ACCREDITATION AND LICENSURE

The Malta Further and Higher Education Authority (MFHEA) is accredited and licensed (License Number: 2016- 002) by the American University of Malta (AUM). The license permits AUM to deliver academic degree programs at Levels 6, 7, and 8 (Bachelor, Master, and Doctorate) of the Malta Qualifications Framework (MQF). The NCFHE individually accredits all degree programs at AUM.

At the appropriate times, AUM will also seek accreditation from international disciplinary accrediting bodies and a regional accrediting body in the United States.

NOTICE

To keep University policies in compliance, AUM may change policies, regulations, procedures, and fees in this Catalog without prior notice.

The University reserves the right to change curricula, rules, fees, admission requirements, and other requirements without notice. The provisions of this Catalog do not constitute a contract, express or implied, between any applicant, student, faculty member, or any other person, and the American University of Malta.

STUDENT DATA PROTECTION

The American University of Malta (AUM) abides by the General Data Protection Regulation (GDPR) of the European Union and the Family Educational and Privacy Act (FERPA) of 1974 as amended by the United States. Appropriate technical and organizational measures are used to protect personal data by the principles of each law.

The AUM has identified the following student information, under FERPA, as "directory information": student's name, address, telephone number, date and place of birth, major field of study, participation in officially recognized activities and sports, height and weight if a member of an athletic team, dates of attendance, degrees and awards received, and the most recent educational institution attended. This information may be released without the student's written consent. However, students have the right to restrict the release of the directory of information by completing and submitting a Restriction of Directory Information form to the Registrar's Office located in room 210.

Regular photographs and videos of school events and activities either in university or on outings are taken regularly. These photographs are used in classroom displays as well as for communication purposes, such as school newsletters, the school website, television, newspaper reports and social media coverage. The student's written consent is required before taking and using photographs/video for any of the above purposes.

Students have the right to access their official records. The written consent of the student must be received before personally identifiable data is released from the student's records to any third party other than the exceptions specified below.

AUM is authorized to provide campus officials and employees, who have a legitimate educational interest, access to students' records. These persons are those who have responsibilities in connection with the academic, administrative, or service functions of the university and who have reason to access student records connected with their academic or other university responsibilities. Disclosure may also be made to other persons or organizations under certain conditions (e.g., as part of an accreditation or program evaluation; as part of an immigration process for international students; in response to a court order or subpoena; in connection with financial aid; or to other institutions to which the student is transferring).

EMPLOYEE AND STUDENT NON-DISCRIMINATION-POLICY

According to its published policies, AUM prohibits discrimination in terms consistent with Maltese law and American practice. AUM is committed to providing its students, faculty, staff, trustees and alumni with an environment in which they can pursue their studies, careers, teaching and research free from discrimination. AUM does not discriminate based on gender, sex, race, colour, gender identification, gender expression, sexual orientation, religion, creed, national origin, age, veteran status or disability. Retaliation is prohibited by AUM policy. Employees who believe that they have been denied opportunities because of discrimination may file a grievance.

MESSAGE FROM THE PROVOST

Hello and Welcome to the American University of Malta!

We here in the Provost office are ready and willing to help all students in any matters relating to the Academic side of the University. We can also answer queries from any party regarding Academics at the AUM.

It is recommended that students read carefully the policies in this portion of the website, as they contain information about: General Education; enrolment and course registration; student academic standing, integrity, conduct, and attendance; and Curriculum.

Our doors are always open, so please come by anytime and we will be happy to assist.

Prof. Dr. James R. Bozeman
Provost

TABLE OF CONTENTS

ACADEMIC CALENDAR
Fall 24 / Spring 25

FALL SEMESTER 24	
Date	**Activity**
Monday, 2 September 2024	Placement Tests
Monday, 2 September 2024	New Faculty Orientation / New Student Orientation
Tuesday, 3 September 2024	Course Registration Start
Friday, 6 September 2024	Tuition & Fee Payment Deadline
Saturday, 7 September 2024	Course Registration Ends
Monday, 9 September 2024	First Day of Classes
Tuesday, 10 September 2024	Add / Drop Starts
Friday, 20 September 2024	Add / Drop Ends
Saturday, 21 September 2024	Independence Day*
Monday, 28 October 2024	Midterm Exams Start
Friday, 1 November 2024	Midterm Exams End
Wednesday, 6 November 2024	Midterm Grades Due
Wednesday, 13 November 2024	Last Date to withdraw from a course without a Grade of 'F'
Thursday, 28 November 2024	US Thanks Giving*
Thursday, 12 December 2024	Last Day of Classes
Friday, 13 December 2024	Republic Day*
Saturday, 14 December 2024	Final Exams Start
Saturday, 21 December 2024	Final Exams End
Monday, 23 December 2024	Intersession Starts
Tuesday, 24 December 2024	Grade Entry Due Date
Wednesday, 25 December 2024	Christmas Day*
Friday, 27 December 2024	Grade Appeal Last Day
	*AUM & Public Holidays in Malta

SPRING SEMESTER 25	
Date	**Activity**
Monday, 6 January 2025	Placement Tests
Monday, 6 January 2025	New Faculty Orientation / New Student Orientation
Tuesday, 7 January 2025	Course Registration Starts
Monday, 13 January 2025	Tuition & Fee Payment Deadline
Monday, 13 January 2025	Course Registration Ends
Monday, 13 January 2025	First Day of Class
Monday, 13 January 2025	Add / Drop Starts
Friday, 24 January 2025	Add / Drop Ends
Monday, 3 March 2025	Midterm Exams Start
Friday, 7 March 2025	Midterm Exams End
Tuesday, 11 March 2025	Midterm Grades Due
Friday, 14 March 2025	Last Date to Withdraw from a Course without a Grade of 'F'
Wednesday, 19 March 2025	Feast of Saint Joseph*
Monday, 24 March 2025	Spring Break Begins
Friday, 4 April 2025	Spring Break Ends
Monday, 7 April 2025	Class Resume
Friday, 18 April 2025	Good Friday*
Thursday, 1 May 2025	Worker's Day*
Friday, 9 May 2025	Last Day of Class
Monday, 12 May 2025	Final Exams Start
Sunday, 18 May 2025	Final Exams End
Monday, 19 May 2025	Grade Entry Due Date
Thursday, 22 May 2025	Grade Appeal Last Day
Friday, 30 May 2025	Commencement
	*AUM & Public Holidays in Malta

AUM
AMERICAN UNIVERSITY OF MALTA

AMERICAN UNIVERSITY OF MALTA AT A GLANCE

AUM is a private university founded by Sadeen Education Investment Ltd. The Sadeen Group itself committed to establishing a university on the American model that would deliver a university education of the highest international standards. After high-level discussions, it was determined that the Republic of Malta would be the right location for the university. After a rigorous review process of all aspects of the proposed university, including its planned physical plant, academics, and financing, the American University of Malta was officially born on 16 September 2016, with the issuing of its license and accreditation (License Number 2016- 002) by Malta Further and Higher Education Authority (MFHEA).

Our Vision

The American University of Malta secures a bright future for all by producing the next generation of leaders that have an ethical, entrepreneurial, and innovative spirit.

Our Mission

The American University of Malta is an American comprehensive university dedicated to nurturing those who are inquisitive of mind, ambitious of heart and robust of spirit.

Our Values

The American University of Malta values Integrity, Quality, Relevance and Courage.
Strategic Initiatives

1. Commit to Excellence in Everything AUM
2. Foster a holistic learning environment, preparing students for a lifetime of success
3. Challenge students to reach beyond their expectations
4. Build a global brand and presence
5. Operate on the leading edge of technology in education
6. Contribute to the community and economy of Malta and the region.

General Purpose of the Catalog

A student who is admitted and enrols at AUM during any academic year may graduate under the general requirement provisions of the catalogue in effect at the time of enrolment unless the program is amended according to MFHEA standards. A student may choose to graduate under the general requirements of a subsequent catalogue, provided he or she completes all those requirements. Undergraduate students have seven years and graduate students have three years to complete the requirements from the current catalogue at the time of their admission or matriculation. After seven years, if students are not graduated, they must follow the new requirements of the most current catalogue.

Fee Structure				
Admission (one time)	Tuition fees (Per Semester)	Registration fees (Per semester)	Activities Fees (Per semester	Total Fees (Per semester)
Undergraduate (Arts, Business, Data Science)				
€1000	€4950	€100	€100	€5150
Undergraduate (Engineering)				
€1000	€5950	€100	€100	€6150
Graduate (Master)				
€1500	€6950	€200	€100	€7250
Postgraduate (Doctorate)				
€1500	€7950	€200	€100	€8250

- The admission fee is paid by the student once upon enrollment at the University.
- The University offers scholarships ranging from 25-100% based on criteria determined by the University.
- The scholarships cover tuition fees for each semester but do not include admission, registration, or activities fees.
- The above fees apply to new applicants only.
- Current students and applicants who have already paid their deposits follow the old tuition schemes.

COLLEGE OF GENERAL EDUCATION

Students in all undergraduate programs at AUM must complete the general education program, which complements and contributes to the fulfilment of the mission of the university. AUM requires that students take a set of courses beyond their major to develop their understanding of broad disciplinary areas and the connections between and among them. Courses approved for general education stress experimental and activity-based learning and the application of knowledge to concrete situations.

The General Education requirements are a total of 29-30 US credits/58-60 ETCS.

Program Objectives

The General Education Program aims to develop self-directed individuals who

- Are engaged and committed citizens aware of the global effect of social, political, and economic change
- Understand the nature of tradition and world cultures, understand the impact of the past on the present, and respond sensitively in culturally diverse environments.
- Are aware of ethical issues and think critically to make informed and responsible decisions.
- Use empirical and logical reasoning to assess evidence, evaluate data, make decisions, and solve problems.
- Understand scientific principles and contemporary developments in science and technology and their impact on human life and the environment.
- Communicate clearly and effectively in writing and speech and understand the theoretical and stylistic strategies that impact diverse audiences for various purposes.
- Can locate, access, critically evaluate, and use information ethically and efficiently for a variety of purposes and engage in independent investigations and research.
- Can interpret the meaning of different forms of artistic expression within the historical and theoretical contexts and respond to works of art.

Program Learning Outcomes

Upon graduation, the student will have experience in

- Effective written and oral communication skills and the ability to use the current technology to create a final written or oral product.
- Recognition, analysis, and evaluation of ethical issues and the ability to defend their positions through reasoned argument.
- Effective use of logical and mathematical reasoning to analyse quantitative data and solve problems for personal and professional purposes.
- Effective use of appropriate tools to access information, evaluate sources, and conduct independent research.
- An ability to employ the basic concepts of ethics or one of the social sciences to analyse a contemporary issue.
- Recognition, analysis, and resolution of scientific problems through the application of scientific methods.
- Effective use of computers to incorporate technology into academic content and to access information efficiently.

Recognition of contributions from multicultural contexts that enhance the human experience, and the interdependence of the global community to facilitate

coexistence in multicultural environments; and/ or a recognition of the historical contexts and variety of artistic forms, the nature and norms of creative processes that shape creative works, and the ability to engage in the creative production of original artifacts.

General Education Requirements

To achieve these outcomes, the General Education Program requires students to take approximately one-fourth of their total credits in the following five thematic areas: English (2 courses).

- Data and Quantitative Literacy (1 course).
- Scientific Inquiry (1 4-credit lab course).
- Humanities (3 courses).
- Social Sciences (2 courses).

The Programme Structure for the General Education Unit BA/BS:

General Education – English - Compulsory (C) : 6 credits

ENG 101: Academic English Composition I 3 credits

ENG 102: Academic English Composition II 3 credits

General Education – Data and Quantitative Literacy – one module from below: 3 or 4 credits

MAT 101: Introduction to Data Analysis, Probability, and Statistics 3 credits, **Or,**

MAT 120: Calculus 1 4 credits

General Education – Scientific Inquiry – one module from below: 4 credits

BIO 101: Biology: The Unity of Life and Lab 4 credits **Or,**

CHE 101: Introduction to Chemistry and Lab 4 credits **Or,**

CHE 111: Introduction to General Chemistry and Lab 4 credits **Or**

PHY 101: Introduction to the Physical Universe and Lab 4 credits **Or,**

PHY 111: Physics with Calculus 1 and Lab 4 credits

General Education – Humanities Subset – 3 modules from below: 9 credits

ATH 101: Arts of the Mediterranean 3 credits

ATH 103: Modernist Literature, Art, and Film 3 credits

ATH 301: Arts and Politics 3 credits

COM 101: Introduction to Multicultural Communication 3 credits

ENG 120: American Literature: 1865 to the Present 3 credits

PHI 101: Introduction to Philosophy 3 credits

PHI 102: Applied Ethics 3 credits

General Education – Social Sciences Subset – 2 modules from below: 6 credits

HIS 101: History of the Mediterranean 3 credits

HIS 120: History of Malta 3 credits

HIS 130: History of the United States of America 3 credits

PSY 101: Introduction to Psychology 3 credits

REL 101: Religious Worlds in Comparative Perspective 3 credits

SOC 101: Introduction to Sociology 3 credits

**Under MFHEA accreditation*

COLLEGE OF BUSINESS

Undergraduate Programs (MQF 6)
- BS in Accounting
- BS in Business Administration
- BS in Business and Finance

Graduate Programs (MQF 7)
- MBA
- Certificate in Finance and Accounting
- Diploma in Business Administration

Post Graduate programs (MQF 8)
- Doctorate in Business Administration
- Doctorate in Business Administration in Finance
- Doctorate in Business Administration in Accounting

UNDERGRADUATE PROGRAMS

BS IN ACCOUNTING

Introduction

The BS in Accounting is intended initially for students who are pursuing an accounting career in an international firm that adopts/recognizes US-based accountancy qualifications. This program contains all necessary courses to prepare for the Uniform CPA Examination as administered by the American Institute of CPAs. International candidates are allowed to sit for the Uniform CPA Exam in several international locations.

Entry Requirements

Admission to any AUM level 6 programs will be based on the following criteria:

- Completion of application.
- Submission of official transcripts showing that the student will have successfully completed a course of study of MQF Level 5 (e.g., the US or international high school or equivalent course of study) by the time he or she enrols at AUM.
- High school or MQF level 5 course of study GPA (minimum GPA required 2.5 out of 4.0).
- A personal essay, addressing personal goals and expectations.
- Scores on a standardized test (ACT and/or SAT). AUM may consider eliminating this requirement moving forward once a substantial body of faculty has been established.

Program Mission

The mission of the BS in Accounting program is to provide students with the skills and knowledge required to understand and analyse current accounting issues and to enable students to pursue successful business, management, and accounting careers in a responsible and sustainable way.

Program Objectives

Knowledge

The overall knowledge objective of this program is the acquisition of theory, principles, and procedures of the discipline and professional practice of accountancy, paired with familiarity with the many functional areas of a business and the interrelationships among the functional areas within a business. The program exposes students to the following areas:

a) A well-balanced general education background, including sciences, social sciences, written and oral communication,
b) Economics (macro and micro),
c) Statistics,
d) Financial accounting,
e) Managerial accounting,
f) Finance and banking,
g) General management, operations management, and management information systems,
h) Business ethics,
i) Organizational behaviour,
j) Marketing and consumer behaviour
k) Cost accounting,
l) Tax accounting,
m) Auditing,
n) Thorough preparation for US-based professional certification.
    a. An understanding of the profession of accountancy and its role in modern business environments.
    b. An awareness of the need for continuing intellectual development through either professional or academic means.

Skills

Undergraduate accounting majors will have the following goals and objectives:

- Technical Competence. Students will be able to apply and explain the application of accounting standards and regulations and, where appropriate, international accounting standards.
- Research Skills**.** Students will be able to apply and explain the application of accounting standards.
- Ethical Awareness. Students will be able to recognize ethical issues and, where appropriate, resolve those issues.
- Teamwork. Students will effectively contribute to the performance of a multicultural, diverse team.
- Critical Thinking**.** Students will be able to apply accounting knowledge in new and unfamiliar circumstances through a conceptual understanding of accounting policies and theory to make informed decisions.
- Global Perspective. Students will be able to understand global business issues in general and demonstrate an understanding of international accounting standards in particular.

Competences

- Comply with local and international accountancy rules and regulations.
- Collaborate with a management team to lead the financial operations of a business.
- Guide a team in structuring the accountancy processes of a business.

Program Learning Outcomes

a) Communication Skills

The learner will be able to:

- Written Communications. Students will demonstrate written communication skills appropriate for general business situations with an emphasis on technical accounting contexts.
- Oral Communications. Students will create and effectively deliver oral presentations that are concise and informative and conduct research appropriate to the task at hand.

b) Learning Skills

The learner will be able to:

- Proceed to graduate work in Accountancy.
- Proceed to industry-based experiences that will position them to sit for the US-based Certified Public Accountant exam.

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Graduation Requirements

To graduate with a Bachelor of Science in Accounting, a student must have completed all modules listed above, with a cumulative GPA of 2/4.

- A student who earns a cumulative grade point average (GPA) of at least 3.85 will be graduated summa cum laude.
- A student who earns a cumulative GPA of at least 3.70 but no higher than 3.85 will be graduated magna cum laude.

- A student who earns a cumulative GPA of at least 3.50 grade but no higher than 3.7 will be graduated cum laude.

Successful Progress Requirement

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were unsatisfactory. If the GPA does not reach the required threshold after two semesters of academic probation, the student may be dismissed from the program.

Course Outline

ACCOUNTING (BS) DEGREE REQUIREMENTS

		Number of Courses	US CR	ECTS CR
I. University General Education Requirements		**13**	**42-43**	**84-86**
For Details, See Section University General Education Requirements				
II. Business Core Courses		**14**	**42**	**84**
ACC 101	Principles of Accounting I		3	6
ACC 102	Principles of Accounting II		3	6
ECO 101	Microeconomics		3	6
ECO 103	Macroeconomics		3	6
FIN 201	Introduction to Finance		3	6
FIN 301	Money and Markets		3	6
MAT 201	Business Statistics		3	6
MGT 101	Principles of Management		3	6
MGT 102	Principles of Marketing		3	6
MGT 301	Operations Management		3	6
MGT 340	Management Information Systems		3	6
MGT 350	Consumer Behavior		3	6
MGT 360	Organizational Behavior		3	6
PHI 220	Business Ethics		3	6
III. Accounting Major Courses		**7**	**21**	**42**
ACC 201	Intermediate Accounting I		3	6
ACC 202	Intermediate Accounting II		3	6
ACC 210	Managerial Accounting		3	6
ACC 301	Advanced Accounting		3	6
FIN 310	Taxation		3	6
FIN 350	Auditing		3	6
FIN 420	Research and Decision Making		3	6
IV. Free Electives		**5**	**15**	**30**
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
ACCOUNTING TOTALS		**39**	**120**	**240**

SAMPLE FOUR YEAR SCHEDULE							
Bachelor of Science in Accounting							
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
ENG 101	English Composition I	3	6	BIO 101	Unity of Life and Lab	4	8
HIS 101	History of Mediterranean	3	6	ENG 102	English Composition II	3	6
MAT 101	Introduction to Data Analysis, Probality and Statistics	3	6	MAT 201	Business Statistics	3	6
REL 101	Religious Worlds in Comparative Perspectives	3	6	MGT 101	Principles of Management	3	6
	Free Elective	3	6				
	TOTAL	**15**	**30**		**TOTAL**	**13**	**26**
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
ACC 101	Principles of Accounting I	3	6	ACC 102	Principles of Accounting II	3	6
CHE 101	Introduction to Chemistry and Lab	4	8	COM 101	Communication in a Multicultural Setting	3	6
ECO 101	Microeconomics	3	6	ECO 103	Macroeconomics	3	6
	General Education: Arts / Humanities	3	6	PHY 101	Introduction to Physical Universe and Lab	4	8
	Free Eletive	3	6	PSY 101	Introduction to Psychology	3	6
	TOTAL	**16**	**32**		**TOTAL**	**16**	**32**
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
ACC 201	Intermediate Accounting	3	6	ACC 202	Intermediate Accounting II	3	6
FIN 201	Operations Management	3	6	FIN 301	Money and Marketing	3	6
MGT 340	Management Information Systems	3	6	MGT 360	Organizational Behavior	3	6
	General Education: Arts / Humanities	3	6	SOC 101	Introduction to Sociology	3	6
	Free Eletive	3	6	ACC 210	Managerial Accounting	3	6
	TOTAL	**15**	**30**		**TOTAL**	**15**	**30**
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
ACC 301	Advanced Accounting	3	6	FIN 310	Taxation	3	6
MGT 301	Operations Management	3	6	FIN 350	Auditing	3	6
MGT 102	Principles of Marketing	3	6	FIN 420	Reasearch and Decision Making	6	6
PHI 220	Business Ethics	3	6	MGT 250	Consumer Behavior	6	6
	Free Elective	3	6		Free Elective	6	6
	TOTAL	**15**	**30**		**TOTAL**	**15**	**30**
TOTAL CREDIT HOURS: 120 US/240 ECTS							

BS IN BUSINESS ADMINISTRATION

Introduction

This flexible program is geared to the student who desires an overall conceptual foundation in business administration. Students majoring in Business Administration might be preparing for law school, planning to join a family business, or intending to embark on some other specialized route. The program has sufficient flexibility to meet the needs of each of these career orientations.

Entry Requirements

Admission to any AUM level 6 programs will be based on the following criteria:

- Completion of application.
- Submission of official transcripts showing that the student will have successfully completed a course of study of MQF level 5 (e.g., US or international high school or equivalent course of study) by the time he or she enrols at AUM.
- High school or MQF level 5 course of study GPA (minimum GPA required 2.5 out of 4.0).
- A personal essay, addressing personal goals and expectations.

Scores on a standardized test (ACT and/or SAT). AUM may consider eliminating this requirement moving forward once a substantial body of faculty has been established.

Program Mission

The mission of the Business Administration program is to provide students with the skills and knowledge required to understand and analyse current business administration issues and to enable students to pursue successful business and management careers in responsible and sustainable ways.

Program Objectives

Knowledge

The overall objective of this program is acquisition of knowledge of the many functional areas of a business and of the interrelationships among the functional areas within a business. The core knowledge from studying economics, statistics, accounting, etc. will prepare the students for a well-rounded background in business. The courses from the core will provide a solid background in business knowledge.

- A well-balanced general education background, including sciences, social sciences, written and oral communication,
- Economics (macro and micro),
- Statistics,
- Financial accounting,
- Managerial accounting,
- Finance and banking
- General management, operations management, and management information systems
- Business ethics
- Organizational Behaviour
- Marketing and consumer behaviour
- International aspects of business practices

Skills

- Teamwork**.** Students will demonstrate effective interpersonal skills and the ability to work effectively.
- Quantitative Reasoning and Financial Analysis Skills. Students will demonstrate the ability to perform basic financial analysis.
- Computer Skills. Students should demonstrate proficiency in the use of general productivity software in business applications with an emphasis on Microsoft Excel.
- Global Perspectives. Students will demonstrate an understanding of global

dimensions of business including socio-cultural, political-legal, financial, technological, and economic environments.
- Ethical Reasoning. Students will have the skills to make decisions grounded in ethical thinking.

Competencies
- Collaborate as part of a team to solve problems.
- Be responsible for ethical decision-making in business.
- Guide practices in small to medium-size businesses.

Program Learning Outcomes

- Written Communications: Students shall demonstrate good written communication skills appropriate for engaging with the various stakeholders of a business.
- Oral Communications: Students will create and effectively deliver oral presentations that are concise and informative and will conduct research appropriate to the task at hand.
- Students will be able to display advanced knowledge of business and management theories and principles for addressing contemporary management issues.
- Students will be able to analyse the impact of business and management practices on the country's economic, socio-cultural, and technological environments.
- Students will have the ability to collect, develop and evaluate relevant information for purposes of making informed judgments on different business scenarios.
- Our students will evaluate ethical dilemmas facing managers of business organizations and apply ethical considerations when making business decisions.

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an under-graduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Graduation Requirements

To graduate with Bachelor of Science in Business Administration, a student must have completed all modules listed above, with a cumulative GPA of 2/4.
- A student who earns a cumulative grade point average (GPA) of at least 3.85 will be graduated summa cum laude.
- A student who earns a cumulative GPA of at least 3.70 but no higher than 3.85 will be graduated magna cum laude.
- A student who earns a cumulative GPA of at least 3.50 grade but no higher than 3.7 will be graduated cum laude.

Successful Progress Requirement:

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were

unsatisfactory. If the GPA does not reach the required threshold after two semesters of academic probation, the student may be dismissed from the program.

