial differential equations using numerical methods. The Least Squares Fitting algorithm is addressed to solve the Engineering Regression through predictive modeling, profiling, optimizations and Monte Carlo simulations. Matrix Eigen functions are introduced to derive the QR factorization and multivariate Linear Regression to solve the Data Mining dimensionality reduction algorithms such as Principal Component Analysis, Singular Value Decomposition, and Factor Analysis. Machine learning technique such as Neural Networks, Support Vector Machines, and Artificial Intelligence are also briefly introduced. Time series frequency and spectrum analysis techniques are addressed on time domain engineering problems. Reliability engineering concept, modeling and computing techniques are demonstrated for both hardware device and software testing. Utilize several computing software such as MATLAB, R, SAS/JMP to help students conduct the scientific project.
Students are encouraged to participate in group projects to apply these mathematic methods on solving engineering problems.

Doctorate of Philosophy in Electrical Engineering

CEN 908 Scientific Computing (3 credit units)
Prerequisites: AMN910
This course covers fundamental scientific computing and optimization techniques used in various computer and electronic engineering fields. The techniques include interpolation methods (linear and non-linear interpolation, piece-wise interpolation, Splines, surface interpolation), solving linear systems of equations and partial differential equations using numerical methods. The Least Squares Fitting algorithm is addressed to solve the Engineering Regression through predictive modeling, profiling, optimizations and Monte Carlo simulations. Matrix Eigen functions are introduced to derive the QR factorization and multivariate Linear Regression to solve the Data Mining dimensionality reduction algorithms such as Principal Component Analysis, Singular Value Decomposition, and Factor Analysis. Machine learning technique such as Neural Networks, Support Vector Machines, and Artificial Intelligence are also briefly introduced. Time series frequency and spectrum analysis techniques are addressed on time domain engineering problems. Reliability engineering concept, modeling and computing techniques are demonstrated for both hardware device and software testing. Utilize several computing software such as MATLAB, R, SAS/JMP to help students conduct the scientific project.

CEN 910 Algorithms (3 credit units)
Prerequisites: Knowledge of Data Structure
This course emphasizes on computer algorithms applied in engineering field. It covers fundamental techniques for algorithm design, analysis and implementation, including recursion, dynamic programming, randomization, dynamic data structures, fundamental graph algorithms, and NP-completeness. Sample applications in computer engineering area will also be discussed. Topics included:
Recursion — divide and conquer, backtracking, dynamic programming, greedy algorithms
Randomization and amortization — randomized quicksort, hashing, potential functions, disjoint sets
Graph algorithms — breadth/depth-first search, topological sorting, minimum spanning trees, shortest paths, maximum flows and minimum cuts, applications
NP-hardness — the Cook-Levin theorem, polynomial-time reductions, classical NP-hard problems, approximation, applications

CEN 943 Advanced Digital Image Processing (3 credit units)
Prerequisite: CEN942
This course will introduce techniques and implement algorithms for advanced digital image processing. It will cover segmentation, shape and texture, Morphology, pattern recognition, feature matching methods, and classification. Compression techniques, real-time image and video coding will be included. Matlab is used to implement and test various image-processing algorithms.

CEN 951 Computer Architecture (3 credit units)
Prerequisites: Knowledge of Digital Logic and Circuit
This course focuses on principles of computer architecture, offering students an overview of computer systems, CPU design, computer arithmetic, instruction set architecture, pipelining, microprogramming techniques, memory hierarchies and

management, input/output subsystem organization, and performance measurement. Its purpose is to prepare students to understand internal organization of computers and how it affects performance.

CEN 961 Parallel Computing (3 credit units)
Prerequisites: CEN910
The course focuses on parallel computing frameworks and techniques. It covers cutting-edge techniques 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.

CEN 980 Signal Processing and System Analysis (3 credit units)
Recommended: AMN952
This course utilizes on computer hardware-software engineering integration techniques such as Statistical Signal Processing (Analog and Digital; Noise Reduction, Image Enhancement, echo cancellation), System Design Verification and Validation, Robust Design and Tolerance Design (Monte-Carlo Simulation, Signal-Noise Ratio), Design Reliability in Computer Systems (Design Maintainability, Life Cycle Costing and Warranty Modeling), System Measurement, Statistical Process and Quality Control, Financial Signal Processing (Time Frequency/Spectrum Analysis, Time Series and Forecasting), Data Mining and Pattern Recognition, etc. Robot case study is used to demonstrate the statistical and experimental approach on system hardware-software design integration.

EEN 914 Advanced Microprocessor Design (3 credit units)
Prerequisite: EEN913 or EEN951
The course provides a comprehensive guide for system designers and computer engineers. It covers broad and in-depth topics from computer architecture and operating system designs to system implementations. It is a fast paced course intended for graduate students in Electrical and Computer Engineering, as well as Embedded System professional. Design flow will be covered and EDA tools will be used in practice. Microprocessor architectures from MIPS, Intel, and ARM will be discussed and evaluated, as well as Operating Systems such as uC-Linux . Computer interfaces such as UART, I2C, SPI, USB, PCI, and Ethernet etc will also be discussed in detail.