Course Outline

BUSINESS ADMINISTRATION (BS) DEGREE REQUIREMENTS				
		Number of Courses	**US CR**	**ECTS CR**
I. University General Education Requirements		**13**	**42-43**	**84-86**
For Details, See Section University General Education Requirements				
II. Business Core Courses		**14**	**42**	**84**
ACC 101	Principles of Accounting I		3	6
ACC 102	Principles of Accounting II		3	6
ECO 101	Microeconomics		3	6
ECO 103	Macroeconomics		3	6
FIN 201	Introduction to Finance		3	6
FIN 301	Money and Markets		3	6
MAT 201	Business Statistics		3	6
MGT 101	Principles of Management		3	6
MGT 102	Principles of Marketing		3	6
MGT 301	Operations Management		3	6
MGT 340	Management Information Systems		3	6
MGT 350	Consumer Behaviour		3	6
MGT 360	Organizational Behaviour		3	6
PHI 220	Business Ethics		3	6
III. Business Administration Major Courses		**6**	**18**	**36**
ECO 310	European Economic History		3	6
MGT 320	International Business		3	6
MGT 330	Principles of Sustainability		3	6
MGT 410	Entrepreneurship		3	6
MGT 420	Global Human Resource Management		3	6
MGT 450	Principles of Marketing Research		3	6
IV. Free Electives		**6**	**18**	**36**
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
BUSINESS ADMINISTRATION TOTALS		**39**	**120**	**240**

FOUR YEAR SCHEDULE							
Bachelor of Science in Business Administration							
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
ENG 101	English Composition I	3	6	ENG 102	English Composition II	3	6
BIO 101	Unity of Life and Lab	4	8	HIS 101	History of Mediterranean	3	6
MAT 101	Introduction to Data Analysis, Probality and Statistics	3	6	MAT 201	Business Statistics	3	6
REL 101	Religious Worlds in Comparative Perspectives	3	6	MGT 101	Principles of Management	3	6
	Free Elective	3	6	MGT 102	Principles of Marketing	3	6
	TOTAL	**26**	**32**		**TOTAL**	**15**	**30**
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
ACC 101	Principles of Accounting I	3	6	ACC 102	Principles of Accounting II	3	6
CHE 101	Introduction to Chemistry and Lab	4	8	ECO 103	Macroeconomics	3	6
COM 101	Communication in a Multicultural Setting	3	6	PHY 101	Introduction to Physical Universe and Lab	4	8
ECO 101	Microeconomics	3	6		Free Elective	3	6
	General Education: Arts / Humanities	3	6				
	TOTAL	**16**	**32**		**TOTAL**	**13**	**26**
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
FIN 201	Operations Management	3	6	FIN 301	Money and Marketing	3	6
MGT 340	Management Information Systems	3	6	MGT 360	Organizational Behavior	3	6
MGT 301	Operations Management	3	6	SOC 101	Introduction to Sociology	3	6
PSY 101	Introduction to Psychology	3	6	ECO 310	Europen Economic History	3	6
	General Education: Arts / Humanities	3	6		Free Elective	3	6
	TOTAL	**15**	**30**		**TOTAL**	**15**	**30**
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
MGT 320	Internatioanl Business	3	6	MGT 410	Entrepreneurship	3	6
MGT 330	Principles of Sustainability	3	6	MGT 420	Global Human Resource Management	3	6
MGT 350	Consumer Behavior	3	6	MGT 450	Principles of Marketing Research	3	6
PHI 220	Business Ethics	3	6		Free Elective	3	6
	Free Elective	3	6		Free Elective	3	6
	TOTAL	**15**	**30**		**TOTAL**	**15**	**30**
TOTAL CREDIT HOURS: 120 US/240 ECTS							

BS IN BUSINESS AND FINANCE

Introduction

The BS in Business and Finance is designed for those students who desire a solid foundation in business with a particular emphasis on finance. The degree is designed for a graduate to be able to be employed in any general area of finance. A graduate will be able to step into a banking institution and be well prepared to handle tasks that would normally require firm training.

Entry Requirements

Admission to any AUM level 6 programs will be based on the following criteria:

- Completion of application.
- Submission of official transcripts showing that the student will have successfully completed a course of study of MQF level 5 (e.g., US or international high school or equivalent course of study) by the time he or she enrols at AUM.
- High school or MQF level 5 course of study GPA (minimum GPA required 2.5 out of 4.0).
- Personal essay, addressing personal goals and expectations.

Scores on standardized test (ACT and/or SAT). AUM may consider eliminating this requirement moving forward once a substantial body of faculty has been established.

Program Mission

The mission of the Business Administration and Finance program is to provide the graduate with the knowledge, skills, and understanding required to work productively and fruitfully in the financial world. It provides the foundation on which to build a strong career in financial industries and services.

Program Objectives

A solid foundation in corporate finance, investments, portfolio management, and international finance will give the student a strong content background. In addition, students will develop communication and presentation skills, active listening skills, the ability to do software analysis, as well as the development of teamwork skills and a solid ethical foundation.

Knowledge

The core knowledge from studying economics, statistics, accounting, etc. will prepare the students for the study of the financial topics of corporate, investments, international, and institutions, as well as the more specialized topic of Islamic finance. The courses from the core will provide a solid background in business knowledge. The finance courses cover core areas of finance theory.

Skills

- Teamwork skills. Collaborate for effective presentations and analysis in diverse teams and develop interpersonal skills and the ability to work effectively with others.
- Quantitative Reasoning and Financial Analysis Skills. Demonstrate the ability to perform basic financial analysis.
- Research and Computer Skills. Research complex financial reports and synthesize the results. The use of appropriate software, in particular, SAS and Microsoft Excel will demonstrate their proficiency in software for business applications for research and reporting of results.
- Global Perspectives
- Demonstrate an understanding of global dimensions of business including socio-cultural, political-legal, financial, technological, and economic environments.

- Effectively function in the diverse nature of the local and global society and translate that knowledge into improved decision making.
- Work effectively in diverse teams to reach sound financial decisions

- Ethical Reasoning
  Possess the skills to make decisions grounded in ethical thinking.
- Specific Finance skills
  Articulate and apply the principal theories of finance
  Apply financial models and analytical tools to solve problems and guide financial decisions

Competencies

- Collaborate as part of a team to solve financial related problems.
- Guide financial decisions of a medium size business, operating in conventional financial environments.
- Be responsible for ethical decisions in financial matters.

Learning Outcomes

By the end of this program, students develop the ability to

- Analyse the financial management function in a business organization
- Identify and appraise different sources of business finance
- Describe the structure of financial systems and explain the role of financial intermediaries
- Apply working capital management techniques
- Undertake effective investment appraisal
- Perform business valuations

Written Communications
Demonstrate written communication skills appropriate for business situations in general and financial situations, this would include research reports and analysis of financial situations (from case studies). The ability to comprehend, analyse, then synthesize and report on financial situations will be stressed.

Oral Communications
Create and effectively deliver oral presentations that are concise and informative and conduct research appropriate to the task at hand. In addition, students will develop active listening skills so they can comprehend complex material and be able to synthesize that material and ask relevant questions.

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Graduation Requirements

To graduate with a Bachelor of Science in Business Administration, a student must have completed all modules listed above, with a cumulative GPA of 2/4.

- A student who earns a cumulative grade point average (GPA) of at least 3.85 will be graduated summa cum laude.

- A student who earns a cumulative GPA of at least 3.70 but no higher than 3.85 will be graduated magna cum laude.
- A student who earns a cumulative GPA of at least 3.50 grade but no higher than 3.70 will be graduated cum laude.

Successful Progress Requirement

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were unsatisfactory. If the GPA does not reach the required threshold after two semesters of academic probation, the student may be dismissed from the program.

Course Outline

BUSINESS ADMINISTRATION (BS) DEGREE REQUIREMENTS				
		Number of Courses	US CR	ECTS CR
I. University General Education Requirements		**13**	**42-43**	**84-86**
	For Details, See Section University General Education Requirements			
II. Business Core Courses		**14**	**42**	**84**
ACC 101	Principles of Accounting I		3	6
ACC 102	Principles of Accounting II		3	6
ECO 101	Microeconomics		3	6
ECO 103	Macroeconomics		3	6
FIN 201	Introduction to Finance		3	6
FIN 301	Money and Markets		3	6
MAT 201	Business Statistics		3	6
MGT 101	Principles of Management		3	6
MGT 102	Principles of Marketing		3	6
MGT 301	Operations Management		3	6
MGT 340	Management Information Systems		3	6
MGT 350	Consumer Behavior		3	6
MGT 360	Organizational Behavior		3	6
PHI 220	Business Ethics		3	6
III. Business Administration Major Courses		**6**	**18**	**36**
ECO 310	Europen Economic History		3	6
MGT 320	International Business		3	6
MGT 330	Principles of Sustainability		3	6
MGT 410	Entrepreneurship		3	6
MGT 420	Global Human Resource Management		3	6
MGT 450	Principles of Marketing Research		3	6
IV. Free Electives		**6**	**18**	**36**
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
	Free Elective		3	6
BUSINESS ADMINISTRATION TOTALS		**39**	**120**	**240**

FOUR YEAR SCHEDULE							
Bachelor of Science in Business Administration							
First Year, Semester I				First Year, Semester II			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
ENG 101	English Composition I	3	6	ENG 102	English Composition II	3	6
HIS 101	History of Mediterranean	3	6	BIO 101	Unity of Life and Lab	4	8
MAT 101	Introduction to Data Analysis, Probality and Statistics	3	6	MAT 201	Business Statistics	3	6
MGT 101	Principles of Management	3	6	REL 101	Religious Worlds in Comparative Perspectives	3	6
	Free Elective	3	6				
	TOTAL	15	30		TOTAL	13	26
Second Year, Semester I				Second Year, Semester II			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
ACC 101	Principles of Accounting I	3	6	ACC 102	Principles of Accounting II	3	6
COM 101	Communication in a Multicultural Setting	3	6	CHE 101	Introduction to Chemistry and Lab	4	8
ECO 101	Microeconomics	3	6	ECO 103	Macroeconomics	3	6
PHI 101	Introduction to Philosophy	3	6	PSY 101	Introduction to Psychology	3	6
PHY 101	Introduction to the Physical Universe and Lab	4	8		Free Elective	3	6
	TOTAL	16	32		TOTAL	16	32
Third Year, Semester I				Third Year, Semester II			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
FIN 201	Operations Management	3	6	FIN 250	Corporate Finance	3	6
MGT 360	Organizational Behavior	3	6	FIN 301	Money and Marketing	3	6
PHI 102	Applied Ethics	3	6	MGT 340	Management Information Systems	3	6
SOC 101	Introduction to Sociology	3	6	PHI 220	Business Ethics	3	6
	Free Elective	3	6		Free Elective	3	6
	TOTAL	15	30		TOTAL	15	30
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
FIN 305	Investments and Portfolio Management	3	6	FIN 380	Financial Statement Analysis	3	6
FIN 360	International Finance	3	6	FIN 410	Markets, Institutions, and Derivatives	3	6
MGT 301	Operations Management	3	6	FIN 430	Finance: Theory and Applications	3	6
FIN 370	Taxes, Law, and Regulation	3	6	MGT 102	Principles of Marketing	3	6
	Free Elective	3	6		Free Elective	3	6
	TOTAL	15	30		TOTAL	15	30
TOTAL CREDIT HOURS: 120 US/240 ECTS							

GRADUATE PROGRAMS

MASTER OF BUSINESS ADMINISTRATION

Introduction

This course is designed for individuals who would like to acquire the knowledge, skills, and competences to work in a managerial role in a business. To successfully complete this course, a learner must be able to work with complex quantitative and qualitative data, make decisions in uncertain circumstances and be accountable to stakeholders.

Entry Requirements

All applicants to any graduate program of study (MQF 7) at the American University of Malta must satisfy the following entry requirements:

- A baccalaureate degree (comparable to EQF level 6) with a minimum or 180 ECTS or equivalent.
- An average GPA of 2. 2.
- Any other qualifications that in their home country would be equivalent to a full degree program will be assessed independently by AUM for comparability.

Conditional admission is offered to all applicants who are still waiting for their degree results. These results must be submitted by the student to the Admissions Office within one week of receipt.

This course does not require any specific previous work experience as prerequisite. This makes this M.B.A highly advisable for those candidates that wish to undertake a high-quality Master of Business and Administration at AUM. Part-time time learners can also benefit through their workplace (for case studies, experiential learning, and projects and research activities). As such, it is intended for any candidate who complies with AUM Entry Requirements (specified in page 6 of the present document), as well as for any other professional that, by fulfilling the same Entry Requirements, is interested in obtaining further knowledge and developing competences and skills within the field of Business Administration.

Program Mission

The overall objective of the MBA at the American University of Malta is to impart the necessary knowledge, skills and competences required to successfully lead a business in the global economy. Successful managers assume responsibility to design and implement strategy consistent with a firm's long-term goals, manage costs and profitability, and supervise employees. They are responsible for solving complex problems that involve financial issues, business strategy, organizational design, research findings, legal guidelines and management of employees. The environment in which successful managers operate is frequently uncertain and subject to difficult constraints.Graduates of the American University of Malta will have the critical thinking abilities and analytical framework to make difficult business decisions that affect multiple constituencies.

Knowledge

Graduates will acquire knowledge of the following fields needed to manage a business or non-profit organization:

- Interpret, design, and apply a wide range of accounting, economics and financial practical tools and data.
- Evaluate, design, and apply comprehensive legal business policies and theoretical frameworks
- Design and implement a multi-disciplinary organizational structure, design, and culture
- Develop and maximize the efficiency of marketing strategies.
- Analyse consumer behaviour and business advertising.
- Design and apply research and statistical methods (i.e., qualitative, and quantitative).

- Implement and combine different ICT approaches into a digital society-based framework.

Skills

- Graduates will develop the following skills used in managing a business:
- Analyse competitive threats, differentiate between the complexities of external influences on business activity.
- Apply appropriate statistical and financial investment techniques and tools to business data to make successful business decisions.
- Apply performant operation management, including cost management.
- Measure and predict the impact of macroeconomics' indicators movements, including but not limited to financial systems, business cycles, labour markets, monetary and fiscal policy.
- Design a business structure indicating a clear understanding of the legal issues relevant to business, including contracts, liability, fraud, and dispute resolution.
- Use research results to justify business decisions, and the impact of general and specific environment business factors and internal financial data to develop new strategies and tactics for business development
- Classify the business' most valuable customers and prepare a strategy to maintain the organization's market position.

Competencies

- Graduates will develop the following competencies:
- Create innovative solutions to complex business problems.
- Be responsible for activities that affect business outcomes, including but not limited to financial management and reporting, strategy development and implementation, operations, marketing, and employee management.
- Make unbiased decisions that are supported by data rather than gut feelings.
- Comply with professional standards and laws and demonstrate the highest business and professional ethics.
- Design business plans that will create value for the organization and its stakeholders.
- Implement digital dedicated technology to take the business decisions in a timelier manner.

Program Learning Outcomes

Knowledge

The learner will be able to:

- Clearly transmit the vision, mission, objectives, strategic direction and business action plan to all stakeholders.
- Explain research results in non-technical terms.
- Interpret accounting and financial results for non-businesspeople.
- Explain the impact of different organizational designs on organizational efficiency.
- Critically discuss methods of organizational transformation.
- Critically discuss the impact of organizational culture on employee performance.
- Ability to use digital technology as a communication tool.

Skills

The learner will be able to:

- Proceed to doctoral level studies in a business-related field.
- Undertake independent further studies of contemporary business topics, utilizing the techniques and frameworks acquired in the program

Registration Information – Student Academic Workload

As a rule, a graduate student is required to take no more than 30 ECTS per semester. However, semester course registration is in line with student's academic performance. A student should not record less than 2.0 GPA per semester. A graduate student who

records 2.0 – 3.0 CGPA is allowed to enrol only for 2 courses per semester, equivalent with 12 ECTS (6 ECTS per course), respectively a workload of 300 hours. A graduate student who's CGPA is between 3.0 and 3.5 CGPA is allowed to enrol for 3 courses (18 ECTS), respectively workload of 450 hours. A graduate student who records equal and up to 3.5 CGPA, may enrol in 4 courses (24 ECTS) or more 5 (30 ECTS), but the workload cannot exceed 750 hours per semester. Last semester for Master in Business Administration' students is allocated for the Research Project, which require a workload of 500 hours (20 ECTS).

Graduation Requirements

To graduate with an MBA a student must have completed all modules listed below, with a cumulative GPA of 3.0/4. Students who complete the programme with a cumulative GPA of 3.6/4 or above, will graduate "with distinction".

The research project conducted in the final semester will be assessed by a faculty committee. The faculty committee will include 2 major faculty members from the topic area of the project (e.g., Finance, Marketing, Accounting, etc.) and one major faculty member from a different topic area. One of the committee members may be the sponsoring faculty member of the student. The assembling of the research project assessment committee is the responsibility of the sponsoring faculty member, who chairs the committee and manages all communications and record keeping. The committee will come to a consensus on the final grade of the student in the Research Project

MASTER OF BUSINESS ADMINISTRATION				
		Number of Courses	US CR	ECTS CR
I. Introductory Modules		**4**	**12**	**24**
MGT 520	Strategic Management		3	6
FIN 520	Economics for Managers		3	6
MAT 501	Business Statistics		3	6
MGT 510	Business Law		3	6
II. Core Modules		**4**	**12**	**24**
FIN 530	Managerial Accounting		3	6
MGT 540	Operations Management		3	6
MGT 550	Organizational Theory		3	6
MGT 500	Writing and Presenting Academic Research		3	6
III. Advanced Modules		**4**	**12**	**24**
MGT 560	Marketing Management		3	6
MGT 530	Financial Management		3	6
MGT 610	Research Methods for Business		3	6
	Free Elective		3	6
IV. Free Electives (Choose one)		**3**	**9**	**18**
FIN 510	Financial Accounting		3	6
FIN 540	Money and Banking		3	6
PHI 501	Business Ethics		3	6
V. Research Project		**1**	**12**	**24**
MGT 620	Research Project		10	20
MBA TOTALS		**13**	**46**	**92**

SAMPLE TWO-YEAR SCHEDULE							
Master Of Business Administration							
First Year, Semester I				First Year, Semester II			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
FIN 520	Economics for Managers	3	6	MGT 520	Strategic Management	3	6
MAT 501	Business Statistics	3	6	FIN 530	Managerial Accounting	3	6
MGT 500	Writing and Presenting Academic Research	3	6	MGT 530	Financial Management	3	6
MGT 510	Business Law	3	6	MGT 540	Operations Management	3	6
	TOTAL	**12**	**24**		**TOTAL**	**12**	**24**
Second Year, Semester I				Second Year, Semester II			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
MGT 550	Organisational Design, Culture and Structure	3	6	MGT 620	Research Project	10	20
MGT 560	Marketing Management	3	6				
MGT 610	Research Methods for Business	3	6				
	Free Elective	3	6				
	TOTAL	**12**	**24**		**TOTAL**	**10**	**20**
TOTAL CREDIT HOURS 46 US / 92 ECTS							

Other Qualifications

Post-Graduate Certificate in Finance and Accounting

Number of Credits: 30 ECTS
Qualification: MQF 7
Duration: 16 weeks
List of courses:

- Business Statistics (6 ECTS)
- Financial Accounting (6 ECTS)
- Economics for Managers (6 ECTS)
- Business Law (6 ECTS)
- Managerial Accounting (6 ECTS)

Post-Graduate Diploma in Business Administration

Number of Credits: 60 ECTS
Qualification: MQF 7
Duration: 32 weeks
List of courses:

- Business Statistics (6 ECTS)
- Operations Management (6 ECTS)
- Economics for Managers (6 ECTS)
- Business Law (6 ECTS)
- Managerial Accounting (6 ECTS)
- Organisational Design, Culture and Structure (6 ECTS)
- Marketing Management (6 ECTS)
- Strategic Management (6 ECTS)
- Financial Management (6 ECTS)
- Research Methods for Business (6 ECTS)

POST GRADUATE PROGRAMS (MQF 8)

- Doctorate in Business Administration
- Doctorate in Business Administration in Finance
- Doctorate in Business Administration in Accounting

DOCTORATE in BUSINESS ADMINISTRATION

Introduction

This program is designed to develop scholars for careers in business research, teaching, and consulting at academic institutions, corporations, and government ministries/government offices throughout the world.

Entry Requirements

A bachelor's or comparable academic degree (MQF level 6) in Business is required for admission. A master's degree in a business-related field, an MBA, prior exposure to academic research, and significant work experience are desirable attributes, but not essential for admission.

Applicants should submit the following items:

- Curriculum Vitae: The applicant's CV should summarize all the applicant's work history, academic qualifications, honours, accomplishments, and professional interests.
- Transcripts: Complete official transcripts of all colleges and universities the applicant has attended for one or more academic terms.
- A GMAT or GRE test score, no more than 5 years old and submitted directly from the testing agency.
- Non-native English speakers who have not previously completed a bachelor's or master's degree in an English-language program should submit scores from the internet-based test (ibt) of the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). The minimum scores for admission are a TOEFL score of 90 (ibt) or a score of 7.0 on the IELTS. Test scores are official only when received directly from the testing vendor.
- Personal statement: A brief essay detailing the following subjects:
  - Personal motivation for pursuing a research degree in business
  - Past work experiences that have prepared the applicant for the program
  - Potential ideas for research the applicant might pursue
  - A detailed description of any research projects the applicant has previously completed with faculty or under faculty supervision
  - Any additional information the applicant would like to provide to the admissions committee relevant to how the applicant's admission

will contribute to the diversity of perspectives within the program.
- Three letters of reference

Program Objectives

Competences
Graduates will demonstrate:
- Their authority in the field of business and make judgements based upon economic factors, organization-level criteria, and other relevant factors,
- Autonomy and professional integrity through their research and consulting,
- A sustained commitment to the development of new and innovative ideas in the field of business.

Knowledge
Graduates will have acquired:
- A systematic understanding of major fields of business, including organizational behaviour, human resources, economic principles & practices, and relevant ethical considerations,
- The ability to make and defend judgements based on sound evidence,
- The ability to extend or redefine existing concepts by recompiling component elements or proposing alternative frameworks to explain phenomena of interest,
- The autonomy and expertise to offer and evaluate an original, worthwhile scientific contribution to the field of business,
- The ability to fulfil all duties connected with an entry level position of an academic career,
- The competence to conduct research in a corporate, non-profit or government setting.

Skills
Graduates will be able to:
- Design, develop and articulate arguments based on scholarly research,
- Demonstrate mastery in the selection and application of research methodologies,
- Evaluate the sufficiency of evidence and predict the limitation of their assessments when information is incomplete,
- Evaluate the impact of developments in technology and social & cultural issues on business to support the changing needs of a knowledge-based society,
- Communicate their expertise to a wide audience including peers and the general public using multiple methods appropriate to a given audience,
- Produce original research.

Learning Outcomes

Communication Skills
The learner will be able to:
- Articulate the information needs of various types of audiences and select appropriate communication modality.
- Express competence in writing through publishing research articles and authoritative position papers for academic and non-academic audiences.
- Present effective research-based oral presentations.
- Interact appropriately with both academic and non-academic audiences regarding research methods and the implications of research findings.

Learning Skills
The learner will be able to:
- Conduct a critical literature review
- Formulate scientific hypotheses
- Design and conduct experiments in support of hypothesis testing
- Conduct academic research both independently and in collaboration with academic and industry professionals
- Publish scholarly articles in peer-reviewed research journals
- Consult with government agencies and private institutions on business-related issues
- Educate both undergraduate and graduate students

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Graduation Requirements

Comprehensive Examination: Upon completion of the required content courses, doctoral students are required to pass a comprehensive examination of the coursework. Questions will be submitted by each of the module instructors, who will grade the question they submit. These individual question assessments will be provided to the Doctoral Course Committee who will provide an overall assessment of the student's performance on the comprehensive exam. The comprehensive exam will be designed to be completed in roughly 4 hours. However, students will be given 8 hours to complete the exam. The comprehensive exam will be counted as 4 assessment hours.