EEN 916 Mixed Signal IC Design (3 credit units)
Prerequisite: EEN911 or EEN915
The course focuses on the intersection of the digital and analog design worlds. The course will introduce various SPICE simulators for circuit analysis as well as Matlab for system analysis. 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 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 units)
Prerequisite: EEN915
The course provides 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.

EEN 918 RF IC Design (3 credit units)
Prerequisite: EEN906 or EEN915
This course covers fundamentals of CMOS RFIC design. The course will start with basic electromagnetics like high-Q inductor design, and then move into device modeling and layout issues. It will examine in detail the primary CMOS RF subcircuits like LNAs, power amplifiers, fractional N synthesizers, mixers and filters. A design practice will be done using SpectreRF, with the passive components designed using Sonnet or equivalent modeling tool. The circuits will be laid out using Cadence Virtuoso and the parasitic parameters will be extracted using Assura.

EEN 919 Advanced RF IC Design (3 credit units)
Prerequisite: EEN 906 EEN918
This advanced course introduces designs of local oscillators and baluns, supporting mixed signal circuits like A/D converters and baseband filter-amplifier blocks. 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, the circuits will be laid out using Cadence Virtuoso, and the parasitic parameters will be extracted using Assura.

EEN 927 IC Design to Silicon (3 credit units)
Prerequisite: EEN911 or EEN915
The course provides 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. Designs with LPE and whole chip post-layout verification will be taped out for manufactory, and then chips will be packaged and tested.

EEN 928 Low Power IC Design (3 credit units)
Prerequisite: EEN900
This course covers design consideration and techniques for low power IC design, power estimation and consumption analysis at different design stages, techniques and tradeoffs in high-performance and low-power critical IC designs.

EEN 929 System on Chip Design (SOC) (3 credit units)
Prerequisite: EEN913
The course introduces method, consideration and analysis of System on Chip design fundamentals. VLSI architectures, systolic arrays, self-timed systems, system verification, design flow and implementation will be covered. System C and/or System Verilog will be applied for practice.

EEN 930 Quantum Devices (3 credit units)
Prerequisite: EEN901
The course introduces the knowledge of principles and operational characteristics of

modern semiconductor devices, especially nanometer scale structured semiconductor devices. Topics include 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 932 Advanced Nanotechnology (3 credit units)
Prerequisite: EEN931
The course is 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 and integration of Nano devices and systems.

EEN 936 Advanced MEMS Design (3 credit units)
Prerequisite: EEN935
The course applies parametric design and optimal design to micro-electro-mechanical systems with an emphasis on design and micro-mechanical simulation. The primary thrust of the course will be experimental, with an actual design and fabrication project to be built in a local MEMs fabrication facility. The design will be analyzed for electromechanical properties and compared to the simulations.

EEN 946 Designs of Embedded Systems (3 credit units)
This course is an introduction course on embedded system designs. The students will learn the principles of embedded systems design by working with Linux operating system, ARM microprocessor cores, and peripherals e.g. GPIO, UART, I2C, SPI, and USB, and application programming in Python and C. Students will be introduced to system design through series of labs and work on projects web camera, robotics, and IOT (Internet Of Things) using Arduino and Raspberry Pi boards. These labs are designed to give students hands-on experience in embedded system designs.

EEN 949 Advanced Digital Signal Processing (3 credit units)
Prerequisite: EEN941
The course focuses on advanced techniques in signal processing. Stochastic signal processing, parametric statistical signal models, and adaptive filtering will be discussed. Application to spectral estimation, speech and audio coding, adaptive equalization, noise cancellation, echo cancellation, and linear prediction will be covered.

EEN 953 Advanced Machine Learning Engineering (3 credit units)
Prerequisite: CEN908
The course introduces Artificial intelligent theories, algorithms, and applications. The course covers detection and analysis, self-learning system; Bayesian network, sensor data analysis, pattern recognition, observation-based self-localization, map learning, environment reconstruction, motion planning and motion control. Project of robot system design will be applied as practice.

EEN 958 Advanced System Design (3 credit units)
Prerequisite: EEN946
The course intended to expose students to the state-of-the-art design and analysis techniques for embedded systems. Fueled by advances in semiconductor technology

and consumer demands, many embedded systems have become so complex that the design capability simply prevents such systems to be realized. In the last decades, new research areas targeting at advanced embedded system design have emerged. In this course, major results in this field will be discussed. The main topics include system modeling, performance and power/energy analysis and estimation, system-level partitioning, synthesis and interfacing, co-simulation and emulation, and reconfigurable computing platforms. Research papers with significant impacts on the above topics are studied in detail. Class discussions and research project participation are integral parts of the course.

EEN 966 Advanced Communication Systems (3 credit units)
Prerequisite: EEN961
The course focuses on up-to-date digital communication systems and technologies. It covers introductory information and coding theory, baseband transmission systems, optimum receiver structures, intersymbol interference, equalization, various modulation and corresponding demodulation schemes and application of digital systems.

EEN 974 Advanced Wireless Communications (3 credit units)
Prerequisite: EEN971
This course is an advanced course of EEN 971. The topics include: capacity of wireless channels, multi-user capacity and multi-user diversity, MIMO channel capacity and spatial channel modeling, MIMO receiver design. The concepts are illustrated using examples from the WiMax and LTE systems.

EEN 996 Independent Study (1-3 credit units)
Prerequisite: Graduate standing
Independent Study will be arranged with an instructor. The study topic could be special interest in electrical engineering under the direction of an instructor who is knowledgeable in the field. It will consist of readings, homework, tests, presentations and project reports assigned by the instructor.

EEN 1999 Doctoral Dissertation (1 to 6 credit units)
Prerequisite: See Dissertation Research under Procedures of Program Completion
Dissertation research will be arranged with the dissertation adviser. A research will be expected towards the Ph.D. degree. Students will conduct independent research in electrical or computer engineering, prepare a dissertation, and defend it in front of a committee consisting of a number of faculty designated by the department chair.

SEN 953 Compiler Design (3 credit units)
This course is an introductory course on the design and implementation of compilers. It covers 4 main topics:
1.The front end section includes scanning, parsing and context-sensitive analysis of the source program;
2. The infrastructure section provides the background knowledge needed to generate intermediate code in the front end, to optimize that code, and to transform it into code for a target machine;
3. The optimization section introduces optimizer, a compiler's middle section;
4. The code generation section includes instruction selection, instruction scheduling and register allocation.

SEN 956 The Unix Operating System (3 credit units)
Prerequisites: Knowledge of C
This course focuses on the practical usage of the basic Unix operating system features. It introduces the student to the general principles of modern operating systems: preemptive multiprocessing; and of Unix in particular: shells, environment, shell variables, processes, threads, interprocess communication, the Unix file system, and shell scripts. Upon completion of this course the student will be able to work efficiently in a Unix environment, to tailor an environment to specific needs, to understand the basics of Unix system administration, to understand security risks, to write C programs that use system calls, and to write scripts for the C shell.

SEN 985 Artificial Intelligence (3 credit units)
Prerequisites: Knowledge of some programming language
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 networks, support vector machines and other learning paradigms.

SEN 961 Cloud Computing (3 credit units)
Introduction to cloud computing, cloud architecture and service models, the economics and benefits of cloud computing, horizontal/vertical scaling, thin client, multimedia content distribution, multiprocessor and virtualization, distributed storage, security and federation / presence/ identity/ privacy in cloud computing, disaster recovery, free cloud services and open source software, and example commercial cloud services.

AMN 952 Probability & Statistics for Engineers (3 credit units)
This course provides an introduction to the field of statistics and how engineers use statistical methodology as part of the engineering problem-solving process. It covers the basic concepts of probability, discrete, probability distributions, random sampling and data description techniques. The course also addresses the hypothesis tests, ANOVA, linear regression, and factorial design of experiment to build a solid foundation of statistical analytics skills. Furthermore, the course will, through statistical analysis, cover the engineering applications including measurement system analysis, process capability analysis, robust design verification, statistical process control, and statistical data mining. Reliability concept, block diagram, and reliability modeling are also introduced to predict and ensure the reliability performance.

AMN 960 Advanced Optimization Techniques (3 credit units)
Prerequisites: AMN 920
Combinatorial optimization, Hopfield neural network model, Simulated Annealing and Stochastic machines, mean field annealing, genetic algorithms, Applications to: Tabu 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.

AMN 962 Advanced Applied Mathematics Methods (3 credit units)
Prerequisites: AMN 912
The course will emphasize on the connection between mathematics and applied and natural science and technologies. Applied mathematics and computational methods encompass some of the most diverse and interdisciplinary research in the physical,

engineering, and biological sciences, and are broadly used for the design and optimization of products and processes.

MASTER OF SCIENCE IN COMPUTER ENGINEERING

AMN 910 Linear Algebra (3 Units)
This course covers algebraic basic concepts of matrices and matrix operations, determinants, systems of linear equations, Gauss elimination, LU decomposition, vector spaces with inner product, change of bases, transformations, and Gram-Schmidt orthonormalization. Meaning and purpose of eigenvalues and eigenvectors and algorithms for computing them are also introduced.