Dissertation Proposal: The student may propose their dissertation topic after the student has passed the qualifying examination and obtained approval of their Dissertation Committee. A written dissertation proposal must be submitted to the Dissertation Committee at least 2 weeks prior to the scheduled defence. The dissertation proposal must be orally defended at a meeting of the student's Dissertation Committee. It is generally expected that all Dissertation Committee members are physically present for the dissertation proposal defence. If there is an exceptional case in which one committee member needs to participate from a remote location, the student and all committee members must assure that the conditions allow for full participation by the committee member remotely located. No more than one member of the Dissertation Committee can participate remotely.
Students whose proposal fails to be approved by their Dissertation Committee may negotiate a second presentation with their committee members. Failure to gain approval after the second proposal defence is evidence that the student lacks sufficient scholarship to complete the course and will be terminated. In addition, failure to gain approval of the dissertation proposal within 4 years from the date of course admission shall be grounds for termination.
The doctoral student advances to candidacy after the dissertation proposal has been approved by the student's Dissertation Committee and the Doctoral Course Committee. The dissertation proposal defence will be counted as 2 assessment hours.

Oral Defence: Each candidate must pass a final oral examination over the contents of the dissertation. The candidate is expected to present his or her research and findings in the context of the relevant literature and then respond to questions from the Dissertation Committee. It is generally expected that all Dissertation Committee members are physically present for the oral defence of the dissertation. If there is an exceptional case in which one committee member needs to participate in from a remote location, the student and all committee members must assure that the conditions allow for full participation by the committee member remotely located.

No more than one member of the Dissertation Committee can participate remotely.

Course Outline

Methodology Courses
- Business Statistics
- Introduction to Business Research
- Qualitative Research Methods
- Applied Multivariate Statistics

Content Courses
- Cross-Cultural Psychology
- Organizational Behaviour
- Behavioural Economics
- Corporate Social Responsibility

Workshops and Practicums
- Business Research Seminar I
- Business Research Seminar II
- Teaching Seminar
- Teaching Practicum

Dissertation
- Proposal

Dissertation

DOCTORATE in BUSINESS ADMINISTRATION in FINANCE

Introduction

This program is designed to develop scholars for careers in finance research and teaching at academic institutions.

Entry Requirements

Applicants who have at least a bachelor's degree in finance or a comparable academic degree (e.g., mathematics with coursework in finance and accounting) will be considered for admission.
Admission is based primarily upon superior academic achievement and potential to contribute to finance-related research and education. However, the admissions committee also considers the diversity of an entering class as important to the school's educational mission.

Applicants should submit the following items:
- Curriculum Vitae: The applicant's CV should summarize all of the applicant's work history, academic qualifications, honours, accomplishments, and professional interests.
- Transcripts: Complete official transcripts of all colleges and universities the applicant has attended for one or more academic terms.
- A GMAT or GRE test score, no more than 5 years old and submitted directly from the testing agency.
- Non-native English speakers who have not previously completed a bachelor's or master's degree in an English-language program should submit scores from the internet-based test (ibt) of the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). The minimum scores for admission are a TOEFL score of 90 (ibt) or a score of 7.0 on the IELTS. Test scores are official only when received directly from the testing vendor.
- Personal statement: A brief essay detailing the following subjects:
  - Personal motivation for pursuing a research degree in business
  - Past work experiences that have prepared the applicant for the program
  - Potential ideas for research the applicant might pursue
  - A detailed description of any research projects the applicant has previously completed with faculty or under faculty supervision
  - Any additional information the applicant would like to provide to the admissions committee relevant to how the applicant's admission will contribute to the diversity of perspectives within the program.
- Three letters of reference

Program Objectives

Competencies

Graduates will be able to:

- Be responsible for the autonomous design, conduct and analysis of research.
- Apply and interpret relevant finance and behavioural theory relative to contemporary organizational problems.
- Manage compliance with ethical standards when conducting or disseminating research, particularly in relation to human subjects and data privacy concerns.
- Carry out a critical evaluation of research quality and approaches to organizational decision-making.
- Deal with the influence of multicultural perspectives on knowledge creation and dissemination.
- Manage the application of learning theory and pedagogical practices in a college classroom setting.
- Sustain a commitment to the development of new and innovative ideas in theory and practice of finance.

Knowledge

Graduates will have acquired:

- Evaluate major issues related to corporate finance, asset pricing, and financial markets.
- Explain economic principles & practices, banking and the analysis & reporting of financial data.
- Assess the interaction of between behavioural finance and culture.
- Combine statistics, probability, and advanced quantitative and qualitative methods of analysis.
- Demonstrate research dissemination techniques and methods, including alternative ways to inform via written, oral, and visual media.
- Combine principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of learning.
- Evaluate human behaviour and performance, including individual differences in ability, personality, and motivation.
- Assess business symptoms, state problems and opportunities, list potential causes, and develop testable research hypotheses.
- Demonstrate competence in a variety of quantitative and qualitative research methods.
- Apply a variety of statistical techniques for data analysis, simulation and forecasting using appropriate software.
- Explain the assumptions underlying major theoretical frameworks across the finance discipline.
- Interpret theoretical finance and behavioural psychology frameworks to explain the mechanisms responsible for a given organizational phenomenon.
- Evaluate the usefulness of existing theoretical frameworks to explain organizational problems, opportunities & challenges.
- Assess the potential risks and benefits of proposed research involving human subjects, including informed-consent, and a respect for confidentiality and intellectual property.
- Demonstrate competence in accurately reporting research results and potential implications, including the facilitation of the validation of results by other researchers.
- Explain the influence of investigator bias on the design, execution and analysis of during a research project.

Skills

Graduates will be able to:

- Comprehend written research and the oral presentation of research.
- Explain information effectively using written & oral presentation as appropriate for the needs of the audience.
- Appraise the implications of new information for both current and future problem-solving and decision-making.

- Examine complex problems and review related information to develop options and potential solutions.
- Use logic and reasoning to evaluate the strengths and weaknesses of alternative solutions or approaches.
- Evaluate the relative costs and benefits of potential actions and choose the most appropriate option for a given situation.
- Select and apply instructional methods and procedures appropriate for the situation.

Program Learning Outcomes

Communication Skills
The learner will be able to:
- Articulate the information needs of various types of audiences and select appropriate communication modality.
- Express competence in writing through publishing research articles and whitepapers for academic and non-academic audiences.
- Present effective research-based oral presentations.
- Interact appropriately with both academic and non-academic audiences regarding research methods and the implications of research findings.

Learning Skills
The learner will be able to:
- Pursue a career as a college finance professor/instructor, teaching at both the undergraduate and graduate level
- Conduct academic/scholarly research both independently and in collaboration with academic peers and industry professionals
- Publish scholarly articles in peer-reviewed research journals
- Consult with government agencies and private institutions on finance-related issues

Graduation Requirements

Comprehensive Examination**:** Upon completion of the required content courses, doctoral students are required to pass a comprehensive examination of the coursework. Questions will be submitted by each of the module instructors, who will grade the question they submit. These individual question assessments will be provided to the Doctoral Course Committee who will provide an overall assessment of the student's performance on the comprehensive exam. The comprehensive exam will be designed to be completed in roughly 4 hours. However, students will be given 8 hours to complete the exam. The comprehensive exam will be counted as 4 assessment hours.

Dissertation Proposal**:** The student may propose their dissertation topic after the student has passed the qualifying examination and obtained approval of their Dissertation Committee. A written dissertation proposal must be submitted to the Dissertation Committee at least 2 weeks prior to the scheduled defence. The dissertation proposal must be orally defended at a meeting of the student's Dissertation Committee. It is generally expected that all Dissertation Committee members are physically present for the dissertation proposal defence. If there is an exceptional case in which one committee member needs to participate from a remote location, the student and all committee members must assure that the conditions allow for full participation by the committee member remotely located. No more than one member of the Dissertation Committee can participate remotely.
Students whose proposal fails to be approved by their Dissertation Committee may negotiate a second presentation with their committee members. Failure to gain approval after the second proposal defence is evidence that the student lacks sufficient scholarship to complete the course and will be terminated. In addition, failure to gain approval of the dissertation proposal within 4 years from the date of course admission shall be grounds for termination.
The doctoral student advances to candidacy after the dissertation proposal has been approved by the student's Dissertation Committee and the Doctoral Course Commi-

ttee. The dissertation proposal defence will be counted as 2 assessment hours.

Oral Defence: Each candidate must pass a final oral examination over the contents of the dissertation. The candidate is expected to present his or her research and findings in the context of the relevant literature and then respond to questions from the Dissertation Committee. It is generally expected that all Dissertation Committee members are physically present for the oral defence of the dissertation. If there is an exceptional case in which one committee member needs to participate in from a remote location, the student and all committee members must assure that the conditions allow for full participation by the committee member remotely located. No more than one member of the Dissertation Committee can participate remotely.

Course Outline

Methodology Courses
- Business Statistics
- Introduction to Business Research
- Qualitative Research Methods
- Applied Multivariate Statistics for Finance

Content Courses
- Microeconomic Theory and Application
- Financial Accounting Research
- Empirical Asset Pricing
- Behavioural Economics

Workshops and Practicums
- Finance Research Seminar I
- Finance Research Seminar II
- Teaching Seminar
- Finance Teaching Practicum

Dissertation
- Proposal
- Dissertation

DOCTORATE in BUSINESS ADMINISTRATION in ACCOUNTING

Introduction

This program is designed to develop scholars for careers in accounting research and teaching at academic institutions. Additional career opportunities include serving as an analyst in the fields of forensic accounting, accounting malpractice, and securities fraud.

Entry Requirements

Applicants who have at least a bachelor's or comparable academic degree in accounting will be considered for admission. A master's degree in accounting, an MBA, prior exposure to academic research, and significant work experience are desirable attributes, but not essential for admission.

Admission is based primarily upon superior academic achievement and potential to contribute to business research and education. However, the admissions committee also considers the diversity of an entering class as important to the school's educational mission.

Applicants should submit the following items:
- Curriculum Vitae: The applicant's CV should summarize all the applicant's work history, academic qualifications, honours, accomplishments, and professional interests.
- Transcripts: Complete official transcripts of all colleges and universities the applicant has attended for one or more academic terms.
- A GMAT or GRE test score, no more than 5 years old and submitted directly from the testing agency.
- Non-native English speakers who have not previously completed a bachelor's or master's degree in an English-language program should submit scores from the internet-based test (ibt) of the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). The minimum scores for admission are a TOEFL score of 90 (ibt) or a score of

7.0 on the IELTS. Test scores are official only when received directly from the testing vendor.

- Personal statement: A brief essay detailing the following subjects:
  - Personal motivation for pursuing a research degree in business
  - Past work experiences that have prepared the applicant for the program
  - Potential ideas for research the applicant might pursue
  - A detailed description of any research projects the applicant has previously completed with faculty or under faculty supervision
  - Any additional information the applicant would like to provide to the admissions committee relevant to how the applicant's admission will contribute to the diversity of perspectives within the program.
- Three letters of reference

Program Objectives

Competencies

Graduates will demonstrate the ability to:

- Be responsible for the autonomous design, conduct and analysis of their accounting research.
- Apply and interpret relevant accounting and behavioural theory relative to contemporary organizational problems.
- Manage compliance with ethical standards when conducting or disseminating research, particularly in relation to human subjects and data privacy concerns.
- Carry out a critical evaluation of research quality and approaches to organizational decision-making.
- Deal with the influence of multicultural perspectives on knowledge creation and dissemination.
- Manage the application of learning theory and pedagogical practices in a college classroom setting.
- Sustain a commitment to the development of new and innovative ideas in the field of business.

Knowledge

Graduates will have acquired:

- A systematic understanding of accountancy, the role of information & measurement systems, and ethical considerations relevant to the accounting profession,
- The ability to make and defend judgements based on sound evidence,
- The ability to extend or redefine existing concepts by recompiling component elements or proposing alternative frameworks to explain phenomena of interest,
- The autonomy and expertise to offer and evaluate an original, worthwhile scientific contribution to the field of accountancy,
- The ability to fulfil all duties connected with an entry level position of an academic career in accountancy,
- The competence to conduct research in a corporate, non-profit or government setting.

Skills

Graduates will be able to:

- Evaluate written research and the oral presentation of research.
- Explain information effectively using written & oral presentation as appropriate for the needs of the audience.
- Appraise the implications of new information for both current and future problem-solving and decision-making.
- Examine complex problems and review related information to develop options and potential solutions.
- Use logic and reasoning to evaluate the strengths and weaknesses of alternative solutions or approaches.
- Evaluate the relative costs and benefits of potential actions and choose the most appropriate option for a given situation.
- Select and apply instructional methods and procedures appropriate for the situation.

Learning Outcomes

Communication Skills

- Articulate the information needs of various types of audiences and select appropriate communication modality.
- Express competence in writing through publishing research articles and whitepapers for academic and non-academic audiences.
- Present effective research-based oral presentations.
- Interact appropriately with both academic and non-academic audiences regarding research methods and the implications of research findings.

Learning Skills

- Pursue a career as a college accounting professor, teaching at both the undergraduate and graduate level
- Conduct academic research both independently and in collaboration with academic peers and industry professionals
- Publish scholarly articles in peer-reviewed research journals
- Consult with government agencies and private institutions on accounting-related issues
- Pursue a career as an analyst in the fields of forensic accounting, accounting malpractice, or securities fraud.

Graduation Requirements

Comprehensive Examination: Upon completion of the required content courses, doctoral students are required to pass a comprehensive examination of the coursework. Questions will be submitted by each of the module instructors, who will grade the question they submit. These individual question assessments will be provided to the Doctoral Course Committee who will provide an overall assessment of the student's performance on the comprehensive exam. The comprehensive exam will be designed to be completed in roughly 4 hours. However, students will be given 8 hours to complete the exam. The comprehensive exam will be counted as 4 assessment hours.

Dissertation Proposal**:** The student may propose their dissertation topic after the student has passed the qualifying examination and obtained approval of their Dissertation Committee. A written dissertation proposal must be submitted to the Dissertation Committee at least 2 weeks prior to the scheduled defence. The dissertation proposal must be orally defended at a meeting of the student's Dissertation Committee. It is generally expected that all Dissertation Committee members are physically present for the dissertation proposal defence. If there is an exceptional case in which one committee member needs to participate from a remote location, the student and all committee members must assure that the conditions allow for full participation by the committee member remotely located. No more than one member of the Dissertation Committee can participate remotely.

Students whose proposal fails to be approved by their Dissertation Committee may negotiate a second presentation with their committee members. Failure to gain approval after the second proposal defence is evidence that the student lacks sufficient scholarship to complete the course and will be terminated. In addition, failure to gain approval of the dissertation proposal within 4 years from the date of course admission shall be grounds for termination.
The doctoral student advances to candidacy after the dissertation proposal has been approved by the student's Dissertation Committee and the Doctoral Course Committee. The dissertation proposal defence will be counted as 2 assessment hours.

Oral Defence: Each candidate must pass a final oral examination over the contents of the dissertation. The candidate is expected to present his or her research and findings in the context of the relevant literature and then respond to questions from the

Dissertation Committee. It is generally expected that all Dissertation Committee members are physically present for the oral defence of the dissertation. If there is an exceptional case in which one committee member needs to participate in from a remote location, the student and all committee members must assure that the conditions allow for full participation by the committee member remotely located. No more than one member of the Dissertation Committee can participate remotely.

Course Outline

Methodology Courses
- Business Statistics
- Introduction to Business Research
- Qualitative Research Methods
- Applied Multivariate Statistics

Content Courses
- Microeconomic Theory
- Auditing and Assurance Research
- Judgment and Decision Making
- Managerial Control Systems

Workshops and Practicums
- Accounting Research Seminar I
- Accounting Research Seminar II
- Teaching Seminar
- Accounting Teaching Practicum

Dissertation
- Proposal
- Dissertation

COLLEGE OF DATA SCIENCE AND ENGINEERING

Undergraduate programs (MQF 6)
- BSc in Civil Engineering
- BSc in Electronics and Communications Engineering
- BSc in Industrial Engineering
- BSc in Mechanical Engineering
- BSc in Game Development

Graduate programs (MQF 7)
- MSc. in Engineering Management
- MSc. in Cybersecurity
- MSc. in Computer Science (taught)
- MSc. in Computer Science (research-based)

Post Graduate programs (MQF 8)
- PhD in Computer and Information Science

UNDERGRADUATE PROGRAMS (MQF 6)

BSC IN CIVIL ENGINEERING

Introduction

The Bachelor of Science in Civil Engineering provides a fundamental background in all civil engineering subdisciplines: construction, environmental, geotechnical, hydraulics, structures, and transportation engineering. Graduates will be prepared to immediately contribute to professional practice in those subfields in entry-level engineering positions.

Entry Requirements

Admission to any AUM level 6 programs will be based on the following criteria:

- Completion of application.
- Submission of official transcripts showing that the student will have successfully completed a course of study of MQF level 5 (e.g., US or international high school or equivalent course of study) by the time he or she enrols at AUM.
- High school or MQF level 5 course of study GPA (minimum GPA required 2.5 out of 4.0).
- Personal essay, addressing personal goals and expectations.

Scores on standardized test (ACT and/or SAT). AUM may consider eliminating this requirement moving forward once a substantial body of faculty has been established.

Program Mission

The mission of the BS in the Civil Engineering program is to prepare graduates for employment as professional engineers in the wide range of fields associated with civil engineering. The knowledge and skills graduates acquire enable them to work in a wide range of related occupations. Civil engineers plan, design, develop and manage projects for the construction or repair of buildings, earth structures, powerhouses, roads, airports, railways, rapid transit facilities, bridges, tunnels, canals, dams, ports and coastal installations and systems related to highway and transportation services, water distribution and sanitation. Civil engineers may also specialize in foundation analysis, building and structural inspection, surveying, geomatics, and municipal planning. Civil engineers are employed by engineering consulting companies, in all levels of government, by construction firms and in many other industries, or they may be self-employed.

Program Objectives

The Civil Engineering Program objectives and indicators are:

- Technical Proficiency. Building on fundamental knowledge, graduates will develop technical skills within and across disciplines in civil engineering and/or in closely related fields.
- Professional Growth. Graduates will develop and exercise their capabilities for life-long learning to enhance their technical and non-technical skills.
- Management Skills. Graduates will develop and refine their knowledge and skills for management, communi-cations, and professional ethics or communications components.

Program Learning Outcomes

Communication Skills,
The learner will be able to achieve the following:

- prepare professional proposals and reports
- competently deliver oral presentations to technical and lay audiences
- develop and use effective audio/visual aids
- write effective professional communi-cations such as email and memorandums

- communicate within the engineering disciplines through plans and drawings

Learning Skills

The learner will be able to achieve the following:

- ability to apply knowledge of mathematics, science, and engineer
- ability to design and conduct experiments, as well as to analyse and interpret data
- ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainably
- ability to function on multidisciplinary test
- ability to identify, formulate, and solve engineering problems
- understanding of professional and ethical responsibility
- ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- recognition of the need for, and an ability to engage in life-long learning
- knowledge of contemporary issues
- ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Degree Requirements

The BS in Civil Engineering is a four-year degree program. In their first and to some extent their second year, students focus on completion of the University's General Education Program (43 US / 86 ECTS credits), with specialized courses in Civil Engineering gradually introduced. Into the third- and fourth-year students focus increasingly on Civil Engineering topics. To earn a bachelor's degree, students must satisfactorily complete at least 133 US/ 266 ECTS credits, fulfil all the requirements for the BS in Civil Engineering degree, and achieve a CGPA of 2.00 or higher.

The degree is designed to be completed in four years, assuming students make satisfactory progress toward the degree and do not interrupt their studies. Students who withdraw or take a leave of absence from the program must meet requirements for returning that are outlined in the American University of Malta's Catalogue. Students are required to meet specific standards to progress, as well as the maximum time allowed to complete the program, which is also detailed in the University Catalog. If a degree is not completed within a period of six years all coursework in the major will be re-evaluated for its current relevance.

Successful Progress Requirement

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were unsatisfactory. If the GPA does not reach the required threshold after two

semesters of academic probation, the student may be dismissed from the program.

CIVIL ENGINEERING (BS) DEGREE REQUIREMENTS

		Number of Courses	US CR	ECTS CR
I. University General Education Requirements		13	42-43	84-86
	For Details, See Section University General Education Requirements			
II. Related Requirements		**8**	**21**	**42**
ENR 102	Introduction to Engineering Lecture Series and Design		3	6
ENR 211	Dynamics		1	2
ENR 212	Engineering Economics		1	2
MAT 105	Introduction to MATLAB I		1	2
MAT 130	Calculus II		4	8
MAT 220	Multivariable Calculus		4	8
MAT 250	Differential Equations		3	6
PHY 240	Introductory Electricityand Magnetism		4	8
III. Civil Engineering Major Courses		**23**	**70**	**140**
CIE 210	Engineering Graphics		2	4
CIE 214	Statics		3	6
CIE 215	Mechanics of Materials		3	6
CIE 218	Mechanics of Fluids		4	8
CIE 251	Elementary Surveying		3	6
CIE 301	Engineering Communication		3	6
CIE 303	Numerical Analysis for Civil Engineers		3	6
CIE 310	Probability and Statistics for Civil Engineering		3	6
CIE 323	Hydraulic Engineering and Design		4	8
CIE 333	Elementary Structural Analysis		3	6
CIE 334	Structural Design in Steel		3	6
CIE 335	Structural Design in Concrete		3	6
CIE 343	Soil Mechanics		4	8
CIE 363	Transportation Engineering and Pavement Design		4	8
CIE 381	Construction Engineering Management		3	6
CIE 389	Materials Testing Laboratory		1	2
CIE 408A	Issues in Civil Engineering Practice		3	6
CIE 408B	Civil Engineering Senior Capstone Design		3	6
CIE 427	Computer Applications in Hydraulics		3	6
CIE 440	Foundation Engineering		3	6
CIE 442	Ground Improvement		3	6
CIE 463	Traffic Flow and Capacity Analysis		3	6
CIE 482	Construction Project Planning, Scheduling and Control		3	6
TOTAL		**44**	**134**	**268**

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FOUR YEAR SCHEDULE							
Bachelor of Science in Civil Engineering							
First Year, Semester I				First Year, Semester II			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
ENG 101	English Composition I	3	6	ENG 102	English Composition II	3	6
MAT 120	Calculus I	4	8	SOC 101	Introduction to Sociology	3	6
CHE 111	Introduction to General Chemistry and lab	4	8	PHY 111	Physics with Calculus and lab	4	8
HIS 101	History of the Mediterranean	3	6	BIO 101	Unity of Life and lab	4	8
ENR 102	Intro to Engineering and Eng. Des.	3	6	MAT 130	Calculus	4	8
	TOTAL	17	34		TOTAL	18	36
Second Year, Semester I				Second Year, Semester II			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
ENR 212	Engineering Economics	1	2	MAT 105	Introduction to MATLAB1	1	2
PHY 240	Intro Electricity and Magnetism (w/lab) or Gen Chem II (w/lab)	4	8	COM 101	Introduction to Multicultural Communication	3	6
CIE 210	Engineering Graphics	2	4	CIE 215	Mechanics of Materials	3	6
CIE 214	Statistics	3	6	CIE 310	Prob and Stats for Civil Eng.	3	6
MAT 220	Multivariable Calculus	4	8	CIE 251	Elementary Surveying and lab	3	6
REL 101	Religious Worlds in Comparative Perspective	3	6	MAT 250	Differential Equations	3	6
	TOTAL	17	34		TOTAL	16	32
Third Year, Semester I				Third Year, Semester II			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
PHI 101	Introduction to Philosophy,	3	6	CIE 323	Hydraulic Engineering and Design	4	8
CIE 301	Engineering Communications	3	6	CIE 334	Structural Design in Steel	3	6
CIE 303	Numerical Analysis for Civ. Engineers	3	6	CIE 335	Structural Design in Concrete	3	6
CIE 218	Mechanics of Fluids and lab	4	8	CIE 343	Soil Mechanics	4	8
CIE 333	Elementary Structural Analysis	3	6	CIE 389	Materials Testing Laboratory	1	2
ENR 211	Dynamics	1	2	PHI 102	Applied Ethics	3	6
	TOTAL	17	34			18	36
Fourth Year, Semester I				Fourth Year, Semester II			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
CIE 363	Transportation Engineering and Pavement Design	4	8	CIE 408B	Civil engineering Senior Capstone Design	3	6
CIE 381	Construction Engineering Management	3	6	CIE 440	Foundation Engineering	3	6
PSY 101	Introduction to Psychology	3	6	CIE 442	Ground Improvement	3	6
CIE 408A	Issues in Civil Engineering Practice	3	6	CIE 463	Traffic Flow and Capacity Analysis	3	6
CIE 427	Computer Applications in Hydraulics	3	6	CIE 482	Construction Project Planning, Scheduling, and Control	3	6
	TOTAL	16	32		TOTAL	15	30
TOTAL CREDIT HOURS 134 US / 268 ECTS							

BSC IN ELECTRONICS AND COMMUNICATIONS ENGINEERING

Introduction

The Bachelor of Science in Electronics and Communications Engineering is designed for students interested in a focus on electronics and communications within the broader field of electrical engineering, such as telecommunications engineering, computer science engineering, consumer electronics engineering, electronics circuit design engineering, electronics test and maintenance engineering, or electronics and communications research engineering.