AMN 912 Applied Mathematics Methods (3 Units)
Prerequisites: AMN 910
The course emphasize on applying mathematical methods to analyze and solve engineering problems. The course starts with a review of Linear Algebra and its applications, and goes to introduction of some numerical methods including eigenvalue problems, ordinary differential equations (ODE's), and partial differential equations (PDE's), etc. Optimization and minimization methods are important consideration in applied math. Examples of equations and methods of Minimum Degree and Nested Dissection, Convection-Diffusion Equation, Conservation Laws, Multigrid Method, Investigations into Direct Methods for Solving Large Sparse Systems of Linear Equations, Thermal Analysis of the Heating of a Fiber Optic via Concentrated Solar Energy, Numerical Methods for Initial-value Problems, Comparison of Multigrid Methods for the One-Dimensional Convection-Diffusion Equation, Finite Difference Acoustics Modeling for Waveguide Loudspeaker Design, Poisson-Boltzmann Equation, Efficiently Solving the Two-way Wave Equation, etc. will be introduced. Students are encouraged to use applied math on engineering applications through group projects.

AMN 914 Fast Fourier Transformation & Applications (3 Units)
The course provides 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.

AMN 920 Optimization Techniques (3 Units)
The course covers basic concepts of unconstrained optimization, linear programming, simplex method, degeneracy, multidimensional optimization problems involving equality or inequality constraints by gradient and non-gradient methods.

AMN 922 Advanced Applied Mathematics Methods (3 Units)
Prerequisites: AMN 912
The course will emphasize on the connection between mathematics and applied and natural science and technologies. Applied mathematics and computational methods encompass some of the most diverse and interdisciplinary research in the physical, engineering, and biological sciences, and are broadly used for the design and optimization of products and processes.

AMN 930 Numerical Analysis (3 Units)
The course covers numerical solution of linear system of equations by direct method and iterative method, numerical least square problem, eigenvalue problem, numerical solution of non-linear systems of equations and optimization problem.

AMN 940 Discrete Mathematics (3 Units)
The 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 combinatory and discrete probabilities analysis and statistical quality control.

AMN 952 Statistics, Probability and Reliability for Engineers (3 Units)
This course provides an introduction to the field of statistics and how engineers use statistical methodology as part of the engineering problem-solving process. It covers the basic concepts of probability, discrete, probability distributions, random sampling and data description techniques. The course also addresses the hypothesis tests, ANOVA, linear regression, and factorial design of experiment to build a solid foundation of statistical analytics skills. Furthermore, the course will, through statistical analysis, cover the engineering applications including measurement system analysis, process capability analysis, robust design verification, statistical process control, and statistical data mining. Reliability concept, block diagram, and reliability modeling are also introduced to predict and ensure the reliability performance.

AMN 960 Advanced Optimization Techniques (3 Units)
Prerequisites: AMN 920
Combinatorial optimization, Hopfield neural network model, Simulated Annealing and Stochastic machines, mean field annealing, genetic algorithms, Applications to: Tabu 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.

AMN 965 Advanced Engineering Mathematics (3 Units)
Prerequisites: AMN 912 or 920
The course will emphasize on required mathematical knowledge for PhD students in Electrical Engineering. The course covers the contents of Probability & Statistics for Engineers, Advanced Optimization Techniques, and Advanced Applied Mathematics Methods.
Curriculum of Computer Engineering

CEN 900 Computer Engineering
Units: 3
Course Description:
This course provides general review of technical concepts and current developments in computer engineering with relevant to computer architecture, computer algorithms, computer networks, and computing techniques that covers Big Data Parallel Processing, Data Mining Computing, and Computing Software. Experts in the fields introduce fundamental and up-to-date knowledge of science and technology in computer engineering.

CEN 908 Scientific Computing (3 Units)
Prerequisites: AMN910

This course covers fundamental scientific computing and optimization techniques used in various computer and electronic engineering fields. The techniques include interpolation methods (linear and non-linear interpolation, piece-wise interpolation, Splines, surface interpolation), solving linear systems of equations and partial differential equations using numerical methods. The Least Squares Fitting algorithm is addressed to solve the Engineering Regression through predictive modeling, profiling, optimizations and Monte Carlo simulations. Matrix Eigen functions are introduced to derive the QR factorization and multivariate Linear Regression to solve the Data Mining dimensionality reduction algorithms such as Principal Component Analysis, Singular Value Decomposition, and Factor Analysis. Machine learning technique such as Neural Networks, Support Vector Machines, and Artificial Intelligence are also briefly introduced. Time series frequency and spectrum analysis techniques are addressed on time domain engineering problems. Reliability engineering concept, modeling and computing techniques are demonstrated for both hardware device and software testing. Utilize several computing software such as MATLAB, R, SAS/JMP to help students conduct the scientific project.