Entry Requirements

Admission to any AUM level 6 programs will be based on the following criteria:

- Completion of application.
- Submission of official transcripts showing that the student will have successfully completed a course of study of MQF level 5 (e.g., US or international high school or equivalent course of study) by the time he or she enrols at AUM.
- High school or MQF level 5 course of study GPA (minimum GPA required 2.5 out of 4.0).
- Personal essay, addressing personal goals and expectations.

Scores on a standardized test (ACT and/or SAT). AUM may consider eliminating this requirement moving forward once a substantial body of faculty has been established.

Program Missions

The mission of the BS in Electronics and Communications Engineering program is to prepare graduates for employment as professional engineers in the field of electronics and communications engineering. The knowledge and skills graduates acquire enable them to work in a wide range of related occupations.

Program Objectives

To achieve its mission, the program provides students with the following knowledge, skills, and competences:

Knowledge

Students who major in Electronics and Communications Engineering will acquire knowledge in the following areas:

- Basic Sciences.
- Mathematics.
- Engineering Areas:
    - Electric circuits and associated labs.
    - Electronics and associated labs.
    - Digital systems, computers, and associated labs.
    - Signals, systems, & communications and associated lab.
    - Control systems and integrated systems design.
- will demonstrate an understanding of professional and ethical responsibility.
- will demonstrate the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- will develop a recognition of the need for life-long learning.
- will demonstrate a knowledge of contemporary issues.

Skills

- Students will develop analytical and critical thinking skills.
- Students will develop appropriate information technology (IT) skills.
- Students will demonstrate an ability to apply knowledge of mathematics, science, and engineering.

- Students will demonstrate an ability to design and conduct experiments, as well as to analyse and interpret data.
- Students will demonstrate an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- Students will demonstrate an ability to function on multidisciplinary teams.
- Students will demonstrate an ability identify, formulate, and solve engineering problems.
- Students will demonstrate an ability to communicate effectively.
- Students will demonstrate an ability to engage in life-long learning.
- Students will demonstrate an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Competences

- Ability to independently analyse, design, and implement electronic systems
- Ability to independently analyse, design, and implement communications systems
- Ability to collaborate effectively with a team to design and development a system involving electronics and/or communications components.
- Ability to use computer hardware and software to solve engineering problems.
- Ability to effectively utilize laboratory equipment to analyse electronic systems.
- Ability to apply mathematics to analyse and design engineering systems.

Program Learning Outcomes

Communication Skills

- Produce effective written lab reports.
- Effectively communicate orally with team members in the capstone design class.
- Produce well-written lab reports and give an effective oral presentation of the capstone design project.

Learning Skills

- Secure employment where electronics and communication engineering skills can be utilized.
- Proceed to graduate work in electronics and communication engineering and related fields.
- Independently study new emerging technologies, using the frameworks and tools acquired in the program.

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Degree Requirements

The BS in Electronics and Communications Engineering is a four-year degree program. In their first and to some extent their second year, students focus on completion of the University's General Education Program

(43 US / 86 ECTS credits), with specialized courses in Electronics and Communications Engineering gradually introduced. Into the third- and fourth-year students will focus increasingly on Electronics and Communications Engineering topics. To earn a bachelor's degree, students must satisfactorily complete at least 129 US / 258 ECTS credits, complete the General Education Program, fulfil all the requirements for the BS in Electronics and Communications Engineering degree, and achieve a CGPA of 2.00 or higher.

Successful Progress Requirement

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were unsatisfactory. If the GPA does not reach the required threshold after two semesters of academic probation, the student may be dismissed from the program.

ELECTRONICS & COMMUNICATIONS ENGINEERING (BS) DEGREE

		Number of Courses	US CR	ECTS CR
I. University General Education Requirements		**13**	**43**	**86**
	For Details, See Section University General Education Requirements			
II. Electronic and Communications Core Courses		**7**	**25**	**50**
CHE 112	General Chemistry II and Lab		4	8
CSC 201	Introduction to C		3	6
MAT 130	Calculus II		4	8
MAT 220	Multivariable Calculus		4	8
MAT 250	Differential Equations		3	6
MAT 260	Linear Algebra		3	6
PHY 112	Physics with Calculus II and Lab		4	8
III. Electronic and Communications Major Courses		**15**	**51**	**102**
ECE 201	Logic and Computing Devices and Lab		3	6
ECE 202	Electric Circuits I and Lab		4	8
ECE 262	Electric Circuits II and Lab		4	8
ECE 272	Computer Organization and Lab		4	8
ECE 317	Random Signal Analysis		3	6
ECE 320	Electronics I and Lab		3	6
ECE 321	Electronics II and Lab		4	8
ECE 330	Signals, Systems, and Transforms and Lab		4	8
ECE 371	Microprocessor Interfacing and Lab		4	8
ECE 382	Electromagnetics		3	6
ECE 409	Introduction to Linear Control Systems		3	6
ECE 427	Communications Systems		3	6
ECE 430	Digital Communications		3	8
ECE 467	Introduction to Digital Signal Processing		3	6
ECE 495	Integrated System Design I		2	4
ECE 496	Integrated System Design II		2	4
IV. Technical Electives (select one)		**1**	**3**	**6**
ECE 404	Semiconductor Devices		3	6
ECE 438	Computer Communications		3	6
TOTAL		**36**	**134**	**268**

SAMPLE FOUR-YEAR SCHEDULE							
Bachelor of Science in Electronics and Communications Engineering							
First Year, Semester 1				**First Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
ENG 101	English Composition I	3	6	CHE 112	General Chemistry II with Lab	4	8
CHE 111	Introduction to General Chemistry and Lab	4	8	ENG 102	English Composition II	3	6
MAT 120	Calculus I	4	8	MAT 130	Calculus II	4	8
REL 101	Religious Worlds in Comparative Perspective	3	6	PHY 111	Physics with Calculus I with Lab	4	8
	TOTAL	**14**	**28**		**TOTAL**	**15**	**30**
Second Year, Semester 1				**Second Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
CSC 201	Introduction to Programming in C with Lab	3	6	BIO 101	Unity of Life with Lab	4	8
ECE 201	Logic and Computing Devices	3	6	ECE 262	Electric Circuits II with Lab	4	8
ECE 202	Electric Circuits I with Lab	4	8	ECE 272	Computer Organization with Lab	4	8
MAT 220	Multivariate Calculus	4	8	MAT 250	Differential Equations	3	6
PHY 112	Physics with Calculus II	4	8				
	TOTAL	**18**	**36**		**TOTAL**	**15**	**30**
Third Year, Semester 1				**Third Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
COM 101	Introduction to Multicultural Communication	3	6	ECE 317	Random Signal Analysis	3	6
ECE 320	Electronics I with Lab	4	8	ECE 321	Electronics II with Lab	4	8
ECE 330	Signals, Systems, and Transformations with Lab	4	8	ECE 371	Microprocessor Interfacing with Lab	4	8
MAT 260	Linear Algebra	3	6	ECE 382	Electromagnetics	3	6
PHI 101	Introduction to Philosophy (or ATH 101)	3	6	PHI 102	Applied Ethics	3	6
	TOTAL	**17**	**34**		**TOTAL**	**17**	**34**
Fourth Year, Semester 1				**Fourth Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
ECE 409	Introduction to Linear Control Systems	3	6	ECE 467	Introduction to Digital Signal Processing	3	6
ECE 427	Communications Systems	3	6	ECE 496	Integrated System Designs II	4	8
ECE 430	Digital Communications	4	8	HIS 101	History of the Mediterranean	3	6
ECE 495	Integrated System Design I	4	8	SOC 101	Introduction to Sociology	3	6
PSY 101	Introduction to Psychology	3	6		Technical Elective	3	6
	TOTAL	**17**	**34**		**TOTAL**	**16**	**32**
TOTAL CREDIT HOURS: 129 US / 258 ECTS							

BS in INDUSTRIAL ENGINEERING

Introduction

The Bachelor of Science in Industrial Engineering provides a fundamental background in all Industrial engineering subdisciplines. Whether it is manufacturing smart phones or superior automobiles, streamlining an operating room in a hospital, shortening a rollercoaster line at an amusement park, or distributing products worldwide, these challenges share the common goal of saving a company money and increasing efficiency. Industrial engineers take courses in a variety of subjects such as production and process design, production planning, optimization, modelling and simulation, information management, facility layout, job/workplace design, engineering management, material flow, and distribution.

Entry Requirements

Admission to any AUM level 6 programs will be based on the following criteria:

- Completion of application.
- Submission of official transcripts showing that the student will have successfully completed a course of study of MQF level 5 (e.g., US or international high school or equivalent course of study) by the time he or she enrols at AUM.
- High school or MQF level 5 course of study GPA (minimum GPA required 2.5 out of 4.0).
- Personal essay, addressing personal goals and expectations.

Scores on standardized test (ACT and/or SAT). AUM may consider eliminating this requirement moving forward once a substantial body of faculty has been established.

Program Mission

The mission of the BS in the Industrial Engineering program is to prepare graduates for employment as professional engineers in the wide range of fields associated with Industrial engineering. Our students combine technical knowledge and skills from engineering, business, and social sciences to design, evaluate, monitor, and improve system performance. Industrial engineering graduates go on to a wide variety of careers related to manufacturing, entertainment, shipping and logistics, healthcare, project management, transportation, systems modelling, telecommunications, customer service, and government. Many of our industrial engineers use the foundations we provide to pursue management positions in high tech industries.

Program Objectives

The Industrial Engineering Program objectives and indicators are:

Technical Proficiency. Graduates integrate mathematics, physics, engineering science, operations research, applied probability and statistics, manufacturing technology, production planning, and computer simulation to model and analyse entire systems that are composed of their individual components, subsystems, and processes.

Professional Growth. Graduates develop and exercise their capabilities for life- long learning as a means to enhance their technical and social skills.

Management Skills. Graduates develop and refine their management, communications, and professional skills to increase their effectiveness as team members and team leaders.

Program Learning Outcomes

Knowledge

- ability to apply knowledge of mathematics, science, and engineering

- ability to design and conduct experiments, as well as to analyse and interpret data
- ability to design systems, component, or process to meet needs within realistic constraints
- ability to function on multidisciplinary teams
- ability to identify, formulate, and solve engineering problems
- understanding of professional and ethical responsibility
- ability to communicate effectively
- broad education necessary to understand the impact of engineering solutions
- recognition of the need for, and an ability to engage in lifelong learning
- knowledge of contemporary issues
- ability to use techniques, skills, and modern engineering tools necessary for engineering practice

Communication Skills

- prepare professional proposals and reports
- competently deliver oral presentations to technical and lay audiences
- develop and use effective audio/visual aids
- write effective professional communi-cations such as email and memorandums
- communicate within the engineering disciplines through plans and drawings

Learning Skills

- understand the impact of engineering solutions in a global, economic, environmental, and societal context
- recognize the need to engage life-long learning
- be capable of developing a career plan including options for advanced education or specialized training to enhance career
- have the ability to autonomously initiate and engage in lifelong learning

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Degree Requirements

The BS in Industrial Engineering is a four-year degree program. In their first and to some extent their second year, students focus on completion of the University's General Education Program (43 US / 86 ECTS credits), with specialized courses in Industrial Engineering gradually introduced. Into the third- and fourth-year students focus increasingly on Industrial Engineering topics. To earn a bachelor's degree, students must satisfactorily complete at least 133 US / 266 ECTS credits, fulfil all the requirements for the BS in Industrial Engineering degree and achieve a CGPA of 2.00 or higher.

Successful Progress Requirement

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were unsatisfactory. If the GPA does

not reach the required threshold after two semesters of academic probation, the student may be dismissed from the program.

INDUSTRIAL ENGINEERING (BS) DEGREE REQUIREMENTS				
		Number of Courses	US CR	ECTS CR
I. University General Education Requirements		13	43	86
For Details, See Section University General Education Requirements				
II. Related Requirements		7	25	50
CIE 214	Statics		3	6
CIE 301	Engineering Communications		3	6
CHE 112	General Chemistry II		4	8
ENR 102	Introduction to Engineering Lecture Series and Design		3	6
MAT 130	Calculus II		4	8
MAT 220	Multivariable Calculus		4	8
PHY 240	Introductory Electricity and Magnetism		4	8
III. Industrial Engineering Major Courses		22	65	130
IEE 175	Computer Programming for Engineering Applications		3	6
IEE 250	Introduction to Systems and Industrial Engineering		3	6
IEE 265	Engineering Economics		3	6
IEE 277	Object-Oriented Modeling and Design		3	6
IEE 270	Mathematical Foundations and Numerical Computation		3	6
IEE 295	Systems and Industrial Engineering Soph. Colloquium		1	2
IEE 305	Introduction to Engineering Probability and Statistics		3	6
IEE 321	Probabilistic Models in Operations Research		3	6
IEE 330R	Engineering Experimental Design		3	6
IEE 340	Linear Programming		3	6
IEE 367	Engineering Management		3	6
IEE 370	Embedded Computer Systems		4	8
IEE 377	Software for Engineers		3	6
IEE 383	Integrated Manufacturing Systems		3	6
IEE 406	Quality Engineering		3	6
IEE 410A	Human Factors and Ergonomics in Design		3	6
IEE 431	Simulation Modeling and Analysis		3	6
IEE 457	Project Management		3	6
IEE 462	Production Systems Analysis		3	6
IEE 464	Cost Estimation		3	6
IEE 498A	Cross-disciplinary Design		3	6
IEE 498B	Cross-Disciplinary Design		3	6
	TOTAL	**42**	**133**	**266**

SAMPLE FOUR-YEAR SCHEDULE

Bachelor of Science in Industrial Engineering

First Year, Semester 1				First Year, Semester 2			
	Course Title	**US CR**	**ECTS CR**		**Course Title**	**US CR**	**ECTS CR**
ENG 101	English Composition I	3	6	ENG 102	English Composition II	3	6
MAT 120	Calculus I	4	8	SOC 101	Introduction to Sociology	3	6
CHE 111	Introduction to Gen. Chem. and lab	4	8	BIO 102	Unity of Life and lab	4	8
HIS 101	History of the Mediterranean	3	6	MAT 130	Calculus II	4	8
ENR 102	Introduction to Engineering and Eng. Design	3	6	PHY 111	Physics with calculus I and lab	4	8
	TOTAL	**17**	**34**		**TOTAL**	**18**	**36**
Second Year, Semester 1				**Second Year, Semester 2**			
	Course Title	**US CR**	**ECTS CR**		**Course Title**	**US CR**	**ECTS CR**
IEE 175	Computer Programming for Engineering Applications	3	6	IEE 250	Introduction to Systems and Industrial Engineering	3	6
CIE 214	Statics	3	6	CHE 112	General Chemistry II and lab	4	8
REL 101	Religious Worlds in Comparative Perspective	4	8	IEE 277	Object-Oriented Modeling and Design	3	6
PHY 240	Introductory Electricity and Magnetism and lab	4	8	COM 101	Introduction to Multicultural Communications	3	6
MAT 220	Multivariable Calculus	3	6	IEE 265	Engineering Economics	3	6
	TOTAL	**17**	**34**		**TOTAL**	**16**	**32**
Third Year, Semester 1				**Third Year, Semester 2**			
	Course Title	US CR	ECTS CR		**Course Title**	US CR	ECTS CR
ATH 101	Arts of the Mediterranean	3	6	IEE 340	Linear Programming	3	6
IEE 270	Mathematical Foundations and Numerical Computation	3	6	IEE 410A	Human Factors and Ergon in Des.	3	6
IEE 295	Systems and Industrial Engineering	1	2	IEE 321	Probabilistic Models in Oper. Res.	3	6
IEE 305	Introduction to Engineering Probability and Statistics	3	6	IEE 383	Integrated Manufacturing Systems	3	6
IEE 377	Software for Engineers	3	6	IEE 370	Embedded Computer Systems	4	8
IEE 367	Engineering Management	3	6				
	TOTAL	**16**	**32**		**TOTAL**	**16**	**32**
Fourth Year, Semester 1				**Fourth Year, Semester 2**			
	Course Title	US CR	ECTS CR		**Course Title**	US CR	ECTS CR
PHI 102	Applied Ethics	3	6	CIE 301	Engineering Communications	3	6
IEE 431	Simulation Modeling and Analysis	3	6	IEE 462	Production Systems Analysis	3	6
IEE 498A	Cross-Disciplinary Design	3	6	IEE 498B	Cross-Disciplinary Design	3	6
IEE 330R	Engineering to Psychology	3	6	IEE 406	Quality Engineering	3	6
PSY 101	Introduction to Psychology	3	6	IEE 464	Cost Estimation	3	6
				IEE 457	Project Management	3	6
	TOTAL	**15**	**30**		**TOTAL**	**18**	**36**
TOTAL CREDIT HOURS: 133 US / 266 ECTS							

BSc in Mechanical Engineering

Introduction

The Bachelor of Science in Mechanical Engineering provides a fundamental background in all Mechanical Engineering subdisciplines. Mechanical engineers design and manufacture everything from small individual parts and devices to large systems such as automobiles and spacecraft. To accomplish this, a broad range of skills are needed including the ability to analyse and model the mechanics of solids, fluids and the flow of heat and energy. Since these skills are required for virtually everything that is made, mechanical engineering is perhaps the broadest and most diverse of engineering disciplines. Mechanical engineers play a central role in such industries as aerospace, automotive, biomedical, and manufacturing. Therefore, a degree in mechanical represents an entry point into today's modern high-tech workforce. This course fulfils that training requirement.

Entry Requirements

Materials required in the undergraduate admissions application:

- Official AUM application
- Secondary school transcript
- Teacher or counsellor recommendation letter
- ACT or SAT results (for students from the United States of America)
- Proof of English Proficiency (for students who did not graduate from a secondary school using English as a medium of instruction).
- Teacher or counsellor recommendation letter
- ACT or SAT results (for students from the United States of America)
- Proof of English Proficiency (for students who did not graduate from a secondary school using English as a medium of instruction).

Undergraduate Admission Requirements:

- 12 years of schooling expected secondary school completion
- Proof of English Proficiency (for students who did not graduate from a secondary school using English as a medium of instruction).

Program Mission

Mechanical engineering applies mathematics, physics and material science principles to analyse, design, manufacture and maintain mechanical systems. Core topics taught in the curriculum include solid and fluid mechanics, thermal sciences, dynamics and controls, and mechanical design. Students also learn machine dynamics, energy and power systems, mechanical properties of engineering and biomaterials, computational methods, HVAC systems, and instrumentation. Graduates of the Mechanical Engineering program go on to careers in a wide range of engineering sectors, including the defence, biomedical, manufacturing, mining, and automotive industries.

Program Objectives

The Mechanical Engineering Program objectives and indicators are:

- Graduates become practising engineers who contribute to, and succeed and advance within their companies, institutes, or agencies.
- Graduates succeed in graduate school in mechanical engineering or other fields that benefit from the skills and knowledge gained through their undergraduate education.
- Graduates engage in life-long learning and acquire new knowledge and skills through practice and advanced education to adapt to the changing demands of the

work environment throughout their careers.

Program Learning Outcomes

Communication Skills

- Prepare professional proposals and reports
- Competently deliver oral presentations to technical and lay audiences
- Develop and use effective audio/visual aids
- Write effective professional communications such as email and memorandums
- Communicate within the engineering disciplines through plans and drawings

Learning Skills

- An ability to apply knowledge of mathematics, science and engineering.
- An ability to design and conduct experiments, as well as to analyse and interpret data.
- An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multidisciplinary teams.
- An ability to identify, formulate, and solve engineering problems.
- An understanding of professional and ethical responsibility.
- An ability to communicate effectively.
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- A recognition of the need for, and an ability to, engage in life-long learning.
- A knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Degree Requirements

The BS in Mechanical Engineering is a four-year degree program. In their first and to some extent second year, students focus on completion of the University's General Education Program (43 US / 86 ECTS credits), with specialized courses in Mechanical Engineering gradually introduced. Into the third- and fourth-year students focus increasingly on Mechanical Engineering topics. To earn a bachelor's degree, students must satisfactorily complete at least 136 US /272 ECTS credits, fall the requirements for the BS in Mechanical Engineering degree and achieve a CGPA of 2.00 or higher.

Successful Progress Requirement:

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were unsatisfactory. If the GPA does not reach the required threshold after two semesters of academic probation, the

student may be dismissed from the program.

BSC IN MECHANICAL ENGINEERING				
		Number of Courses	US CR	ECTS CR
I.University General Education Requirements		13	43	86
For Details, See Section University General Education Requirements				
II. Related Requirements Courses		10	28	56
CIE 210	Engineering Graphics		2	4
CIE 214	Statics		3	6
ENR 102	Introduction to Engineering Lecture Series and Design		3	6
IEE 175	Computer Programming for Engineering Applications		3	6
MAT 105	Introduction to MATLAB I		1	2
MAT 130	Calculus II		4	8
MAT 205	Introduction to MATLAB II		1	2
MAT 220	Multivariable Calculus		4	8
MAT 250	Differential Equations		3	6
PHY 240	Introductory Electricity and Magnetism		4	8
III. Mechanical Engineering Major Courses		24	65	130
MEE 207	Elements of Electrical Engineering		3	6
MEE 230	Introduction to Thermodynamics		3	6
MEE 250	Dynamics		3	6
MEE 300	Instrumentation Laboratory		3	6
MEE 301	Engineering Analysis		3	6
MEE 302	Numerical Methods		3	6
MEE 313	Mechanical Engineering Design Laboratory		1	2
MEE 324A	Mechanical Behavior of Engineering Materials		3	6
MEE 324B	Engineer Component Design		3	6
MEE 324L	Mechanics of Materials Laboratory		3	6
MEE 331	Introduction to Fluid Mechanics		3	6
MEE 331	R Fundamentals of Materials for Engineers		3	6
MEE 352	Dynamics of Machines		3	6
MEE 400	Senior Mechanical Engineering Laboratory		2	4
MEE 432	Heat Transfer		3	6
MEE 442	HVAC System Design		3	6
MEE 445	Renewable Energy Systems and Analysis		3	6
MEE 452	Planar Multibody Dynamics with Applications		3	6
MEE 455	Control System Design		3	6
MEE 460	Mechanical Vibrations		3	6
MEE 462	Composite Materials		3	6
MEE 495	S Mechanical Engineering Senior Colloquium		1	2
MEE 498	A Cross-Disciplinary Design		3	6
MEE 498	B Cross-Disciplinary Design II		3	6
	TOTAL	**47**	**136**	**272**

SAMPLE FOUR-YEAR SCHEDULE

Bachelor of Science in Mechanical Engineering

First Year, Semester 1				First Year, Semester 2			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
ENG 101	English Composition I	3	6	BIO 102	Unity of Life and Lab	4	8
MAT 120	Calculus I	4	8	ENG 102	English Composition II	3	6
CHE 111	Introduction to General Chemistry and lab	4	8	PHY 111	Physics with Calculus I and lab	4	8
HIS 101	History of the Mediterranean	3	6	MAT 130	Calculus II	4	8
ENR 102	Introduction to Engineering and Eng. Design	3	6	SOC 101	Introduction to Sociology	3	6
	TOTAL	**17**	**34**		**TOTAL**	**18**	**36**
Second Year, Semester 1				**Second Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
MAT 105	Introduction to MATLAB I	1	2	MAT 205	Introduction to MATLAB II	1	2
IEE 175	Computer Programming for	3	6	COM 101	Introduction to Multicultural Communiations	3	6
CIE 214	Statics	3	6	MEE 250	Dynamics	3	6
PHY 240	Introduction to Electricity and Magnetism and Lab	4	8	MEE 207	Elements of Electrical Engineering	3	6
MAT 220	Multivariable Calculus	4	8	MEE 230	Introduction to Thermodynamics	3	6
REL 101	Religious Worlds in Comperative Perspective	3	6	CIE 210	Engineering Graphics	2	4
				MAT 250	Differntial Equations	3	6
	TOTAL	**18**	**36**		**TOTAL**	**18**	**36**
Third Year, Semester 1				**Third Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
ATH 101	Arts of the Mediterranean	3	6	MEE 300	Instrumentation Laboratory	3	6
MEE 301	Engineering Analysis	3	6	MEE 302	Numerical Methods	3	6
MEE 324A	Mechanical Behavior of Engineering Materials and lab	4	8	MEE 324B	Engineering Component Design	3	6
MEE 331	Introduction to Fluid Mechanics	3	6	MEE 331R	Fundamental of Materials for Engineers	3	6
MEE 352	Dynamics of Machines	3	6	PHI 102	Applied Ethics	3	6
MEE 313	Mechanical Engineering Design Lab	1	2				
	TOTAL	**17**	**34**		**TOTAL**	**15**	**30**
Fourth Year, Semester 1				**Fourth Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
MEE 400	Senior Mechanical Engineering Lab	2	4	MEE 455	Control System Design	3	6
MEE 432	Heat Transfer	3	6	MEE 445	Renewable Energy Systems and Analysis	3	6
PSY 101	Introduction to Psychology	3	6	MEE 452	Planar Multibody Dynamics with Applications	3	6
MEE 460	Mechanical Vibrations	3	6	MEE 462C	Composite Materials	3	6
MEE 442	HVAC System Design	3	6	MEE 495S	Mechanical Engineering Senior Colloquium	1	2
MEE 498A	Cross-Disciplinary Design I	3	6	MEE 498B	Cross-Disciplinary Design II	3	6
	TOTAL	**17**	**34**		**TOTAL**	**16**	**32**
TOTAL CREDIT HOURS: 136 US / 272 ECTS							

BSC IN GAME DEVELOPMENT

Introduction

The Bachelor of Science in Game Development is designed for students interested in game development programming at the highest level, including computer science and computer graphics professionals retooling for the game industry.