CEN 910 Algorithms
Prerequisites: Knowledge of Data Structure
Units: 3
Course Description:
This course emphasizes on computer algorithms applied in engineering field. It covers fundamental techniques for algorithm design, analysis and implementation, including recursion, dynamic programming, randomization, dynamic data structures, fundamental graph algorithms, and NP-completeness. Sample applications in computer engineering area will also be discussed. Topics included:
Recursion — divide and conquer, backtracking, dynamic programming, greedy algorithms
Randomization and amortization — randomized quicksort, hashing, potential functions, disjoint sets
Graph algorithms — breadth/depth-first search, topological sorting, minimum spanning trees, shortest paths, maximum flows and minimum cuts, applications
NP-hardness — the Cook-Levin theorem, polynomial-time reductions, classical NP-hard problems, approximation, applications

CEN 940 Network Security Techniques (3 Units)
Prerequisite: CEN908
This course is designed to develop knowledge and skills for security in the network systems and focuses on design and implementation of network security solutions. The key areas of the network security are intrusion detection, virtual private networks, firewalls, web security, packet filtering, network layer security, and electronic mail security.

CEN 941 Introduction to Computer Vision (3 Units)
Prerequisites: CEN908 or CEN910
The course will focus advanced techniques in image processing. Challenges of data collection with various sensors and cameras, high-level algorithms and real-time implementation will be discussed. 2D and 3D objectives recognition and reconstruction will be covered with practice.

CEN 942 Digital Image Processing (3 Units)
Prerequisites: CEN908 or CEN910
The course introduces fundamental knowledge of image processing algorithms and systems. It covers image acquisition, image data structures, and images operations such as geometric, arithmetic, logical convolution, transforms, calibration, correction, and enhancement. Course project is required to encourage students to implement and investigate image processing algorithms in Matlab.

CEN 943 Advanced Digital Image Processing (3 Units)
Prerequisite: CEN942
This course introduces techniques and implement algorithms for advanced digital image processing. It covers segmentation, shape and texture, Morphology, recognition and classification, compression techniques, real-time image, video coding, etc. Matlab is used to implement and test various image-processing algorithms.

CEN 948 Computer Network Systems (3 Units)
Prerequisites: CEN900
This course covers the theory and practice of essential computer network hardware and software. Topics include network topologies, protocol hierarchy, network reference models, circuit vs. packet switching, signal transmission, modulation and multiplexing, Media Access Control (MAC), error detection, flow control, congestion control, routing, ATM/Frame Relay, Network Operating Systems (NOS), voice processing and VOIP.

CEN 950 Computer Control Engineering (3 Units)
Prerequisites: CEN900
The course introduces 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.

CEN 951 Computer Architecture(3 Units)
Prerequisites: Knowledge of Digital Logic and Circuit
This course focuses on principles of computer architecture, offering students an overview of computer systems, CPU design, computer arithmetic, instruction set architecture, pipelining, microprogramming techniques, memory hierarchies and management, input/output subsystem organization, and performance measurement. Its purpose is to prepare students to understand internal organization of computers and how it affects performance.

CEN 956 Distributed Computing Systems (3 Units)
Prerequisites: CEN948
This course covers several main topics in distributed systems, including remote service invocation (RPC), peer-to-peer system (P2P), web services, service registration and discovery, data synchronization, service replication, and fault tolerance.

CEN 961 Parallel Computing (3 Units)
Prerequisites: CEN910
The course focuses on parallel computing frameworks and techniques. It covers cutting-edge techniques 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.

CEN 964 Computer Interface and Firmware Engineering (3 Units)
Prerequisites: CEN951
This course introduces software and hardware interfaces between computer and peripheral devices. It covers the system hardware and device firmware design for computer applications, mainly the microcontroller/microprocessor and peripherals. Firmware is programmable content in electronic hardware devices that provides instructions to those devices. It is developed in either C or assembly.

CEN 965 Introduction to Medical Image Systems (3 Units)
The course introduces imaging processing systems applied in medical field, including CT, Ultrasound, Radionuclide, and Magnetic Resonance. The focus is on the physical principles, instrumentation methods, and imaging algorithms. The medical interpretation of images, and the clinical, research and ethical issues in medical imaging are included.

CEN 966 Routing in Computer Networks (3 Units)
Prerequisites: CEN948
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).

CEN 967 Local Area Networking (3 Units)
Prerequisites: CEN948
This course provides an overview of communications networks and introduces the components of local area networks (LANs), wide area networks (WANs) and protocols. Main network technologies such as Sonet, Ethernet, wireless LANs and storage area network will be covered. The class will cover about, OSI (open system interconnection), TCP/IP, and the networking architecture that is the base technology of the Internet.

CEN 968 Network Storage Systems (3 Units)
Prerequisites: CEN948
This course will introduce distributed systems designed to offer access to storage resources over a network. It will cover network file system, network storage architecture, security issues in data transferring over networks, performance measurement, file service types, and file servers. In addition, topics of data redundancy, data throughput, Samba, and load balancing will be covered.

CEN 980 Signal Processing and System Analysis (3 Units)
Recommended: AMN952
This course utilizes on computer hardware-software engineering integration techniques such as Statistical Signal Processing (Analog and Digital; Noise Reduction, Image Enhancement, echo cancellation), System Design Verification and Validation, Robust Design and Tolerance Design (Monte-Carlo Simulation, Signal-Noise Ratio), Design Reliability in Computer Systems (Design Maintainability, Life Cycle Costing and Warranty Modeling), System Measurement, Statistical Process and Quality Control, Financial Signal Processing (Time Frequency/Spectrum Analysis, Time Series and

Forecasting), Data Mining and Pattern Recognition, etc. Robot case study is used to demonstrate the statistical and experimental approach on system hardware-software design integration.

CEN 997 Independent Study (1-3 Units)
Prerequisite: Department chair approval
Independent Study will be arranged with an adviser. The study topic could be special interest in computer engineering under the direction of an adviser who is knowledgeable in the field. It will consist of readings, researches, presentations and project reports assigned by the adviser.

CEN 998 Research Project (3 Units)
Prerequisite: Department chair approval
Research Project will be arranged with project advisor. Student will conduct independent research of an approved topic in computer or electrical engineering, prepare a technical report, and defend it in front of a faculty advisor.

CEN 999 Master's Thesis (3-6 Units)
Prerequisite: Department chair approval
Thesis research will be arranged with thesis advisor. A research will be expected toward the M.S. or PhD degree if thesis topic is approved. Students will conduct independent research in computer or electrical engineering, prepare a thesis, and defend it in front of a committee consists of a number of faculty designated by department chair.

EEN 946 Embedded System Design
Units: 3
This course is an introduction course on embedded system designs. The students will learn the principles of embedded systems design by working with Linux operating system, ARM microprocessor cores, and peripherals e.g. GPIO, UART, I2C, SPI, and USB, and application programming in Python and C. Students will be introduced to system design through series of labs and work on projects web camera, robotics, and IOT (Internet Of Things) using Arduino and Raspberry Pi boards. These labs are designed to give students hands-on experience in embedded system designs.

MASTER OF SCIENCE IN ENGINEERING MANAGEMENT

EM 900 Engineering Management I
Units: 3
This course will provide an overview of the essential skills relevant to managing cross-disciplinary engineering and science-based teams in industries. Such teams are typically responsible for new product development, getting innovations to market, developing new technologies, implementing product improvement or establishing or improving organizational infrastructure. Students will focus on the fundamental skills and applications of engineering and science management and will be introduced to the relevant business and engineering topics to be successful in this field. Topics include specific areas of finance and accounting, project and execution management, marketing, communication and leadership, management of innovation, science and technology, ethics and entrepreneurship that apply to the management of cross disciplinary engineering and science industries.

EM 901 Engineering Management Project
Units: 3
Course Description: Students will explore specific Engineering Management topics and apply them to a real life project or scenario. Students will work in teams to accomplish project goals which will include acquiring a thorough understanding of the principles and practices of administration of engineering and science activities including management, organization, planning, controlling action and measuring results, management of human resources, communication and decision-making. A wide variety of Engineering Management topics will be explored and experimented with by means of hands-on practical applications. Students of various backgrounds will come together to exchange ideas and work together in an Engineering Management project experience.

SEN 941 Software Engineering
Units: 3
The student learns the elements of engineering and the relationship of engineering to software practice. It also covers how those principles and practices apply to the design, development, and maintenance of software throughout the entire software lifecycle. The course introduces traditional and contemporary approaches to software engineering practice. These include: requirements development, architecture and detailed design, modeling, testing strategies, process selection, project management, how to interact with other engineers on large-scale systems, and more. This course includes a capstone team where students gain practical experience designing a software system from start to finish using software modeling techniques such as UML, as well as a variety of project management methods and tools. This is not a programming course, but a background in object-oriented programming (OOP) will be valuable in helping the student understand the demands of the capstone project.

MGTN 942 Critical Thinking Strategies in Decision Making
Units: 3
This course applies corporate finance concepts and accounting tools to make management decisions. Students learn to evaluate organizational performance from accounting information, methods to evaluate financial alternatives, and create financial plans. Other topics include financial statements, concept of depreciation and inventory methods, cash flows, business valuation, working capital, cost behavior, cost allocation, budgets, and control systems. We will also discuss Dual Motive Theory in terms of Ego/Empathy, ethical/unethical behavior to understand how brain functions can impact human behavior and relationships.

EM 998 Capstone
Prerequisites: Department approval and completion of 27 units of the program
Units: 3
Students will complete a capstone project working with an appointed advisor. All Engineering Management students must complete a capstone or thesis project during their final one or two trimesters. This capstone project is the summative component of the masters degree program. The Capstone Project is designed to demonstrate the in-depth learning and higher-order thinking of the student. It is meant to be an analysis of knowledge, breaking the information down into its component parts, and also the synthesis of new knowledge, assembling the parts into a new coherent whole. The capstone is also meant to be practical and useful. The student should choose an area that is uniquely and personally important and research or perform a project in that area. The Capstone Project is performed by arrangement with the project advisor. The student

must conduct independent research in an approved topic in Engineering Management, prepare a report and defend it before a faculty advisor.