Entry Requirements

Admission to any AUM level 6 program will be based on the following criteria:

- Completion of application.
- Submission of official transcripts showing that the student will have successfully completed a course of study of MQF level 4 (e.g. US or international high school or equivalent course of study) by the time he or she enrols at AUM.
- High school or MQF level 4 course of study GPA (minimum GPA required 2.5 out of 4.0).
- Personal essay, addressing personal goals and expectations.
- Scores on standardized test (ACT and/or SAT). AUM may consider eliminating this requirement moving forward, once a substantial body of faculty has been established.
- Scores on standardized test (ACT and/or SAT). AUM may consider eliminating this requirement moving forward, once a substantial body of faculty has been established.

Course Objectives

Knowledge

Game development isn't a stand-alone program; rather, it is made up of intersecting, complementary disciplines. Students will be exposed to:

- software engineering,
- computer graphics,
- artificial intelligence,
- animation,
- software architecture
- networking.

Covering both emerging trends and proven knowledge, the program's content is always relevant and current. This "best of both worlds" combination allows students to understand the connection between realized applied systems and issues they'll likely face professionally in years to come.

Skills

Students will become proficient with real-time C++ Programming Language.

- Students will demonstrate programming language C++ concepts: class invocation, overloaded operators, STL containers, pointers and templates
- Students will demonstrate understanding of optimized C++ programming techniques such as data caching, SIMD instructions, return value optimization, proxy objects and implicit conversions.

Student will be able to design and implement real-time networking for Games.

- Students will demonstrate serialization of game data transmission by TCP/UDP socket programming.
- Students will demonstrate bandwidth compensation techniques for slow and intermittent network connection using dead-reckoning estimation technique.
- Students will create deterministic data driven flow in game applications.

Students will be able to create and design software architecture systems using Design Patterns technique.

- Students will demonstrate the ability to identity design patterns used in a gram and be able to select an appropriate design pattern to apply to a given problem

- Students will demonstrate the ability to design/implement a system using or more design patterns.
- Such as Factory, Singleton, Observer, Flyweight, Null Object, State, Commander, Composite, Iterator, Object Pool, Visitor and Strategy Patterns
- Students will demonstrate the ability to communicate software designs using UML diagrams.

Student will understand real-time polygonal video Graphics.

- Students will demonstrate a thorough understand of real-time polygonal graphics covering backface culling, camera, texturing, lighting, and transformations
- Students will be able to use 3D Math (Matrix and Vector) and collision primitives to solve Graphics and simulations problems.
- Students will be able to implement an efficient graphics rendering system using data friendly buffers, such as Vertex Buffer Objects.

Students will be able to design and implement a real-time Game Engine.

- Students will demonstrate the ability to design/implement an end-to-end game engine, include game system libraries and full graphics pipeline.
- Students will demonstrate the ability to design/implement real-time game system components such as Memory, File, Object, Graphics and Math.
- Students will demonstrate the ability to create asset conversion tools for 3D models and animations.
- Students will demonstrate the ability to design/implement a 3D keyframe animation system.

Students will be able to develop software projects in a local and global environment.

- Students will demonstrate understanding of issues relating to geographic, time-related, cultural, economic and management issues of global software development.
- Students should understand Global software project management, including scheduling, estimating, coordinating, and monitoring of global base projects.
- Students will understand culturally based leadership and conflict resolutions with direct and indirect reporting.
- Students will be able to coordinate and communicate with distributed developers through asynchronous communication.
- Students will be able to evaluate and implement different software project management models such as Agile, SCRUM, Test-Driven development and Waterfall.
- Students should be able to use Software configuration management (SCM), including version control usage in a large-scale project, including merging, branching, release and bug tracking.

Students will be able understand fundamentals of computer science.

- Interpret the informal description of an algorithm and translate the description to a program and write tests to determine whether a program solves the intended problem.
- Analytically determine the running time of a program and validate the analysis experimentally; select an appropriate combinatoric or statistical technique to solve an analytic problem; analyse and select an algorithm based on systems effects.
- Solve a specific problem by using proper object-oriented techniques and selecting appropriate data structures and algorithms and customize them to the problem.
- Correlate the input of a compiler and its assembly language output.
- Criticize a program based on its maintainability and suggest improvements; interpret new APIs and

use them in developing computer applications.

Students will be able to participate in the game development process from the initial concept to the finished product.

- Understand game mechanics: Determining how specific play mechanics
  will be perceived by the player
- Understanding of the Game Narrative design: Creating the individual narrative experience
- Design and construct 3D levels in a Game Engine.
- Script and program behaviour of interactive objects and characters in a level.
- Combining the editor and programmatic controls (scripting, software) to control behaviour
- Work in a collaborative team environment: Design, prototyping, recursive development

Modify or extend an existing 3D game level for effect

Competences

- Collaborate with a team to develop a medium size computer game from ideation to implementation
- Be responsible for planning, and implementing a medium size computer game
- Create all necessary components of a medium size computer game.

Learning Outcomes

Communication Skills

- Discuss game development issues within a structured team.
- Effectively communicate project needs within multicultural and diverse development teams.
- Effectively document in writing one's own coding.
- Effectively communicate with team members utilizing asynchronous tools.
- Articulate orally and in writing the main issues involved in global software development.

Learning Skills

a) Proceed to graduate work in-game development
b) Study independently new emerging game-related technologies, using the frameworks and tools acquired in the program.

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Degree Requirements

The BS in Game Development is a four-year degree program. In their first and to some extent their second year, students focus on completion of the University's General Education Program (43 US / 86 ECTS credits), with specialized courses in Mechanical Engineering gradually introduced. Into the third- and fourth-year students focus increasingly on Mechanical Engineering topics. To earn a bachelor's degree, students must satisfactorily complete at least 136 US /272 ECTS credits, fulfil all the requirements for the BS

in Mechanical Engineering degree and achieve a CGPA of 2.00 or higher.

Successful Progress Requirement:

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were unsatisfactory. If the GPA does not reach the required threshold after two semesters of academic probation, the student may be dismissed from the program.

GAME DEVELOPMENT (BS) DEGREE REQUIREMENTS				
		Number of Courses	**US CR**	**ECTS**
I. University General Education Requirements		**13**	**42**	**84**
For Details, See Section University General Education Requirements				
II. Game Development Major Courses		**20**	**71**	**142**
Computer Science Foundation		**5**	**16**	**32**
CSC 210	Introduction to C++		3	6
CSC 220	Data Structures		3	6
CSC 240	Computer Systems		4	8
CSC 250	Computer Science Theory		3	6
MAT 250	Discrete Mathematics		3	6
Game Systems Foundation		**5**	**19**	**38**
CSC 320	Applied 3D Geometry		3	6
CSC 330	Optimized C++		4	8
CSC 350	Computer Graphics		4	8
CSC 360	Game Design Patterns		4	8
CSC 370	Game Networking		4	8
Game Desing		**4**	**14**	**28**
CSC 340	Introduction to Game Desgin		3	6
CSC 380	Level Design		3	6
CSC 410	Game Modification		4	8
CSC 420	3D Desingn and Modeling		4	8
Advanced Game Systems		**5**	**18**	**36**
CSC 430	Game Engine Development I		4	8
CSC 440	Game Artificial Intelligence		3	6
CSC 450	Game Engine Development II		4	8
CSC 460	Game Physics		4	8
CSC 470	Global Software Development		3	6
Capstone		**1**	**4**	**8**
CSC 480	Game Development Project		4	8
III. Free Electives		**3**	**9**	**18**
Free Elective			3	6
Free Elective			3	6
Free Elective			3	6
GAME DEVELOPMENT TOTAL		**36**	**122**	**244**

GRADUATE PROGRAMS (MQF 7)

MS in Engineering Management

Introduction

The MS in Engineering Management is designed for graduate engineers aspiring to advance into management careers within technological organizations. In a global economy, it is vital for companies to hire and develop new talent that can bridge communication gaps in many contexts. Students are trained to lead multi-disciplinary teams and translate customer needs into new engineering technologies. In a global context, our students are adept at finding common ground and fostering international ties to create new ideas and perspectives. Our students gain an understanding of project management, finance, technical sales & marketing, law for engineers, decision-making under uncertainty. Our program focuses on creating leaders who are able to adapt to dynamic business environments.

Entry Requirements

Students are expected to have undergraduate training in mathematics, physics, computing, and mathematical modelling. Specifically, all incoming students are expected to meet the following fundamental requirements:
1) four semesters of mathematics, beginning with a two-semester sequence in calculus,
2) three semesters of calculus-based physics and general engineering science,
3) one semester of computing (e.g., an introductory course using a high-level language such as Java, C++, C#, Visual Basic, C, or Python).

Most undergraduate programs in science and engineering provide the required background. Students deficient in one or a small number of these areas may be admitted into the MS program on Provisional Status. During the first semester, students who are on Provisional Status will need to take courses to address the deficiencies. As soon as deficiencies are removed, students are advanced to the regular graduate status.
In addition to the fundamental requirements, all students who enter the MS program must also demonstrate a satisfactory understanding of Introduction to Probability and Statistics. Admission is based on the evaluation of the applicant's letter of intent, undergraduate transcript, IELTS or TOEFL score, letters of recommendation, and professional experience. Applicants are expected to have an undergraduate GPA of 3.00 on the last 60 units of course work, 79 TOEFL or 6.5 IELTS.

Course Objectives

The MS Engineering Management degree program is intended to produce graduates who are able to assume management responsibility in technology-based organizations. This program is in response to student and employer demand for a Program to teach management skills to graduate engineers with little or no background in business-related knowledge.

Students completing the program are expected to be able to apply the methodology and tools of this engineering discipline to further their careers into increasingly responsible management positions. Most engineers graduate with limited business-related skills which limit advancement opportunities in technology-based companies. Students are expected to learn technology management skills including financial modelling, technical marketing, law, decision-making under uncertainty, and project management.

By the completion of the MS program in Engineering Management, a student will:
(a) acquire in-depth knowledge within a particular area of study and complementary knowledge from a related area in Systems and Industrial Engineering

(b) conduct original research (formulating a problem, developing a model, and finding a solution based on the analysis)
(c) effectively communicate ideas and results via written and verbal communication.

Learning Outcomes

Communication Skills

The learner will be able to:

- prepare professional proposals and reports
- competently deliver oral presentations to technical and lay audiences
- develop and use effective audio/visual aids
- write effective professional communications such as email and memorandums
- communicate within the engineering disciplines through plans and drawings

Learning Skills

The learner will be able to:

- understand the impact of engineering solutions in a global, economic, environmental, and societal context
- recognize the need to engage in life-long learning
- be capable of developing a career plan including options for advanced education or specialized training to enhance career
- have the ability to autonomously initiate and engage in life-long learning.

M.S. Engineering Management		
For Details, See Section University General Education Requirements		
II. Engineering Management Core Courses		US/ECTS
IEE 514	Law for Engineers and Scientists	3/6
IEE 557	Project Management	3/6
IEE 530	Engineering Statistics	3/6
IEE 515	Technical Sales and Marketing	3/6
IEE 522	Decision-Making Under Uncertainty	3/6
IEE 506	Quality Engineering	3/6
IEE 540	Survey of Optimization Methods	3/6
IEE 554	Systems Engineering Process	3/6
IEE 567	Financial Modeling for Innovation	3/6
IEE 531	Simulation Modeling and Analysis	3/6
IEE 565	Supply Chain Management	3/6
IEE 564	Cost Estimation	3/6
IEE 562	Production Systems Analysis	3/6
III. Research Courses		US/ECTS
IEE 598A Master's Capstone I		3/6
IEE 598B Master's Capstone II		3/6
TOTALS		45/90

MS in Cyber Security

Introduction

The MS in Cyber Security is designed for graduate engineers aspiring to advance into cyber security management careers within technological organizations. In a global economy, it is vital for companies to hire and develop new talent that can bridge communication gaps in many contexts. Our students are trained to understand computer and network technologies, and how to secure and protect their operations as well as the applications and data. In a global context, our students are adept at finding common ground and fostering international ties to create new ideas and perspectives. Our program focuses on creating leaders who can adapt to exploit emerging cyber technologies and have the knowledge and expertise to secure and manage their operations against cyber-attacks.

Entry Requirements

Applicants must have a full qualification at MQF level 6 in IT/Engineering bachelor's program.
Students are expected to have undergraduate training in mathematics, physics, computing, and mathematical modelling. Most undergraduate programs in science and engineering provide the required background.
Admission is based on the evaluation of the applicant's letter of intent, undergraduate transcript, IELTS or TOEFL score, letters of recommendation, and professional experience. Applicants are expected to have an undergraduate equivalent of CGPA 3.0.

Course Objectives

Students completing the program are expected to be able to apply the method-ology and tools learned in this program to effectively secure and protect the operations of computer networks, computing systems, data and applications. Students are expected to learn equally cyber security fundamentals as well as hands-on ineffective use and deployment of current and emerging cyber security solutions and tools.

By completion of the MS program in cyber security engineering, a student will:

- Master the intricacies and vulnerabilities of computer networks, computing systems, clouds, and web applications.
- Learn how to develop algorithms that detect, protect against, and minimize the effectiveness of cyber-attacks that target networks, protocols, operating systems, computers and web applications.
- Contribute to the development of the next generation of tools and solutions in the domain of cyber security engineering.

Learning Outcomes

The learner will be able to:

- Acquire the skill set necessary for detecting cyber security threats and predicting their impact should they strike.
- Develop secure and resilient mechanisms for the protection of computer networks and software.
- Defend against cyberattacks when they occur, minimize their impact, and assess the damage done
- Utilize effective current security tools and appliances to manage and secure the operations of cyber resources and their services.
- Communicate the current security posture of the organization and develop a plan to identify vulnerabilities and how to address them

Postgraduate Certificate in Cyber Security
MQF: 7
ECTS: 30 ECTS
Duration: 16 weeks

- Computer Security
- Network Security
- Ethical Hacking

Postgraduate Diploma in Cyber Security
MQF: 7
ECTS: 60 ECTS
Duration: 32 weeks

- Scientific Computation
- Fundamentals of Cyber Systems
- Computer Security
- Network Security
- Fundamentals of Cryptography
- Ethical Hacking
- Web Application Security
- Cloud Security

MS in Computer Science

Introduction

The reason for offering M.Sc. in Computer Science is to provide a foundation for a career in technology research and development. Jobs in the computer science industry can typically be found in a company's information technology department, a government agency, or a non-profit entity. For individuals already working in the information technology sector, a master's degree program may provide a career boost by enabling professionals to expand their expertise in the field. For example, a master's degree program gives students specialized skills in one or more areas of computer science or technology, including software development, augmented and virtual reality, network security, or artificial intelligence. Students can also gain the research and analytical skills during the project- or research-based modules that they need to prepare for successful admission into a PhD program for further study.

Entry Requirements

Applicants must have a full qualification at MQF level 6 in Information Technology /Computer Science/Engineering bachelor's program or a related discipline (e.g., applied physics or mathematics).

Students are expected to have undergraduate training in computer programming, software development, the basic concept of algorithms or mathematical modelling. Specifically, all incoming students are expected to meet the following fundamental requirements:
(1) general knowledge of science, engineering science at their undergraduate degree,
(2) complete at least one course of computing/programming (e.g., an introductory module using a high-level language such as Java, C++, C#, Visual Basic, C, or Python) at his undergraduate degree. Most undergraduate programs in science and engineering provide the necessary background. Students deficient in one or more of these areas may be admitted into the MS program on Provisional Status. Advancement to Regular Graduate Status will not be considered until all deficiencies have been rectified.

Admission is based on the evaluation of the applicant's letter of intent, undergraduate transcript, IELTS or TOEFL score, letters of recommendation, and professional experience (if any). Applicants are expected to have an undergraduate GPA of 3.00 at a 4.00 scale on the last 60 units (120 ECTS) of his/her assessment.

Course Objectives

Students may join M.Sc. in Computer Science (research-based) program, in which 30 ECTS credits are devoted to courses and 60 ECTS credits to an individual research-based thesis. Otherwise, the course-based route (M.Sc. in Computer Science (taught), 80 ECTS credits are devoted to the courses, and 10 ECTS credits to an MSc project can be individual/group work. The study program relates closely to the research carried out at AUM through research-based courses and advanced research projects. The program's overall goal is to prepare students for prominent careers in industry or further academic study based on their acquired knowledge, skills, and competencies.

M.Sc. in Computer Science degree holders possess knowledge of:

- Knowledge in different modern computer science fields, including

artificial intelligence, data mining, network security, advanced computer graphics, computer vision, augmented, virtual, and mixed reality.
- Research methodology, including the fundamentals of scientific writing, how to give a scientific talk, how to evaluate a scientific paper, and research ethics.
- Apply the most suitable technique(s) for solving specific computer science problems and justify their choice through argumentation or the implementation of the (partial) solution using software development tools/programs.
- Advanced principles and techniques from the elective areas in which the student decided to develop particular expertise. Such expertise is developed by following elective courses in the research areas of staff members, utilizing advanced independent studies, and mainly during the MSc thesis work.
- Established and potential applications of techniques developed within the chosen area of specialization.

M.Sc. in Computer Science degree holders can apply the methods and procedures as follows:

- Assess methods and tools to design, implement, test, document, and maintain a computer-based system.
- Design and develop research methods, techniques, and problem-solving approaches from the field of research in which they are specializing.
- Analyse complex real-world problems and devise efficient computer-based solutions.
- Communicate effectively and professionally both in writing and using presentations to the specialists.
- Originate the works by following ethics and their impact on computer science.

M.Sc. in Computer Science degree holders can apply their knowledge and skills as follows:

- Work collaboratively with others on a team, contributing to the management, planning, and implementation of a computer system;
- Independently propose a small-scale research project, plan its execution, undertake its development, evaluate its outcome, and report on its results in a professional manner;
- Advance knowledge through the project- and research-based innovation in the relevant field.
- Interpret and present theoretical, practical issues and empirical findings

Learning Outcomes

A graduate with M.Sc. in Computer Science taught- or research-based both will have the ability to:

- Interpret computer science concepts, designs, and solutions effectively and professionally.
- apply knowledge of computing to produce effective designs and solutions for specific problems.
- evaluate, criticize, and synthesize scholarly literature relating to the field of computer science; and
- Responsible for creating software development tools and systems in modern computing platforms.
- assess and critique the state-of-the-art developments within their chosen field of interest.

Besides, a graduate with M.Sc. in Computer Science (research-based) can undertake

outcomes-based research for solving a particular computer-based solution with minimal supervision.

Course Outline

M.S. Computer Science		
For Details, See Section University General Education Requirements		
II. Computer Science Core Courses		**US/ECTS**
CSC 531	Programming Languages	5/10
CSC 532	Research Methods and Ethics	3/6
CSC 591	M.Sc. Project	8/16
CSC 592	M.Sc. Thesis	30/60
II. Elective Courses		**46/92**
CSC 543	Artificial Intelligence	4/8
CSC 504	Fundamentals of Machine Learning and Data Analytics	3/6
CSC 541	Data Mining	4/8
CSC 542	Computer Vision	5/10
CSC 561	Advanced Computer Graphics	4/8
CSC 562	Augmented, Virtual and Mixed Reality	4/8
IEE 567	Project Management	3/6
CSC 551	Software Security Testing	5/10
CSC 552	Network Security	5/10
CSC 553	Cloud Security	3/6
TOTALS		40/80

PhD in Computer and Information Science

Introduction

This doctoral program is intended primarily for students who intend to pursue an academic career or a career in industry.

Entry Requirements

The PhD committee is responsible for admitting students. Admission is primarily based on an applicant's ability to conduct research. In support of this, the PhD committee will consider a wide spectrum of evidence:

- undergraduate (and master level if applicable) transcripts.
- CVs & resumes, paying particular attention to research experience and publications.
- explicit mention and evidence of relevant work experience.
- examples of projects, including non-commercial projects;
- a personal statement describing the applicant's accomplishments, goals and interests.
- at least three letters of recommendation, explicitly addressing the candidate's ability to conduct independent research:
    a. at least one of the letters should be written by someone who holds a PhD in Computer Science or related discipline.
    b. at least two of the letters should be written by someone who holds a position in an academic institution.
- standardized test scores (GRE recommended).

It is highly recommended that the PhD committee include a senior doctoral student (one who has an accepted dissertation proposal) in the admissions decisions.

While advanced degrees may be considered in the admissions decision, the only degree requirement is a completed bachelor's degree (or equivalent completed course of MQF level 6). The degree is intended be completed by the time the doctoral work is started; the PhD committee will often be considering applicants in the last semester of their undergraduate work, hence prior to degree completion. The course work in the CS doctoral program assumes a level of understanding and competences consistent with an undergraduate degree (MQF level 6) in Computer Science; if an applicant possess an undergraduate degree (MQF level 6) in another discipline, then the PhD committee must be diligent in ensuring that the applicant has acquired the necessary competences and skills, through a detailed analysis of the applicant's prior coursework and a portfolio of relevant work in the field of computer and information sciences.

Course Objectives

Competences:
Graduates will have acquired the responsibility and autonomy to:

- offer an original, worthwhile scientific contribution to the field of computer science
- fulfill all duties connected with an entry level position of an academic career in higher education institutions
- conduct computing research as a member of a team in a corporate or government setting.

Knowledge

Graduates will have a deep understanding of the area of computer science that underlies and supports the student's thesis work. Graduates will also acquire mastery of the discipline of computer science.

Skills

1) Graduates will demonstrate mature mastery of all essential disciplinary areas of computer science. Graduates will be able to:

a. Design and create a functioning software project of medium to large scope
b. Formulate solutions for specific problems, supported by a critical analysis of languages and algorithms.
c. Design appropriate network solutions and data management strategies for distributed applications
d. Develop appropriate solutions demonstrating mastery of different underlying operating systems and architectures

2) Independently conduct a rigorous and professional literature review
3) Formulate and test support for a scientific hypothesis
4) Design and conduct experiments in support of hypothesis testing
5) Plan and conduct learning experiences for undergraduate students in the discipline.

Learning Outcomes

Communication Skills

1. Write a scientific paper suitable for publication in an internationally ranked journal or presentation at an international, peer-reviewed conference
2. Present research to an educated but general audience and answer detailed questions about the research
3. Work with other researchers as part of a team, including presenting to a group of peers with a comparable level of specialized expertise, critiquing the work of said peers in a constructive and useful manner, and collaborating on the drafting of manuscripts intended for publication

Learning Skills

1) Conduct independent research in the field of Computer Science

Educate undergraduate student

Course Outline

Modules: each student will take the following required modules:

1. B1 Analysis and Design of Algorithms
2. B2 Computer Architecture
3. B3 Computer Networks
4. B4 Databases
5. B5 Operating Systems
6. B6 Programming Languages
7. B7 Software Engineering
8. B8 Topics in Computer and Information Science

The 8th module, Topics in Computer Science, is intended to be a module chosen among a set, developed by doctoral faculty members, based on their current research. This topics module will be offered once each year, in the spring semester, to allow all doctoral students to take it at the end of their second year. Students who have progressed beyond the dissertation proposal can also register for topics courses that relate to their research area.

Teaching Requirement B9: each doctoral student will be required to teach a module in computer science as part of an undergraduate curriculum. The teaching requirement can be met at any institution of higher learning, but the student must be responsible for all aspects of the module; working as a teaching assistant does not fulfil the teaching requirement.

Research Colloquium B10: as part of the doctoral program, AUM will host a research colloquium, in which local and visiting scholars will present their current research work. The colloquium will run weekly for an hour for twelve weeks each semester when the University is in session.

Doctoral students are required to attend the research colloquium and present their own work at least once each academic year. The first meeting of each semester will be specifically on research methods and targeted at doctoral students. It is not expected that faculty or guests will attend the first meeting of each semester.

Comprehensive Exam: Upon completion of coursework (at the end of two years), doctoral students will be required to pass a comprehensive exam covering the material of the coursework. The exam will be written. The exam will be graded by an exam committee of three faculty members, chosen each year from among the PhD committee. Students who fail the comprehensive exam will have one opportunity to test again; a second failure will result in dismissal from the PhD program.

Instructors of courses are expected to provide appropriate questions from their course material for contribution to the comprehensive exam; the exam committee is responsible for ensuring that such questions are fair, representative, and current with respect to course material. Each question should be targeted to take approximately ½ hour to complete; the entire exam is expected to take 3 ½ hours to complete (these hours are counted as official assessment hours).

Proposal B11: any time after passing the comprehensive exam, a doctoral student can propose a dissertation topic to the dissertation committee. The proposal is done orally, and only the committee is present. The proposal preparation is an intensive part of the program, and it should require close to 900 hours of self-study. The proposal preparation will be mainly accomplished during the third year of the program when each candidate will also potentially fulfil their teaching requirement and attend the research colloquium. The preparation of the proposal and its presentation count for ten additional assessment hours.

The committee's approval of the proposal will be recorded. Students whose proposal fails to be approved by the Dissertation Committee will have one opportunity to propose again; a second failure will result in dismissal from the PhD program.

Dissertation B12: The student must present a written dissertation representing original work in the field. This must represent a worthy contribution to knowledge developed primarily by the student, based on published work (see Publication Expectations, section 19). The dissertation will be written in the form of a scholarly paper, albeit with more detail, and will include at least:

a) An introduction motivating the research topic
b) A background chapter that acknowledges the work discovered in the student's literature review while also showing the need for the student's research
c) A methodology chapter that outlines the data used and the experimental design, if applicable
d) A discussion chapter that reports the results of experiments or proofs of theorems and the conclusions that can be drawn from them
e) A conclusion that concisely states the contribution of the dissertation and stakes out future ground for the student to consider
f) A complete list of references

The student will defend the dissertation in a public gathering; this will be an oral presentation followed by questions and answers for 50 minutes. Following the public presentation, the committee will continue the presentation privately with the student.

The dissertation will be made publicly available by the University as part of its Technical Reports library.

The committee's approval of the defence will be recorded[2]. Completed dissertation forms will be archived according to the University general policies and procedures. Students whose defence fails to be approved by the Dissertation Committee will have one opportunity to defend again; a second failure will result in dismissal from the PhD program.

The writing of the dissertation is a major component of the program and should require close to 1800 hours of self-study. The preparation of the defence and the defence itself count for additional ten assessment hours.

COLLEGE OF ARTS

Undergraduate Programs

BA in Chinese Language

Introduction

The Bachelor of Arts in Chinese Language and Culture is designed for students interested in the various aspects of Chinese language and culture; students with any high school credential are eligible, pending satisfaction of admission requirements.

Entry Requirements

Undergraduate Application Checklist and Requirements

- Completed AUM undergraduate application
- Official secondary school records and final diploma
- English Language Proficiency Scores

- SAT scores (where applicable)
- Counsellor or teacher letter of recommendation
- Personal statement

AUM Undergraduate Application
Secondary School Records and Final Diploma

You will need to submit the last three years of your secondary school records along with your completed undergraduate application. If your school records are in a language other than English, you will also need to include a certified translation.

All students admitted to AUM are required to have completed 12 years of schooling and to have a minimum cumulative grade average of 80 or its equivalent.

Common secondary education certificates that AUM accepts are:

- American style high school diploma or certificate
- AP program
- British System combination of:
- GCSE/IGSCE "O" Levels: five subject exams with grades of A, B, C or D, and
- A/S or A-Levels: three subject exams with grades of A, B, C or D
- Maltese System combination of:
- Matriculation Certificate, and
- Secondary Education Certificate (SEC) examinations in English language, Maltese and Mathematics*, and
- A/S or A-Levels: three subjects' exams with grades of A, B, C or D
- IB certificate
- Other school leaving certificate*

English Language Proficiency Score
AUM classes are taught in English and, as such, AUM requires demonstrated proficiency in the language. One of the following exams will meet this requirement and you will need to enter our school code to have the results sent directly to us.

- TOEFL *You are able to have your scores sent directly to us by using our school code B757*

AUM accepts the following minimum TOEFL scores: PBT 550 or above iBT 79-80 or above CBT 213 or above

- IELTS

  AUM accepts a minimum IELTS score of 6.0 or above

  or

- ACT

  AUM accepts a minimum reading score of 18 and English score of 20

- SAT *You are able to have your results sent directly to us by using our school code 7057*

AUM accepts a minimum reading and writing score of 550

The English language proficiency requirement can be waived if you meet one or more of the following:

- You are a native speaker of English and you have completed your secondary education in English medium institution in a country where English is the official language
- You are a student admitted to an institution in which English is the language of instruction and have graduated

SAT Scores
The SAT is only required from students that will obtain an American style high school diploma.

- SAT Have your scores sent directly to AUM by using our school code 7057

AUM accepts a minimum SAT score of 550 or above

Counsellor or Teacher Recommendation
Invite your school counsellor or a teacher to fill out our Academic Reference form on your behalf. Any instructions they may need for completing or submitting this document are included on the form. Please note that this recommendation must be returned to us by your reference and should not be sent to us by you when submitting your other documents.

Personal Statement
Tell us about your personal and academic goals. Briefly, in 150 words or less, share with us what you hope to accomplish in your time at AUM. Include this in a separate document with your completed application.

Course Objectives

Knowledge

The course provides students with comprehensive knowledge of the Chinese language and culture, including Chinese linguistics, literature, history, philosophy, religion, politics, cinema, business and health.

Skills

The students acquire the four skills of the Chinese language: listening, speaking, reading and writing, and advanced capability of analysing properly the issues pertaining to various aspects of Chinese culture.

Competences

The course prepares students for a wide range of careers in the international arena, especially in the China and East Asia-related areas, as well as for the graduate programs that concentrate on special fields in Chinese culture.

Learning Outcomes

Communication Skills

The learner will be able to:

a) Communicate at the advanced-low proficiency level according to the American Council on the Teaching of Foreign Languages (ACTFL) guidelines in the following aspects:
Engage in conversation on various topics in Chinese
Write essays on various topics in Chines
Understand texts on various topics in Chinese.

b) Communicate effectively in various Chinese social and cultural contexts.

Learning Skills

The learner will be able to:

- Identify and describe various aspects of Chinese language, culture, history, literature, religion, philosophy and politics.
- Analyse and evaluate various aspects of Chinese language, culture, history, literature, philosophy and politics.
- Interpret and appreciate various aspects of Chinese literature and culture.
- Apply acquired linguistic and cultural knowledge in decision-making and problem-solving in real-life China-related contexts.
- Examine and compare cross-cultural similarities and differences.

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may

register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Degree Requirements

The BA in Chinese Languages is a four-year degree program. In their first and to some extent their second year, students focus on completion of the University's General Education Program (43 US / 86 ECTS credits), with specialized courses in Chinese Languages gradually introduced. Into the third- and fourth-year students focus increasingly on Chinese Languages topics. To earn a bachelor's degree, students must satisfactorily complete at least 136 US /272 ECTS credits, fulfil all the requirements for the BA in Chinese Languages degree and achieve a CGPA of 2.00 or higher.

Successful Progress Requirement:

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were unsatisfactory. If the GPA does not reach the required threshold after two semesters of academic probation, the student may be dismissed from the program.

CHINESE LANGUAGE AND CULTURE (BA) DEGREE

			Number of Courses	US CR	ECTS CR
I.	**University General Education Requirements**	**US/ECTS**	**13**	**41-42**	**82-84**
	For Details, See Section *University General Education Requirements*				
II.	**Chinese Language Courses**	**US/ECTS**	**8**	**34**	**68**
	CHI 101 Beginning Chinese I	5/10			
	CHI 102 Beginning Chinese II	5/10			
	CHI 201 Intermediate Chinese I	5/10			
	CHI 202 Intermediate Chinese II	5/10			
	CHI 301 Advanced Chinese I	4/8			
	CHI 302 Advanced Chinese II	4/8			
	CHI 410 Study in Chinese Language I: Literature	3/6			
	CHI 420 Study in Chinese Language II: Social Science	3/6			
III.	**Chinese Language and Culture Major Courses**	**US/ECTS**	**9**	**27**	**54**
	CHI 305 Chinese Linguistics	3/6			
	CHI 310 History of Ancient China	3/6			
	CHI 320 History of Modern China	3/6			
	CHI 350 Pre-Modern Chinese Literature	3/6			
	CHI 360 Buddhism in China	3/6			
	CHI 450 Contemporary Chinese Literature	3/6			
	CHI 460 Philosophy of Ancient China	3/6			
	CHI 470 Culture, Society, and Politics in China	3/6			
	Select One (1) from the following Language Courses:				
	CHI 370 Chinese for Professionals I: Business	3/6			
	CHI 380 Chinese for Professionals II: Health and Medicine	3/6			
IV.	**Chinese Electives (Choose two from the following)**	**US/ECTS**	**2**	**6**	**12**
	CHI 330 Chinese Popular Culture	3/6			
	CHI 340 Chinese Culture through Film	3/6			
	CHI 461 Philosophy in Medieval China	3/6			
	CHI 462 Modern Chinese Intellectual History	3/6			
	CHI 463 The View of History in Ancient World	3/6			
V.	**Free Electives (or 1-3 CHI Electives above)**	**US/ECTS**	**4**	**12**	**24**
	Free Elective	3/6			
	Free Elective or CHI Elective	3/6			
	Free Elective or CHI Elective	3/6			
	Free Elective or CHI Elective	3/6			
	CHINESE LANGUAGE AND CULTURE TOTALS		**36**	**120**	**240**

SAMPLE FOUR-YEAR SCHEDULE

Bachelor of Arts in Chinese Language and Culture

First Year, Semester 1				First Year, Semester 2			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
CHI 101	Beginning Chinese I	5	10	CHI 102	Beginning Chinese II	5	10
ENG 101	English Composition I	3	6	BIO 101	Unity of Life and Lab	4	8
HIS 101	History of the Mediterranean	3	6	ENG 102	English Composition II	3	6
MAT 101	Introduction to Data Analysis, Probability, and Statistics	3	6	REL 101	Religious Worlds in Comparative Perspective	3	6
	TOTAL	**14**	**28**			**15**	**30**

Second Year, Semester 1				Second Year, Semester 2			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
CHI 201	Intermediate Chinese I	5	10	CHI 202	Intermediate Chinese II	5	10
CHI 310	History of Ancient China	3	6	COM 101	Introduction to Multicultural Communication	3	6
PHI 101	Introduction to Philosophy	3	6	PHI 102	Applied Ethics	3	6
PHY 101	Introduction to the Physical Universe and Lab	4	8	PSY 101	Introduction to Psychology	3	6
	TOTAL	**15**	**30**			**14**	**28**

Third Year, Semester 1				Third Year, Semester 2			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
CHI 301	Advanced Chinese I	4	8	CHI 302	Advanced Chinese II	4	8
CHI 320	History of Modern China	3	6	CHI 350	Pre-Modern Chinese Literature	3	6
CHI 360	Buddhism in China	3	6	CHI 450	Contemporary Chinese Literature	3	6
SOC 101	Introduction to Sociology	3	6	CHI 460	Philosophy in Ancient China	3	6
	Free Elective	3	6		Free Elective	3	6
	TOTAL	**16**	**32**			**16**	**32**

Fourth Year, Semester 1				Fourth Year, Semester 2			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
ATH 101	Arts of the Mediterranean	3	6	CHI	Chinese for Professionals I: CHI 370 or CHI 380	3	6
CHI 305	Chinese Linguistics	3	6	CHI 420	Study in Chinese Language II: Social Science	3	6
CHI 410	Study in Chinese Language I: Literature	3	6		Chinese Elective or Free Elective	3	6
CHI 470	Culture, Society and Politics in China	3	6		Chinese Elective or Free Elective	3	6
	Chinese Elective or Free Elective	3	6		Free Elective	3	6
	TOTAL	**15**	**30**			**15**	**30**

TOTAL CREDIT HOURS: 120 US / 240 ECTS

US CR = U.S. Carnegie Credits *ECTS CR = European Credit Transfer Credits*

BA in Graphic Design and Animation

Introduction

The Graphic Design and Animation BA course is targeted towards students with an interest in practical applications of the visual arts. The graphic design and animation fields express their creativity and originality through solving visual problems. Students with strong skills and interests in visual design, drawing, painting, the use of colour, technical skills, and creative concepts are excellent candidates for this course. This course is meant for students interested in careers in advertising, animation, game art, book design, web design, information design, motion graphics, poster design, typography, multimedia, print, visual design, and interactive media.

Entry Requirements

Admission to any AUM level 6 programs will be based on the following criteria:

- Completion of application.
- Submission of official transcripts showing that the student will have successfully completed a course of study of MQF level 4 (e.g. US or international high school or equivalent course of study) by the time he or she enrols at AUM.
- High school or MQF level 4 course of study GPA (minimum GPA required 2.5 out of 4.0).
- Personal essay, addressing personal goals and expectations.
- Scores on a standardized test (ACT and/or SAT). AUM may consider eliminating this requirement moving forward, once a substantial body of faculty has been established.

Course Objectives

The BA in Graphic Design and Animation is a professionally oriented degree that provides students with a strong foundation in visual art and design for a broad range of media, including print, interactive media, film, and television. The program offers the student a chance to create an interdisciplinary program of study that will enrich the knowledge and skills the graduate takes into the constantly evolving industry. During the senior year Thesis Stage, students are able to explore their specific areas of interest in-depth in a self-directed project.

Knowledge

- Knowledge of media production, communication, and dissemination techniques and methods.
- Knowledge of design techniques, tools, and principals involved in the production of precision technical plans, drawings, and models.
- Knowledge of the theory and techniques required to compose, produce, and perform works of visual arts.
- Knowledge of electronic equipment and computer hardware and software, including applications.

Skills

- Using logic and reasoning to identify

the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Managing one's own time and the time of others.
- Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Understanding the implications of new information for both current and future problem-solving and decision-making.
- Demonstrate the principles of graphic design communication, showcasing the creative and technical abilities that produce successful innovative graphic design projects in a variety of media.
- Demonstrate a solid foundation in design and traditional studio art and will be able to use these skills in order to communicate effectively through visual means.
- Understand and utilize a broad range of digital design and animation tools.
- Acquire animation skills necessary for careers in motion graphics, game development, 3d and 2D animated films, television or effects animation.
- Utilize self-management skills to work with a high level of autonomy on self-directed creative projects.
- Implement the use of pre-visualization, storyboarding, and essential pre-production techniques to develop complex inventive concepts.
- Apply creative problem-solving skills to a variety of abstract problems.
- Produce a professional and original design and animation portfolio and reel.

Competences

- Create unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.
- Create visual media using computer hardware and software.
- Create innovative designs, concepts, and sample layouts, based on knowledge of layout principles and aesthetic design concepts.
- Create graphics and layouts for product illustrations, company logos, and Web sites.
- Create complex graphics and animation, using independent judgment, creativity, and computer equipment.
- Create objects or characters that appear lifelike by manipulating light, colour, texture, shadow, and transparency, or manipulating static images to give the illusion of motion.
- Be responsible to apply story development, directing, cinematography, and editing to animation to create storyboards that show the flow of the animation and map out key scenes and characters.
- Be responsible to develop briefings, brochures, multimedia presentations, web pages, promotional products, technical illustrations, and computer artwork for use in products, technical manuals, literature, newsletters and slide shows.
- Collaborate in design and production of multimedia campaigns, handling budgeting and scheduling, and assisting with such responsibilities as production coordination, background design and progress tracking.

Learning Outcomes

Communication Skills

- Define and focus on a purpose or purposes
- Interpret and respond to different audiences
- Employ writing, reading, and visuals

for inquiry, thinking, and communicating
- Integrate their own ideas with those of others
- Critique their own and others' works
- Communicate ideas convincingly to groups and individuals.

Learning Skills

Proceed to graduate work in graphic design and/or animation

Registration Information – Student Academic Workload

The minimum load for full-time undergraduate students in the fall and spring semesters is 12 SCH/24 ECTS per semester. Undergraduate students may register for up to 18 SCH/36 ECTS in a semester without special approval. If an undergraduate student wishes to enrol for more than 18 SCH/36 ECTS in a semester they must receive the written permission of both their academic advisor, dean and the Provost. However, within an academic year, a student may not take more than 30 SCH/ 60 ECTS.

An undergraduate student may enrol in the university as a part-time student, which means that the student registers for fewer than 12 SCH/24 ECTS credit hours per semester. Typically, an undergraduate student may study part-time for no more than 7 semesters during their undergraduate degree program.

Degree Requirements

The BA in Graphic Design and Animation is a four-year degree program. In their first and to some extent their second year, students focus on completion of the University's General Education Program (43 US / 86 ECTS credits), with specialized courses in Graphic Design and Animation gradually introduced. Into the third- and fourth-year students focus increasingly on Graphic Design and Animation topics. To earn a bachelor's degree, students must satisfactorily complete at least 136 US /272 ECTS credits, fulfill all the requirements for the BS in Graphic Design and Animation degree, and achieve a CGPA of 2.00 or higher.

Successful Progress Requirement:

Students must maintain a 2.0/4 grade (73%) point average throughout the program. Students whose performance fails to maintain this standard will fall on academic probation. A student on academic probation can continue to enrol in new modules for two semesters, while the student is strongly encouraged to retake modules in which grades were unsatisfactory. If the GPA does not reach the required threshold after two semesters of academic probation, the student may be dismissed from the program.

Course Outline

GRAPHIC DESIGN AND ANIMATION (BA) DEGREE REQUIREMENTS						
			Number of Credits		US CR	ECTS CR
I.	**University General Education Requirements**			**13**	**41-42**	**82-84**
	For Details, See Section University General Education Requirements					
II.	**Graphic Design Core Courses**		**US/ECTS**	**17**	**61**	**122**
	ATH 201	World Art History	3/6			
	GRD 101	Introduction to Visual Design	3/6			
	GRD 111	Drawing and Visualization	3/6			
	GRD 201	Figure Drawing and Anatomy	3/6			
	GRD 211	Digital Art Tools	3/6			
	GRD 301	Time, Image, Sound	3/6			
	GRD 311	Painting and Color	3/6			
	GRD 321	3D Design and Modeling	4/8			
	GRD 331	Animation I: Motion and Methods	4/8			
	GRD 341	3D Character Animation	4/8			
	GRD 351	Animation II: Production	4/8			
	GRD 361	Graphic Design I: Topography	4/8			
	GRD 371	Storyboarding and Narrative	4/8			
	GRD 411	Graphic Design II: Visual Problem Solving	4/8			
	GRD 421	Motion Graphics	4/8			
	GRD 431	Visual Design for Games	4/8			
	GRD 441	Graphic Design III: Web Design	4/8			
III.	**Animation Major Courses**		**US/ECTS**	**3**	**12**	**24**
	GRD 451	Interdisciplinary Game Project	4/8			
	GRD 461	Thesis Project I	4/8			
	GRD 462	Thesis Project II	4/8			
IV.	**Free Electives**		**US/ECTS**	**2**	**6**	**12**
		Free Elective	3/6			
		Free Elective	3/6			
		TOTAL		**35**	**120**	**240**

SAMPLE FOUR-YEAR SCHEDULE

Bachelor of Arts in Graphic Design and Animation

First Year, Semester 1				First Year, Semester 2			
Course	Title	US CR	ECTS CR	Course	Title	US CR	ECTS CR
ENG 101	English Composition I	3	6	BIO 101	Unity of Life and Lab	4	8
HIS 101	History of the Mediterranean	3	6	ENG 102	English Composition II	3	6
MAT 101	Introduction to Data Analysis, Probability, and Statistics	3	6	REL 101	Religious Worlds in Comparative Perspective	3	6
GRD 101	Introduction to Visual Design	3	6	GRD 111	Drawing and Visualization	3	6
	Free Elective	3	6				
	TOTAL	15	30			13	26

Second Year, Semester 1				**Second Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
ATH 101	Arts of the Mediterranean	3	6	ATH 201	World Art History	3	6
COM 101	Communication in a Multicultural Setting	3	6	GRD 211	Digital Art Tools	3	6
GRD 201	Figure Drawing and Anatomy	3	6	PHI 101	Introduction to Philosophy	3	6
PHY 101	Introduction to the Physical Universe and Lab	4	8	SOC 101	Introduction to Sociology	3	6
PSY 101	Introduction to Psychology	3	6		Free Elective	3	6
	TOTAL	**16**	**32**			**15**	**30**

Third Year, Semester 1				**Third Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
GRD 301	Time, Image, Sound	3	6	GRD 341	3D Character Animation	4	8
GRD 311	Painting and Color	3	6	GRD 351	Animation II: Production	4	8
GRD 321	Design and Modeling	4	8	GRD 361	Graphic Design I: Typography	4	8
GRD 331	Animation I: Motion and Methods	4	8	GRD 371	Story Boarding and Narrative	4	8
PHI 102	Applied Ethics	3	6				
	TOTAL	**17**	**34**			**16**	**32**

Fourth Year, Semester 1				**Fourth Year, Semester 2**			
Course	**Title**	**US CR**	**ECTS CR**	**Course**	**Title**	**US CR**	**ECTS CR**
GRD 411	Graphic Design II: Visual Problem Solving	4	8	GRD 441	Graphic Design III: Web Design	4	8
GRD 421	Motion Graphics	4	8	GRD 451	Interdisciplinary Game Project	4	8
GRD 431	Visual Design for Games	4	8	GRD 462	These Project II	4	8
GRD 461	Thesis Project I	4	8				
	TOTAL	**16**	**32**			**12**	**24**

TOTAL CREDIT HOURS: 120 US / 240 ECTS

English for Academic Purposes

EAP 94 (MQF 3)

Introduction

AUM has 5 levels of English proficiency into which applicants may be placed. The Award in English for Academic Purposes: Pre-Intermediate Level course is designed for students who desire to increase their English proficiency from an elementary level to pre-intermediate level. Students are admitted into the course if they have completed the level 2 elementary course at AUM or tested into this level through a placement exam.

Entry Requirements

The Award in English for Academic Purposes: Pre-Intermediate Level course is designed for students who have completed the level 2 elementary course at AUM or tested into this level through a placement exam. This course has a minimum placement test score of 2.9 on the iTEP Placement Core exam. This test will be administered upon arrival at the university.

Course Objectives

The Award in English for Academic Purposes: Pre-Intermediate Level aims to increase the student's academic English proficiency from elementary to pre-intermediate level.

Learning Outcomes

Communication Skills

a) Speaking Skills:
- Taking conversational turns
- Giving advice
- Asking for and giving reasons
- Giving and supporting opinions
- Giving a short presentation
- Leading a group discussion

b) Pronunciation:
- Contractions with auxiliary verbs
- Links with /j/ and /w/
- Intonation in tag questions
- Intonation in questions
- Contraction of had
- Stress on important verbs

c) Writing Skills:
- Organizing and developing a paragraph
- Using descriptive adjectives
- Writing a summary and a personal response
- Writing an opinion essay
- Writing a narrative essay
- Stating reasons and giving examples

Learning Skills

The learner will acquire the following:

a) Listening:
- Students will be able to discern and restate meaning from academic lectures, both verbally and in writing, by gathering information through detailed and organized notes.
- Students will be able to listen for time markers, for cause and effects, identifying fact or opinion, distinguishing between cardinal and ordinal numbers, and inferring a speaker's attitude.

b) Speaking:
- Students will be able to effectively communicate both formally and informally through group discussions and presentations. Additionally, students will enunciate in a manner that helps the listener understand.
- Students will be able to give advice, take conversational turns, ask and give reasons, giving and supporting opinions.

c) Reading:
- Students will be able to apply the following reading strategies: previewing, skimming, scanning, identifying main ideas and supporting details, distinguishing facts from opinion, and use referents to understand contrast. This will be assessed by comprehension questions.
- Students will be able to take notes and use graphic organizers.