EM 999 Thesis
Prerequisites: Department approval and completion of 27 units of the program
Units: 3
Students will complete a thesis paper working with an appointed advisor. All Engineering Management students must complete a capstone or thesis project during their final one or two trimesters. This thesis project is the summative component of the masters degree program. The Thesis is designed to demonstrate the in-depth learning and higher-order thinking of the student. It is meant to be an analysis of knowledge, breaking the information down into its component parts, and also the synthesis of new knowledge, assembling the parts into a new coherent whole. The capstone is also meant to be practical and useful. The student should choose an area that is uniquely and personally important and research or perform a project in that area. The thesis is performed by arrangement with the project advisor. The student must conduct independent research in an approved topic in Engineering Management, prepare a report and defend it before a faculty advisor.

DOCTORATE OF PHILOSOPHY IN INTERDISCIPLINARY SCIENCES

CONS 901 – General Consilience
Units: 3
Consilience is the bridging of the natural and social sciences. In this course students will learn the history and scope of Consilience. This overview course will briefly explore the bridges and connections between academic disciplines. This course is mandatory for every student in their first trimester.

CONS 902 – Physics
Units: 3
This course will cover the history and fundamental concepts in physics. The historical perspective will focus on the progression of human understanding of these physical laws. We will look at the laws of thermodynamics in respect to identifying the primary algorithm that all physical matter, to include life, follows.

CONS 903 – Cosmology
Units: 3
This course will have a strong connection to the primary algorithm focusing on how the universe has unfolded from the big bang to current day. We will cover all major aspects of the history of the universe including the unknown origins and future.

CONS 904 – Chemistry
Units: 3
This course on chemistry will look at how the chemical elements in the universe were created, and how chemical complexity works within the entropic second law of thermodynamics. We will look at the leading theories of the origins of life and how it chemically works within all physical laws.

CONS 905 – Genetics
Units: 3

Although the general argument of which came first – metabolism or replication – is still unanswered, we have learned a vast amount about the nature of both metabolism and replication. This course will analyze life's ability to store and pass-on information through DNA chemical structures.

CONS 906 – Evolution
Units: 3
This course will cover the concepts of how life has evolved through genetic mutation and adaptive radiation here on earth. We will look at the primary algorithm as a function of extension – incorporation – extension as life has evolved.

CONS 907 – Biology/Ecology
Units: 3
We will focus on studying the major kingdoms of life and how they have evolved into the many ecosystems on Earth. This course will explore in depth the bridge between the primary algorithm as applied in physics and in biology.

CONS 908 – Evolutionary Neuroscience
Units: 3
In this course we will learn the underpinning theories and evidence for the second algorithm, dual-motive theory. We will look at how brains have evolved and the relative behaviors to this evolution. We will then cover what this evolution means for human behavior and experience.

CONS 909 – Psychology
Units: 3
In this course we will take a historical and current view of the various areas in psychology. We will focus on identifying the connections between dual-motive theory and the current views on human behavior and motivation.

CONS 910 – Philosophy
Units: 3
Historically philosophy and political governance have been deeply connected. This course will review the historical figures in the field and provide a scientific basis to explain the subjective experience that drives both eastern and western philosophy.

CONS 1999 - Doctoral Dissertation
Units: 1 to 9
Doctoral dissertation.

LANGUAGE DEVELOPMENT PROGRAMS

LDP 200 Professional Communications I
Units: 3
Course Description: The Professional Communications I course supports students' writing and presenting skills, providing opportunities to practice verbal or written communication messages. Students will also engage in social learning with classmates through team activities. The class will provide textbook, business and scholarly articles as a basis for oral or written assignments, and students will work at perfecting their planning, writing, and revision skills. This course will help students succeed in future

graduate coursework and build a strong foundation for communicating in the business environment.

LDP 300 Professional Communications II
Units: 3
Course Description: This course will build on student's abilities in execution of written and verbal messages, and citing of evidence using proper formats. The required textbook includes guidelines to organize and write clear paragraphs and essays in process or argument essays. Building on the Professional Communications I course, this class will feature different literature and scholarly article content, from various degree fields, which students can select for writing assignments. Students will strengthen their expertise in organizing and delivering focused communications messages necessary to inform and persuade in the business environment.

OTHER COURSES

GRN 900 P/F Internship
Units: 1 or 3
As affirmed by the university's Academic Quality Committee (AQC), all Master programs require students to participate in an internship (one unit for Part-Time, three units for Full-Time, up to a maximum of nine units per degree) from the first trimester as a core part of the curriculum. As part of each internship course, students are required to write a report describing their activity during internship, how the internship contributes to their learning experience, and how the material learned at the University is applied and contributes to the practical work. Students must submit the report to ITU, along with a questionnaire completed by the employer. More information can be obtained from the Registrar's Office and the student handbook. Graded on P/NP basis.

STUDENT ACTIVITES 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. Students are encouraged to take advantage of this exposure to industry leaders and continually collect networking contact information. 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.