- Students will be able to comprehend a variety of social and academic texts by reading orally and silently in class and assessed through comprehension questions formally and informally.

d) Vocabulary:
- Students will be able to recognize and use a broad set of social and academic vocabulary words in all four skills, reading, writing, listening, and speaking, that are most common in the English language, gathered from the Oxford 3000 list.
- Students will be able to use a dictionary to identify word forms, the dictionary, and context clues to understand words.
- Students will become familiar with a variety of suffixes, phrasal verbs, and synonyms in order to expand formal and informal vocabulary and interpret meaning of unknown words while reading and listening.

e) Grammar:
- Students will be able to identify diverse grammatical errors while editing their own writing or peer editing.
- Students will be able to understand the use and placement of adjectives in writing and speaking.
- Students will be able to form simple, compound sentences, and parallel structure using the following grammatical structures: real conditionals: present and future, shifts between past and present time frames, gerunds and infinitives in writing, classroom discussions, and speaking opportunities.

f) Writing:
- Students will be able to follow the steps of the writing process to construct a paragraph and essay by brainstorming, creating an outline, and writing a summary at a pre-intermediate level.
- Students will be able to edit and revise their own work and works of peers using standard editing markings.
- Students will be able to create various types of paragraphs including: ‘how to’, descriptive, and personal response paragraphs which will be assessed using an appropriate rubric for each.
- Students will be able to create various types of essays, including opinion, narrative, and analysis essays which will be assessed using an appropriate rubric for each.
- Students will be able to develop keyboarding skills on the computer, using typing.com, in preparation for writing academic papers.

EAP 96 (MQF 4)

Introduction

AUM has 5 levels of English proficiency into which applicants may be placed. The Award in English for Academic Purposes: Intermediate Level course is designed for students who desire to increase their English proficiency from a pre-intermediate level to an intermediate level. Students are admitted into the course if they have completed the level 3 pre-intermediate course at AUM or tested into this level through a placement exam.

Entry Requirements

The Award in English for Academic Purposes: Intermediate Level course is designed for students who have completed the level 3 intermediate course at AUM or tested into this level through a placement exam. This course has a minimum placement test score of 3.5 on the iTEP Placement Core exam. This test will be administered upon arrival at the university

Course Objectives

The Award in English for Academic Purposes: Intermediate Level aims to increase the student's academic English proficiency from pre-intermediate to intermediate level.

Learning Outcomes

Communication Skills

Learning outcomes include:

a) Speaking Skills:
- Agreeing and disagreeing
- Asking for and giving clarification
- Checking for understanding
- Confirming understanding
- Giving a presentation

b) Pronunciation:
- Intonation in different types of sentences
- Varying intonation to maintain interest
- Syllable stress
- Unstressed syllables
- Sentence stress

c) Writing Skills:
- Writing a cause/effect essay
- Writing an argumentative essay
- Organizing and developing an essay
- Writing a descriptive essay
- Writing a narrative essay and varying sentence patterns

Learning Skills
The learner will acquire the following:

a) Listening:
- Students will be able to discern and restate meaning from academic lectures, both verbally and in writing, by gathering information through detailed and organized notes.
- Students will be able to listen for signposts, examples, main ideas, identify details, and make predictions from recorded lectures and conversations.
- Students will be able to take effective notes from lectures and how to edit those notes after the listening exercise or lecture.

b) Speaking:
- Students will be able to effectively communicate both formally and informally through group discussions and presentations. Additionally, students will enunciate in a manner that helps the listener understand.
- Students will be able to give presentations on a variety of topics in front of the class, be able to agree and disagree verbally, ask for and give clarification, check for understanding, confirm understanding with

classmates and instructors.
- Students will be able to use syllable stress, use varying intonation to maintain interest, and use intonation in different types of sentences.

c) Reading:
- Students will be able to apply the following reading strategies: previewing, skimming, scanning, predicting, and making inferences from context. This will be assessed by comprehension questions.
- Students will be able to comprehend a variety of social and academic texts when reading orally and silently in class which will be assessed through comprehension questions formally and informally.

d) Vocabulary:
- Students will be able to recognize and use a broad set of social and academic vocabulary words in all four skills, reading, writing, listening, and speaking, that are most common in the English language, gathered from the Oxford 3000 list.
- Students will be able to understand meaning from context by using context clues, understanding prefixes and suffixes, recognizing collocations with nouns and adjectives with prepositions while listening and reading.

e) Grammar:
- Students will be able to identify diverse grammatical errors and sentence fragments while editing their own writing or peer editing.
- Students will be able to use definite and indefinite articles verbally and in writing.
- Students will be able to form simple, compound, and complex sentences; use restrictive relative clauses, a variety of phrasal verbs, and construct and use past perfect and past perfect continuous in writing and verbally in classroom discussions and speaking opportunities.
f) Writing:
- Students will be able to follow the steps of the writing process to construct academic essays by brainstorming, creating an outline, writing summaries, and formatting the essays appropriately for academic writing at an intermediate level.
- Students will be able to edit and revise their own work and the works of peers using standard editing markings.- Students will be able to create various types of essays, including cause and effect, argumentative, analysis, descriptive, and narrative essays which will be assessed using an appropriate rubric for each.
- Students will be able to develop keyboarding skills on the computer, using typing.com, in preparation for writing academic papers.

EAP 98 (MQF 5)

Introduction

AUM has 3 levels of English proficiency into which applicants may be placed. The Award in English Language Acquisition: The High-Intermediate Level course is designed for students who desire to increase their English proficiency from an intermediate level to a high-intermediate level. Students are admitted into the course if they have completed the level 4 intermediate course at AUM or tested into this level through a placement exam.

Entry Requirements

The Award in English for Academic Purposes: High-Intermediate Level course is designed for students who have completed the level 4 intermediate course at AUM or tested into this level through a placement exam. This course has a minimum placement test score of 3.9 on the iTEP Placement Core exam. This test will be administered upon arrival at the university.

Course Objectives

The Award in English for Academic Purposes: High-Intermediate Level aims to increase the student's academic English proficiency from intermediate-level to high-intermediate level.

Learning Outcomes

Communication Skills

a) Speaking Skills:

- Present a business plan
- Take part in a debate
- Changing the topic
- Using questions to maintain listener's interest
- Adding to another speaker's comments

b) Pronunciation:

- Answering questions
- Other common intonation patterns
- Basic intonation patterns
- Highlighted words
- Thought groups

c) Writing Skills:

- Essay brainstorm, outline, and format
- Writing compare and contrast essays
- Writing cause and effect essays
- Writing a summary
- Writing an opinion essay
- Citing sources (APA)
- Writing a persuasive essay

Learning Skills

The learner will acquire the following:

a) Listening:

- Students will be able to discern and restate meaning from academic lectures, both verbally and in writing, by gathering information through detailed and organized notes.
- Students will be able to listen for bias, contrasting ideas, signal words and phrases, for causes and effects, and making inferences from recorded lectures and conversations.
- Students will be able to take effective notes from lectures and how to edit those notes after the listening exercise or lecture.

b) Speaking:

- Students will be able to effectively communicate both formally and informally

through group discussions and presentations. Additionally, students will enunciate in a manner that helps the listener understand.
- Students will be able to make academic presentations on a variety of topics in front of the class, express interest during a conversation, take part in a debate, and create questions to maintain listeners' interest.

c) Reading:
- Students will be able to apply the following reading strategies: previewing, skimming, scanning, inferring from context, and using an outline. This will be assessed by comprehension questions, creating outlines, and summary writing.
- Students will be able to understand compare and contrast organization, understanding the purpose of quoted speech, recognize bias, and identify counterarguments and refutations.
- Students will be able to comprehend a variety of social and academic texts by reading orally and silently in class, and are assessed through comprehension questions formally and informally.

d) Vocabulary:
- Students will be able to recognize and use a broad set of social and academic vocabulary words in all four skills, reading, writing, listening, and speaking, that are most common in the English language, gathered from the Oxford 3000 list.
- Students will be able to recognize context, root words, word forms, affixes, and parts of speech in order to expand formal and informal vocabulary and interpret meaning of unknown words while reading and listening.

e) Grammar:
- Students will be able to identify diverse grammatical errors while editing their own writing or peer editing.
- Students will be able to use subordinators and transitions to compare and contrast using comparative forms of adjectives and adjectives in their writings and essays.
- Students will be able to form simple, compound, complex, and compound complex sentences using the following grammatical structures: present perfect, present perfect continuous, passive voice, reported speech, indirect speech, real conditionals, adverb clauses, and adverb phrases in writing, classroom discussions, and speaking opportunities.

f) Writing:
- Students will be able to follow the steps of the writing process to construct academic essays by brainstorming, creating an outline, writing summaries, and formatting the essays appropriately for academic writing at a high-intermediate level.
- Students will be able to edit and revise their own work and works of peers using standard editing markings.
- Students will be able to create various types of essays, including: compare and contrast, cause and effect, opinion essay, and persuasive essays which will be assessed using an appropriate rubric for each. - Students will be able to understand and use basic APA citation skills as demonstrated in research writing.
- Students will be able to develop keyboarding skills on the computer, using typing.com, in preparation for writing academic papers.

COURSE DESCRIPTIONS

ACC 101 Principles of Accounting (US 3 3 0 | ECTS 6 3 0)
Principles of Accounting I introduce financial accounting as the means of recording, storing, and summarizing economic events of the business enterprise to meet external reporting needs. Emphasis is placed on the preparation and analysis of financial statements and other financial reports to the public based on the accounting equation, accrual accounting concepts, and data gathering techniques. Topics include corporate accounting for current and long-term assets and current liabilities and the corporate income statement. No Prerequisite.

ACC 102 Principles of Accounting II (US 3 3 0 | ECTS 6 3 0)
Principles of Accounting II introduces manufacturing accounting, cost allocation techniques, and the evaluation of management control systems. Students will examine manufacturing cost systems including job order costing, process costing, and activity-based costing. Tools for management control systems will be covered to enable the student to evaluate and compare various systems. The module also covers budgeting and variance analysis, job costing for the service sector, and cost analysis for decision-making. *Prerequisite: ACC 101 Principles of Accounting I.*

ACC 201 Intermediate Accounting I (US 3 3 0 | ECTS 6 3 0)
This course provides coverage of present value and assets, including Intermediate theory and preparation of financial statements, a review of accounting concepts and theories that guide the development of accounting models, methods, and problems in valuation and reporting the emphasis on current assets and liabilities, property, plant, equipment, and intangibles, and review of relevant authoritative literature. *Prerequisite: ACC 102 Principles of Accounting II.*

ACC 202 Intermediate Accounting II (US 3 3 0 | ECTS 6 3 0)
This is a continuation of ACC 201 and covers preparing and understanding financial statements and complex accounting principles and concepts, the right-hand side of the balance sheet, detailed footnotes to the financial statements, and cash flow statements. The material covered in this module comprises a significant portion of the Uniform CPA exam. *Prerequisite: ACC 201 Intermediate Accounting I.*

ACC 210 Managerial Accounting (US 3 3 0 | ECTS 6 3 0)
Managerial accounting provides information for stakeholders inside the firm (upper management, other departments). This course provides accounting tools to support managerial decision making. *Prerequisite: ACC 202 Intermediate Accounting II and FIN 210 Introduction to Finance*

ACC 301 Advanced Accounting (US 3 3 0 | ECTS 6 3 0)
Advanced Accounting focuses on accounting for multicorporate entities and acquisitions, accounting for local governments, accounting for non-profit organizations, foreign operations, partnership accounting, and segment reporting. Selected spreadsheet applications will be introduced through homework assignments. *Prerequisite: ACC*

202 Intermediate Accounting II and ACC 210 Managerial Accounting.

ATH 101 Introduction to the Arts of the Mediterranean (US 3 3 0 | ECTS 6 3 0)
This class is designed to give students a broad historical survey of art history in Europe with an emphasis on the Mediterranean region. The students will learn about art historical developments during this period, relations between art and politics, and dynamics of patronage and cultural exchange. Students will also extend their knowledge and experience of the arts while developing their critical and reflective abilities. In this module, students will interpret and analyse creative works, investigate the relations of form and meaning, and through critical activity come to experience art with greater openness, insight, and enjoyment. This class will not only focus on works of art as such but will also incorporate analysis of social and cultural issues that shaped the production of works of art. No prerequisite

ATH 201 World Art History (US 3 3 0 | ECTS 6 3 0)
Knowledge of a broad range of art and visual culture is a core knowledge area for the Graphic Design and Animation course. This module offers an introductory survey of world art created during ancient times through the present. The research will include techniques, styles, content within historical and social contexts in various media and cultures. Emphasis is given to the roots of contemporary visual culture. No prerequisite.

BIO 101 Biology (Unity of Life) and lab (US 4 3 2 | ECTS 8 3 2)
This module will demonstrate how life on earth conforms to the laws of physics (through the emergent properties of chemistry and energy), how organisms are built from cells, how those cells function, how the information that makes cells work is stored, and how those processes must inevitably result in the natural selection that drove the evolution of all life on earth, including ourselves. No prerequisite.

CHE 101 Introduction to Chemistry and Lab (US 4 3 2 | ECTS 8 3 2)
Introduction to Chemistry exposes students to fundamental concepts in the field of chemistry. The module may be used by non-science majors to satisfy a natural science requirement within the general education program; students interested in majoring in one of the natural sciences may use this course to prepare for a traditional general chemistry sequence. No prerequisite

CHE 111 Introduction to General Chemistry and Lab (US 4 3 2 | ECTS 8 3 2)
This course provides a fundamental understanding of chemical principles around us, engaging prior knowledge and introducing new chemical concepts resulting in the establishment of a sound basis for further units of study. The first part of the module includes aspects of the matter, electronic structure, chemical bonding and the quantitative relationship between reactants and products. The remainder of the module includes mastery of topics in physical applications to chemical systems such as the study of heat and energy associated with a reaction, gas laws, liquids, and solids. No prerequisite

CHE 112 General Chemistry II and Lab (US 4 3 2 | ECTS 8 3 2)
This module strengthens the understanding of the basic chemical principles through a broad range of applications in the real world. Modules will be based on both theoretical and practical applications allowing in-depth knowledge that can be utilized in any chemical field. Students will be encouraged to develop problem-solving and critical thinking skills. The first part of the module includes aspects of thermodynamics, fundamental equilibrium concepts, acid-base equilibria, and equilibria of other reaction classes. The second part of the module includes mastery of topics in electrochemistry, kinetics, metal/metalloid and nonmetal, transition metals and

coordination chemistry, nuclear and organic chemistry. *Prerequisite: CHE 111.*

CHI 101 Beginning Chinese I (US 5 3 0 | ECTS 10 3 0)

This course is designed to develop students' ability to understand basic modern Chinese in both written and spoken form, to be able to converse effectively in Chinese with native speakers in various contexts and to prepare students for more advanced Chinese-related studies or jobs in China. The course will work on all four basic skills in language learning: speaking, listening, reading, and writing. No prerequisite

CHI 102 Beginning Chinese II (US 5 3 0 | ECTS 10 3 0)

This course is designed to further develop students' ability to understand simple modern Chinese in both written and spoken form, and to be able to converse in Chinese with native speakers in various contexts using short sentences. The course will continue to train the four basic skills in language learning: speaking, listening, reading, and writing. *Prerequisite: CHI 101 Beginning Chinese I.*

CHI 201 Intermediate Chinese I (US 5 3 0 | ECTS 10 3 0)

Intermediate course with more emphasis on communication skills and structure. Reading and writing practice without phonetic aids; oral practice in and outside the class, paying special attention to idiomatic usage; introduction to cultural perspectives through readings and cultural activities. *Prerequisite: CHI 102 Beginning Chinese II.*

CHI 202 Intermediate Chinese II (US 5 3 0 | ECTS 10 3 0)

Intermediate course with more emphasis on communication skills and structure. Reading and writing practice without phonetic aids; oral practice in and outside the class, paying special attention to idiomatic usage; introduction to cultural perspectives through readings and cultural activities. *Prerequisite: CHI 201 Intermediate Chinese I.*

CHI 301 Advanced Chinese I (US 4 3 0 | ECTS 8 3 0)

The course is designed for students who have completed two years of Chinese language training and are ready to progress from intermediate low to intermediate mid proficiency level. The course is designed to invite students to actively participate in the process of acquiring skills in intermediate/early advanced modern Chinese, from listening and speaking to reading and writing. The texts are selected to introduce current issues in China that encourage students to contribute their thoughts to the discussion. Issues in Chinese society can be easily extended to those in other Chinese speaking countries with certain variations, which also provides an opportunity for the students to explore the similarities and differences in various Chinese speaking communities. The materials cover various topics for discussion. Students are expected to actively participate in the learning process. As language learning is generally a learner-oriented process, students will be expected to be fully prepared before class. Class time is for practice and communication in Chinese. *Prerequisite: CHI 202 Intermediate Chinese II.*

CHI 302 Advanced Chinese II (US 4 3 0 | ECTS 8 3 0)

This course is designed for students with at least five semesters of Chinese language training who are ready to progress from intermediate mid to intermediate-high proficiency level. The focus of the course is for students to actively participate in meaningful conversations and complete well-formed essays. Students will learn various styles (genres) of written Chinese and be able to discuss various topics or express opinions by using more sophisticated sentence patterns, terms, and phrases. The course will cover the following styles of writing: description, narration, summary, technical writing, opinion/expository, arguments/ persuasion. *Prerequisite: CHI 301 Advanced Chinese I.*

CHI 305 Chinese Linguistics (US 3 3 0 | ECTS 6 3 0)
The course introduces students to various linguistic aspects of the Chinese language. The course runs along two parallel lines: the introduction of the general linguistic theory and the introduction of the Chinese language, mainly the modern standard variety – Mandarin, but also its regional varieties. The first line prepares the students with the necessary analytical tools to approach and analyse language in general and the second line applies the theoretical approaches to Chinese. Specific topics include the history and evolution of the Chinese language, phonetics, phonology, morphology, syntax, semantics/pragmatics, writing system, classification of languages, dialects, language and culture, language acquisition, and the brain and language. The course is taught in English. No prerequisite.

CHI 310 History of Ancient China (US 3 3 0 | ECTS 6 3 0)
This module examines Chinese history from its origin until the 17th century CE. Designed as a reading-intensive course, it emphasizes the interpretation and analysis of primary source texts in translation. All readings and discussions are in English. *Prerequisite CHI 340 Chinese Culture through Film*

CHI 320 History of Modern China (US 3 3 0 | ECTS 6 3 0)
This module examines Chinese history from the 17th century until today. Designed as a reading-intensive course, it emphasizes the interpretation and analysis of primary source texts in translation. All readings and discussions are in English. No prerequisite.

CHI 330 History of Popular China (US 3 3 0 | ECTS 6 3 0)
This course, taught in English, provides a critical examination of modern Chinese popular culture and its global cultural significance in the contemporary world. From film to literature, from music to theatre, from religion to politics, this course probes modern Chinese popular culture as it has manifested itself, and traces its socio-political, aesthetic, and effective impact on the contemporary world. *Prerequisite: CHI 301*

CHI 340 Chinese Culture through Film (US 3 3 0 | ECTS 6 3 0)
This course examines Chinese cinema in juxtaposition with popular culture and other forms of media such as television, music, and journalism in a broad socio-political and historical context. While focusing specifically on film productions, cultural consumption, and media representations in the contemporary era of mainland China, we will place these discourses within a general framework of national tradition and identity and track their evolutions from the beginning of the twentieth century. Instruction in English. No prerequisite

CHI 350 Pre-Modern Chinese Literature (US 3 3 0 | ECTS 6 3 0)
This module studies Chinese literature from the 8th century B.C.E. to the 19th century C.E. and examines major genres in Chinese literature, including poetry, prose, drama, fiction, and literary criticism. All readings and discussions are in English. No prerequisite.

CHI 360 Buddhism (US 3 3 0 | ECTS 6 3 0)
This module studies Buddhism in China since the 1st century C.E. It examines the formation of Chinese Buddhism and its overall influence on Chinese culture and society. All readings and discussions are in English. No prerequisite.

CHI 370 Chinese for Professionals I: Business (US 3 3 0 | ECTS 6 3 0)
This course offers advanced study of spoken and written Chinese, including vocabulary, concepts, and expressions, common to the Chinese-speaking business communities, with an emphasis on communicative competence in business settings and transactions. All readings and discussions are in Chinese. *Prerequisite: CHI 302 Advanced Chinese II*

CHI 380 Chinese for Professionals II: Health & Medicine (US 3 3 0 | ECTS 6 3 0)
This course, while continuing to build up a student's general language proficiency in Chinese, offers the study of medical concepts and terminology with an emphasis on communicative competence in health topics. It also pays attention to developing abilities in reading Chinese medical writings and translating simple paragraph-long medical texts. All readings and discussions are in Chinese. Prerequisite: CHI 302 Advanced Chinese II

CHI 410 Studies in the Chinese Language I: Social Issues (US 3 3 0 | ECTS 6 3 0)
The course provides advanced training aiming at developing linguistic fluency and communicative competence through a topic-based course design. While continuing to develop reading and writing skills, students will expand their speaking repertoire to include more linguistically and intellectually challenging topics, such as social issues and current events. All readings and discussions are in Chinese. *Prerequisite: CHI 302 Advanced Chinese II*

CHI 420 Studies in Chinese Language II: Literature (US 3 3 0 | ECTS 6 3 0)
The course provides advanced training in the spoken and written language through a close reading of selected modern classics of Chinese literature. Students are expected to learn more sophisticated vocabulary, syntax, and styles of writing in Chinese and become familiar with different genres of literary works and the key literary figures associated with the New Culture Movement in 20th Century China. More emphasis is given to building up the capacity to write effectively and eloquently. All readings and discussions are in Chinese. *Prerequisite: CHI 302 Advanced Chinese II*

CHI 450 Contemporary Chinese Literature (US 3 3 0 | ECTS 6 3 0)
This course is an analysis of the changing literary and cultural patterns through the reading of the representative works of modern and contemporary Chinese writers. A review of the literary background and close analysis of the literary expression of earlier short stories will present a strong contrast to the changing aspects of the family, society, religion, philosophy, and gender roles between the old and new China. This course will also cover literary practices in Taiwan. All works are read in English translations. No prerequisite

CHI 460 Philosophy in Ancient China (US 3 3 0 | ECTS 6 3 0)
This module studies the history of Chinese philosophy from the 5th century BCE to the 2nd century CE. It examines Chinese philosophers' opinions on the questions of life and death, history and society, education, personal cultivation, etc. All readings and discussions are in English. No prerequisite

CHI 461 Philosophy in Medieval China (US 3 3 0 | ECTS 6 3 0)
This module examines the history of Chinese philosophy from the 2nd century BCE to the 18th century CE. The emphasis is on Han Confucianism, Neo-Daoism, the Buddhist influence on the formation of Neo-Confucianism, and the main ideas of Neo-Confucianism. All readings and discussions are in English. No prerequisite.

CHI 462 Intellectual History of Modern China (US 3 3 0 | ECTS 6 3 0)
This module studies the intellectual history of China from the 19th century to the present and examines the conflict between traditional and modern values in China and the influence of Western ideas on the formation of modern Chinese thought. All readings and discussions are in English. No prerequisite

CHI 463 The View of History in the Ancient World (US 3 3 0 | ECTS 6 3 0)
This module of comparative studies examines the view of history in three major traditions: the Indo-Hellenic, the Chinese, and the Judeo-Christian, and the relationship of the Judeo-

Christian view and the modern notion of "progress." It explores also important topics in historical understanding: nature and freedom, fact, and value, past and future, etc. All readings and discussions are in English. No prerequisite

CHI 470 Culture, Society, and Politics in China (US 3 3 0 | ECTS 6 3 0)
This course examines fundamental cultural values, patterns of social life, as well as governance and politics in modern China. Students, while becoming familiar with key theoretical concerns of cultural anthropology, gain an understanding of important aspects of contemporary Chinese society in the context of rapid social changes and globalization.
Readings and Discussions are in English. No prerequisite.

CIE 210 Engineering Graphics (US 2 0 2 | ECTS 4 0 2)
Students develop practical skills to contribute to a civil engineering firm. The course gives students a comprehensive introduction and understanding of AutoCAD Civil 3D software. The class will focus on AutoCAD software and touch on hand drafting methods. Comprehension of the course curriculum will be measured by the final project requirement. No prerequisite.