STUDENT COUNCIL

The ITU Student Council 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.

LIBRARY AND INFORMATION CENTER

ITU has an on-site library which is filled with informational books to assist students with their research endeavors. There are books regarding healthcare, computer programming, networking, and more for students to utilize in their studies.

Information Center Services:
• Purchase Copies or Printouts

Dr. Martin Luther King, Jr. Library, San Jose, CA:
Students may wish to use Dr. Martin Luther King, Jr. Library, located in Downtown San Jose, which has current industry-journals and other published works. Students can explore industry journals and published works that are updated and relevant. As ITU emphasizes that students have a strong awareness of industry news, they are encouraged to take advantage of our learning resources for their academic success.

Address:
150 East San Fernando Street
San Jose, CA 95112
(408) 808-2000

RESEARCH LABS

There are four research labs: Artificial Intelligence Lab, Bio-Electronics, Embedded Research, and Green Energy Research Labs. All 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.

BASKETBALL COURT

ITU's basketball court is open to students. Students must bring their own equipment. Shoes that make dark marks are prohibited, and it is advised that students bring athletic clothing.

STUDENT LOUNGE

The student lounge is an area designated for students to sit and relax while studying. You'll find a billiards table, multiple areas to sit and study, and printing services.

ACADEMIC ACHIEVEMENT RECOGNITION

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

STUDENT TUITION RECOVERY FUND

The State of California created the Student Tuition Recovery Fund ("STRF") to relieve or mitigate economic losses suffered by students who are California residents, or are enrolled in a residency program attending certain schools regulated by the Bureau for Private Postsecondary and Vocational Education.

Students must pay the state-imposed assessment for the STRF if all of the following applies:

1. Students who are California residents, or are enrolled in a residency program, and prepay all or part of the tuition either by cash, guaranteed student loans, or personal loans, and
2. Total charges are not paid by any third party, such as an employer, government program or other payer, unless students have a separate agreement to repay the third party.

Students are not eligible for protection from the STRF and not required to pay the STRF assessment, if either of the following applies:

1. Students who are not California residents, or are not enrolled in a residency program, or
2. Total charges are paid by a third party, such as an employer, government program or other payer, and students have no separate agreement to repay the third party.

Students may be eligible for STRF if students are California residents or are enrolled in a residency program, prepaid tuition, paid the STRF assessment, and suffered an economic loss as a result of any of the following:

1. The school closed before the course of instruction was completed.
2. The school's failure to pay refunds or charges on behalf of a student to a third party for license fees or any other purpose, or to provide equipment or materials for which a charge was collected within 180 days before the closure of the school.
3. The school's failure to pay or reimburse loan proceeds under a federally guaranteed student loan program as required by law or to pay for reimburse proceeds received by the school prior to closure in excess of tuition and other costs.
4. There was a material failure to comply with the Act or this Division within 30 days before the school closed or, if the material failure began earlier than 30 days prior to closure, the period determined by the Bureau.
5. An inability after diligent efforts to prosecute, prove, and collect on a judgment against the institution for a violation of the Act.

ACADEMIC CALENDAR

	Fall 2014	Spring 2015	Summer 2015
Regular Registration Period	July 28, 2014 – August 29, 2014	December 8, 2014- January 9, 2015	April 6, 2015 – May 8, 2015
Late Registration	August 30, 2014 - September 5, 2014	January 10 - 16, 2015	May 9 – 15, 2015
Orientation	September 6, 2014	January 17, 2015	May 16, 2015
First Day of Trimester	September 8, 2014	January 20, 2015	May 18, 2015
Last Day of Trimester	January 11, 2015	May 10, 2015	September 6, 2015
Holiday Break	December 22, 2014 - January 2, 2015	N/A	N/A

Please note dates are subject to change.

UNIVERSITY OFFICERS

YAU-GENE CHAN, MFA
President and Chief Executive Officer

REBECCA CHOI
Chief Operating Officer
Accreditation Liaison Officer

EDWARD LAM
Chief Financial Officer

BARBARA HECKER, PH.D.
Chief Academic Officer
Director of Distance Learning
Director of Faculty Professional Development

MAY HUANG, PH.D.
Director of Research & Development

KARL WANG, PH.D.
Director of Technology

MIKEL DUFFY
Associate Director of Innovation

COLLIN LAM
Director of International Recruitment, New Markets

LESLIE ANDERSON
Associate Director of Human Resources

THERESA BRUKETTA
Director of Student Services

SOPHIA GU
Associate Director of Academic Services

ANGIE LO
Associate Director of Strategic Planning
Board Liaison

WES TAKAHASHI
Executive Producer

BOARD OF TRUSTEES

Chi Hsieh
Chairman

Yat Pang Au
Board of Trustees

Ivan Chan
Board of Trustees

Yau Gene Chan
Board of Trustees/President & CEO

Alvin Cheung
Board of Trustees

Thomas Gold
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Michael Hu
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