CIE 214 Statics (US 3 3 0 | ECTS 6 3 0)
This course is an engineering science course in which fundamental math and science knowledge are applied in more complex, but basic, engineering applications. It builds on basic math and physics to analyse static (non-accelerating) systems. Topics include equilibrium of a particle, equivalent and resultant force systems, equilibrium, geometric properties of areas and solids, trusses, frames and machines, shear force and bending moments, friction.
Prerequisites MAT 130 and PHY 240.

CIE 215 Mechanics of Materials (US 3 3 0 | ECTS 6 3 0)
A continuation of this course covers such topics as material behaviour; the relationship between external forces acting on elastic and inelastic bodies and the resulting behaviour; stress and deformation of bars, beams, shafts, pressure vessels; stress and strain; combined stresses; columns. Prerequisite CIE 214.

CIE 218 Mechanics of Fluids (US 4 3 1 | ECTS 8 3 1)
A continuation of CIE 215. Here, fluids, primarily water, are considered. Topics include hydrostatics, continuity, irrotational flow, pressure distributions, weirs and gates, momentum and energy, surface drag, pipe friction, form drag, pipe fitting losses. *Prerequisite CIE 215*

CIE 251 Elementary Surveying (US 3 3 0 | ECTS 6 3 0)
To provide necessary basic civil engineering skills and an understanding of data collection, the course provides a basic introduction to surveying as it pertains to the field of civil engineering. The focus is on the theory of measurements, vertical and horizontal control methods, topographic surveys, public land surveys, and construction surveys. *Prerequisite MAT 120.*

CIE 301 Engineering Communications (US 3 3 0 | ECTS 6 3 0)
This course introduces students to communication skills for graduates to be successful engineers. Elements of written and oral communications for engineers include technical writing skills for proposal and report preparation, delivery techniques for oral presentations, and the effective use of audio/visual aids. *Prerequisite ENG 102 and Upper Division Standing*

CIE 303 Numerical Analysis for Civil Engineers (US 3 3 0 | ECTS 6 3 0)
This course provides students with supporting knowledge in solving problems using numerical techniques that are necessary for multiple engineering applications. Finding Roots of Nonlinear Equations, Solution Techniques for System of Linear Equations, Curve Fitting –

Polynomial and Spline Interpolation, Least Squares Fit, Numerical Differentiation and Integration, Solution of Ordinary Differential Equations - Initial and Boundary Value Problems; Use of MATLAB codes in Numerical Analysis for solving Civil Engineering Problems. *Prerequisites MAT 105 and MAT 250.*

CIE 310 Probability and Statistics in Civil Engineering (US 3 3 0 | ECTS 6 3 0)
This course provides students supporting knowledge to recognize and assess the uncertainties associated with civil engineering designs and to judge its impact in selecting an acceptable

design. Statistical decision theory and its application in civil engineering, identification, and modelling of non-deterministic problems in civil engineering and the treatment thereof relative to engineering design and decision making, statistical reliability concepts. *Prerequisite MAT 120.*

CIE 323 Hydraulic Engineering and Design (US 4 4 0 | ECTS 8 4 0)
This course covers the hydraulics/water resources component of the breadth in civil engineering that is required of all civil engineering students. Open channel flow, natural streams and waterways, hydrologic analysis and design, pressure flow, analysis and design of pipe networks and pump systems. *Prerequisite CIE 218*

CIE 333 Elementary Structural Analysis (US 3 3 0 | ECTS 6 3 0)
This course builds on the engineering sciences of statics and mechanics of materials to provide third-year students with skills to analyse complex structural systems. These skills and techniques are the basis of structural design. Analysis of Structures: beams, frames, and trusses. Statically determinate structures; influence lines; deflections by the virtual work method. Statically indeterminate structures using the superposition method. *Prerequisite CIE 215*

CIE 334 Structural Design in Steel (US 3 3 0 | ECTS 6 3 0)
This course provides a design-based experience in the structural subspecialty of civil engineering. Design of steel members, connections and simple structures, introduction to load and resistance factor design concept, including tension members, laterally supported and unsupported beams, columns, bolted and welded connections. *Prerequisite CIE 333*

CIE 335 Structural Design in Concrete (US 3 3 0 | ECTS 6 3 0)
This course provides a design-based experience in the structural concrete subspecialty of civil engineering. Analysis and design of reinforced concrete members subjected to flexure, shear, and axial loads; deflection of beams; bond and development of reinforcement. *Prerequisite CIE 333*

CIE 343 Soil Mechanics (US 4 3 1 | ECTS 8 3 1)
This course provides a fundamental understanding and application of soil properties, their behaviour and connection to civil engineering design and covers a component in the breadth of civil engineering that is required of all civil engineers. The fundamental physical and mechanical properties of soils and how to use them in the design of simple foundations and earth retaining systems. Certain fundamental principles of solid mechanics and fluid mechanics will be used to describe the mechanical behaviour of soils. *Prerequisite CIE 215*

CIE 363 Transportation Engineering and Pavement Design (US 4 4 0 | ECTS 8 4 0)
The basis for planning, design, and operation of transportation facilities. Driver and vehicle description, performance characteristics, highway geometric and pavement design principles; traffic analysis and transportation planning. *Prerequisite Upper Division Standing*

CIE 381 Construction Engineering Management (US 3 3 0 | ECTS 6 3 0)
This course covers a component in the breadth of civil engineering that is required of all civil engineers. It provides an opportunity to develop an enhanced understanding of the construction industry and practices in preparation to contribute to construction firms, project management consultants, and owners and to improve project delivery by understanding the linkages between design and construction. *Prerequisite Upper Division Standing*

CIE 389 Materials Testing Lab (US 1 0 2 | ECTS 2 0 2)
This course provides a hands-on laboratory experience to better comprehend the concepts of the theoretical and practical material. Selected testing of steel, concrete, wood, and bituminous materials according to standard test procedures. *Prerequisite CIE 215*

CIE 408A Issues in Civil Engineering Practice (US 3 3 0 | ECTS 6 3 0)
This course bridges the gap between academic engineering study and practice through understanding the business and ethical issues that face engineers. Introduction to nontechnical issues impacting the practice of design professionals in the private and public sectors including types of organizations; income, expenses, and profit; quality-based selection for obtaining and performing work; contracts; dispute resolution methods; professional ethics.
Prerequisite: at least 2 of CIE 323, CIE 334 or CIE 335, CIE 343, CIE381; Corequisite: CIE301

CIE 408B Civil Engineering Senior Capstone Design (US 3 3 0 | ECTS 6 3 0)
A culminating experience for majors involving a substantive project that demonstrates a synthesis of learning accumulated in the major, including broadly comprehensive knowledge of the discipline and its methodologies. *Prerequisite: CIE 301, CIE 408A, and at least 4 of CIE 323, CIE 334 or CIE 335, CIE 343, CIE 363, and CIE381.*

CIE 427 Computer Applications in Hydraulics (US 3 3 0 | ECTS 6 3 0)
This course is intended to introduce students to water resources engineering design. This is accomplished by learning the principles behind and applying for several widely used computer programs. The models are used extensively to perform sensitivity analysis and to design several real-world systems. Computer modelling of surface water hydrology, flood plain hydraulics and water distribution systems. Theoretical basis. Application and design studies. *Prerequisite CIE 323.*

CIE 440 Foundation Engineering (US 3 3 0 | ECTS 6 3 0)
This course provides a design-based experience in the geotechnical subspecialty of civil engineering. Settlement and bearing capacity of shallow and deep foundations; beam on the elastic foundation; design of footings and pile foundations; foundations on metastable soils; the use of computer codes for foundation problems. *Prerequisite CIE 343*

CIE 442 Ground Improvement (US 3 3 0 | ECTS 6 3 0)
This course expands a student's knowledge in the field of geotechnical engineering with detailed knowledge of techniques for enhancing ground conditions. Different ground improvement techniques include those without the addition of materials and those that add materials or use reinforcing elements. Students develop a range of generic skills including written communication skills, problem-solving skills and analysis and critical evaluation skills. *Prerequisite CIE 343.*

CIE 463 Traffic Flow and Capacity Analysis (US 3 3 0 | ECTS 6 3 0)
This course provides a design-based experience in the transportation subspecialty of civil engineering. Methods for the efficient and safe operation of transport facilities through analysis of

capacity, safety, speed, parking, and volume data. *Prerequisite CIE 363*

CIE 482 Construction Project Planning, Scheduling and Control (US 3 3 0 | ECTS 6 3 0)
This course expands a student's knowledge in the field of construction engineering management with detailed knowledge in project management. Develop an enhanced understanding of construction project planning, scheduling, execution, and control in preparation to contribute to construction firms, project management consultants, and owners. Topics include network scheduling, critical path method, resource allocation, cost control, software applications to scheduling, and contract documents. *Prerequisite CIE 381*

COM 101 Introduction to Multicultural Communication (US 3 3 0 | ECTS 6 3 0)
This course develops international understanding, cultural intelligence, inclusivity, and sensitivity by developing critical and analytical skills that teach different ways of being and behaving in diverse settings. It will also enhance the intercultural appreciation required to live and work successfully in an increasingly multicultural, multi-ethnic, and global world. No Prerequisite.

CSC 101 Introduction to Computers and Technology (US 3 3 0 | ECTS 6 3 0)
This course introduces students to computer concepts in hardware, software, networking and computer security, database management concepts (table, record, queries, primary, foreign keys, etc. in a relational database), basic programming concepts such as variable, function, objects etc. using Java, basic web programming (HTML, CSS, etc.), and office suite (Word, Excel, PowerPoint), which are very important for all students in terms of how computing processes take place. The course provides students with an understanding of computing environments and how computing processes take place. Students will also obtain the ability to use some basic tools and setups for computer programming. No Prerequisite

CSC 201 Introduction to C (US 3 3 0 | ECTS 6 3 0)
This course introduces students to fundamental C Programming language concepts. The course also introduces a general programming approach valid for any programming language. The main concepts taught are Fundamentals of programming, Compilation of a C program, Variables, Data Types in C, Arithmetic Expressions, Loop, If Statements, Arrays, Functions, Structures, Strings, I/O operations. No prerequisite

CSC 210 Introduction to C++ (US 3 3 0 | ECTS 6 3 0)
This is an introductory course in computer programming covering basic data types, variables, the flow of control, functions, parameter passing, pointers and pass by reference, arrays, C strings and the C string library, basic input/output, and structures. Examples in this course will concentrate on basic procedural algorithms for manipulating data. *Co-requisite: MAT 230 Discrete Mathematics analysis*

CSC 220 Data Structures (US 3 3 0 |ECTS 6 3 0)
This course covers the design, implementation, application, and analysis of algorithms on a variety of data structures, including lists, stacks, queues, trees, heaps, hash tables and graphs. Implementation is done in C++. *Prerequisite: CSC 210 Introduction to C++*

CSC 240 Computer Systems (US 4 4 0 | ECTS 8 4 0)
This is a course on computer systems topics, that focuses on machine-level programming and architecture and their relevance for application programming. The course covers information representations, assembly language, C programming, debuggers, and processor architecture. Prerequisites: MAT 230 Discrete Mathematics; CSC 220 Data Structures.

CSC 250 Computer Science Theory (US 3 3 0 | ECTS 6 3 0)
In this course, students design and analyse algorithms to solve problems involving data structures. The course covers the design, implementation, application, and analysis of algorithms on a variety of data structures. The algorithmic analysis includes computation of running times and asymptotic analysis. *Prerequisites: MAT 230 Discrete Mathematics and CSC 220 Data Structures*

CSC 320 Applied 3D Geometry (US 3 3 0 | ECTS 6 3 0)
This course reviews the mathematical foundation and techniques needed for the development of 3D graphics and game systems. This class will provide the foundation in linear algebra and 3D geometry required for implementing common tasks in 3D graphics and game systems. Topics include vectors, matrices, transforms, coordinate changes, projections, and intersections. *Prerequisite: CSC 220 Data Structures*

CSC 330 Optimized C++ (US 4 4 0 |ECTS 840)
This game programming class will focus on developing software to efficiently use the fixed CPU power and resources in today's console and mobile devices. This course will use real-world game examples that demonstrate performance and optimization issues that software architects face in software development. These problems include performance enhancements through extended matrix instruction set, dynamic memory usages, performance related to increasing run-time systems to a very large scale, C++ language enhancements and extensions, algorithms, streaming and profiling. *Prerequisites: CSC 210 Introduction to C++ and CSC 240 Computer Systems.*

CSC 340 Introduction to Game Design (US 3 3 0 | ECTS 6 3 0)
This course provides students with a practical foundation in game design with a focus on concept development, design decomposition, and prototyping. Using game design theory, analysis, physical prototyping, playtesting, and iteration students learn how to translate game ideas, themes, and metaphors into gameplay, game pitches, and design documents. Students will analyse and recognize play that exists in important games, stories, and other media. No Prerequisite

CSC 350 Computer Graphics (US 4 4 0 | ECTS 8 4 0)
This course covers such topics as basic real-time computer graphics architecture, coordinate systems, three-dimensional representations and transformations, visible-surface algorithms, illumination using Guiraud and Phung shading, antialiasing, and texture mapping.
Prerequisites: CSC 210 Introduction to C++ and CSC 320 Applied 3D Geometry

CSC 360 Game Design Patterns (US 4 4 0 | ECTS 8 4 0)
In this course, students will develop skills in game design and development through the creation of a 2D digital game designed from a set of client-based restrictions. Emphasis will be placed on teamwork and development pipelines for the design and creation of assets and systems. Students will use a combination of prototyping, storyboarding, user stories, character breakdowns, system breakdowns, and flowcharts in the design portion of the game. We will be using Gamemaker Studio as the engine to develop and implement the game. The goals of all designs done in this course will focus on designing for the needs of a client; solving problems identified by the client and providing transparency via reports and milestone deliverables. *Prerequisite: CSC 330 Optimized C++ and CSC 340 Introduction to Game Design.*

CSC 370 Game Networking (US 4 4 0 | ECTS 8 4 0)
Multiplayer games are made possible by the advances in networking technology, increases in processor speed, and data storage. Today, most successful game titles are equipped with a multiplayer capability. This technical course discusses the fundamental aspects of multiplayer game development, such as design techniques, architectures, client- and server-side implementation, and databases. *Prerequisites: CSC 210 Introduction to C++ and CSC 360 Game Design Patterns.*

CSC 380 Level Design (US 3 3 0 | ECTS 6 3 0)
Level design is the art of creating believable environments, stages, and missions for video games. This course explores topics including architecture, flow, pacing, and puzzles. Using a 3D level editor, students will investigate technical design issues including the construction, texturing, lighting, and scripting of modern game levels. The roles, duties and challenges of the level designer will also be discussed. *Prerequisites: CSC 220 Data Structures and CSC 340 Introduction to Game Design*

CSC 410 Game Modification (US 4 4 0 | ECTS 8 4 0)
In this course, students will develop skills in game design and development through the construction of a "mod" of an existing game. Emphasis will be placed on the game development life cycle from concept through release, productivity in a team environment, and effective project management practices. *Prerequisites: CSC 210 Introduction to C++ and CSC 340 Introduction to Game Design*

CSC 420 3D Design and Modelling (US 4 4 0 | ECTS 8 4 0)
This class builds on topics covered in earlier courses with a focus on creating believable worlds for video games. This course emphasizes designing large exterior environments, advanced mission scripting, and integrated storytelling. Using a 3D level editor and formal level design process, students create fun, polished, memorable virtual worlds. *Prerequisite: CSC 380 Level Design.*

CSC 430 Game Engine I Development (US 4 4 0 | ECTS 8 4 0)
Students will develop a basic 3D game engine. The focus will be on the implementation challenges and interdependencies between systems such as asset management, rendering, simple collisions, input/output, alarms, etc. Emphasis will be placed on developing the skills needed for robust, efficient, and portable implementation. Prerequisites: CSC 220 Data Structures and CSC 360 Game Design Patterns.

CSC 440 Game Artificial Intelligence (US 3 3 0 | ECTS 6 3 0)
Artificial Intelligence (AI) is one of the essential components of a computer game. The course introduces basic concepts of AI. Emphasis will be placed on applications of AI in various genres of computer games. In the implementation component of this course, students will be exposed to the existing AI game engines (middleware), which contain implemented AI algorithms that are ready to be applied to game code. These algorithms include decision trees, pathfinding, neural networks, and script-driven game object behaviours. *Prerequisites: CSC 220 Data Structures and CSC 360 Game Design Patterns*

CSC 450 Game Engine II Development (US 4 3 0 | ECTS 8 3 0)
This class is a continuation of CSC 430. Students develop more complex systems for their 3D game engines: improved collision systems, terrain generation, and particle systems. Other advanced engine services are discussed, and students are expected to research and implement one such system: sound management, lighting system, tiered/broad phase collision system, advanced camera manipulation, etc. *Prerequisites: CSC 350 Computer Graphics and CSC 430 Game Engine I Development*

CSC 460 Game Physics (US 4 3 0 | ECTS 8 3 0)
The course concentrates on Newton's Laws of Motion, kinematics, and kinetics. This theory will be applied to problems that a game programmer must understand, e.g., collisions between objects, projectiles and their trajectories, and real-time simulation of motion. Special objects such as cars, aircraft, and ships will be discussed. Students will apply and implement the laws of physics. *Prerequisites: CSC 320 Applied 3D Geometry and CSC 360 Game Design Patterns*

CSC 470 Global Software Development (US 3 3 0 | ECTS 6 3 0)
Students learn to manage the main issues related to globally distributed software development, including intercultural issues within globally distributed teams, management of geographic, time related, cultural, economic and management issues, and to exercise interculturally based leadership and conflict resolutions with direct and indirect reporting.
Prerequisite: CSC 220 Data Structures.

CSC 480 Game Development Project (US 4 4 0 | ECTS 8 4 0)
Students work in teams to design and develop a video game that demonstrates their mastery of game design and development. Additionally, students will reflect on ethical decision making and professional ethics in the game industry. *Prerequisites: CSC 410 Game Modification or CSC 420 3D Design and Marketing.*

CSC 501 Scientific Computation (US 3 3 0 | ECTS 6 3 0)
The goal of this course is to introduce students to the basics of programming. It is designed for those do not have rigorous knowledge in programming. The topics covered include programming with C, Python, and Java. Structured Program Development, Classes, Objects and Strings, Object Oriented Programming, and Python Applications in Data Science, Machine Learning, Decision Tree and K-nearest Neighbour algorithms. *Prerequisite: Graduate Student Status in Engineering or Science; Introduction to Engineering Probability and Statistics (IEE 305) or equivalent*

CSC 502 Fundamentals of Cyber Systems (US 3 3 0 | ECTS 6 3 0)
This course is introduced to cover the fundamentals of computer networks, computers, and operating systems. It is required especially for students who do not have rigorous knowledge of computing systems and networks
Topics covered are network protocols, routing, link access, memory and storage management, virtual memory, processes/ threads, and file system. *Prerequisites: Graduate Student Status in Engineering or Science; Introduction to Engineering Probability and Statistics (IEE 305) or equivalent)*

CSC 512 Computer Security Project (US 5 4 0 | ECTS 10 4 0)
The main goal of this course is introduced students to the cybersecurity issues and exploitations that are related to computing systems. Topics covered are access control mechanisms, authentication models, and vulnerability detection. Attacks and mitigation methods at the OS level, database and operating system security issues, malicious code, trojan horses, computer viruses, security policy formation and enforcement. In addition, the course will have a virtual lab experiment that will be offered using AUM private cloud system. The main virtual labs to be covered include Computer Attack Virtual Lab, Computer Vulnerability Analysis Virtual Lab, Computer Intrusion Detection Virtual Lab; and Computer Security Policies Virtual Lab.
Prerequisite: Graduate Student Status in Engineering or Science

CSC 513 Network Security (US 5 4 0 | ECTS 10 4 0)
The goal of this course is to introduce the cybersecurity issues associated with network designs, connection technologies (wired or wireless) and communications

protocols.This is an introductory course in networks security. Topics covered are: network security tools, network attacks, firewalls, attacks mitigation at the network level, network authentication, intrusion detection, network vulnerability analysis, threat and risk assessment.
In addition, the course will have a virtual lab experiment that will be offered using AUM private cloud system. The main virtual labs to be covered include Network Monitoring Virtual Lab, Network Attack Virtual Lab, Network Vulnerability Analysis Virtual Lab, and Network Intrusion Detection Virtual Lab.
Prerequisite: Graduate Student Status in Engineering or Science

CSC 504 Fundamentals of Machine Learning and Data Analytics (US 3 3 0 | ECTS 6 3 0)
Current techniques to detect and protect against cyber-attacks utilize heavily machine learning and data analytics. The main goal of this course is to introduce students to these concepts and how they can be used in detection and protection of cyber systems and their applications.
This course is an introductory course in machine learning and data analysis. Topics covered are supervised and unsupervised learning, clustering and classification, linear and logistic regression, dimensionality reduction, support vector machines, anomaly detection. *Prerequisites: Graduate Student Status in Engineering or Science; Introduction to Engineering Probability and Statistics (IEE 305) or equivalent*

CSC 505 Fundamentals of Cryptography (US 3 3 0 | ECTS 6 3 0)
One important aspect of cyber security is maintaining confidentiality of communications, data and privacy. The goal of this course is to introduce Cryptography techniques and how they can be applied to maintain confidentiality of cyber systems, data and their applications.
This course is a fundamental course in cryptography and its applications. Topics covered are symmetric-key encryption algorithms, public key encryption, digital signatures, and message integrity. *Prerequisites:5x0 Scientific Computation, and 5x1 Fundamentals of Cyber Security*.

CSC 526 Cyber Forensics and Incident Responses (US 5 4 0 | ECTS 10 4 0)
The main goal of this course is to introduce students to the fundamentals of identifying the source of attacks or vulnerabilities that can be exploited, In addition, the students will learn how to report the results without compromising the integrity of the data being used in the forensic analysis.
This course covers the concepts of evidence collection procedures in cyber systems. Topics covered are disk and file system analysis, Windows registry analysis, Linux system artifacts, memory analysis, network devices and server analysis, packet analysis, and internet and email analysis. *Prerequisites:5X2 Computer Security, 5X3 Network Security*

CSC 527 Ethical Hacking (US 5 4 0 | ECTS 10 4 0)
An important topic in cyber security is how to evaluate the strengths and weaknesses of cyber security defence mechanisms implemented in any cyber environment. The goal of this course is to introduce the students to penetration testing (attack techniques) while at the same time not violating existing security and privacy policies.This course cover computer security topics from the hacker's perspective. Topics covered are penetration testing, reconnaissance, scanning, exploitation, backdoors, rootkits, viruses, worms, packet sniffers, social engineering, phishing, and Denial of Service. In addition, the course will have a virtual lab experiments that will be offered using AUM private cloud system. The main virtual labs to be covered include: Passive Reconnaissance Virtual Lab, Vulnerability Analysis Virtual Lab, Penetrating Network Virtual Lab; and Laws and Compliance Virtual Lab
Prerequisites: 5X2 Computer Security, 5X3 Network Security, and 5X6 Cyber Forensic and Incident Responses

CSC 551 Software Security Testing (US 5 4 0 | ECTS 10 4 0)
Most cyber-attacks have exploited the vulnerabilities introduced by software developers who are not knowledgeable in cyber security and how they can exploit weakness in programming languages, and commonly used libraries. The main goal of this course is to teach students on how to write secure software systems and applications. This course is an introductory course in software security testing. Topics covered are secure software development lifecycle, web application testing, risk assessment, developing security policies for applications, threat analysis and application development vulnerabilities, exploitation testing, black-box testing. *Prerequisites: 5X2 Fundamental of Computer, 5X3 Network Security*

CSC 552 Web Application Security Analytics (US 3 3 0 | ECTS 6 3 0)
The proliferation of Internet and Web applications have significantly increased the attack vector or surface that can be exploited by attackers and cyber crimes.
This course introduces concepts of securing web applications. Topics covered are security considerations, mitigating web site risks, threats, & vulnerabilities, securing web application, mitigating web application vulnerabilities, testing and quality assurance for production web sites, performing a web site vulnerability and security assessment. *Prerequisites: 5X2 Computer Security and 5X3 Network Security*

CSC 553 Cloud Security (US 3 3 0 | ECTS 6 3 0)
With the rapid deployment of cloud services that offer computing, storage and application as cloud services, there have been also rapid increase in number of malicious cloud services and compromised websites. The goal of this course is to introduce students to security issues related to cloud computing and its services. The main topics to Web application security, Browser Security, Data Loss and Prevention, and Identify Management.
In addition, the course will have a virtual lab experiment that will be offered using AUM private cloud system. The main virtual labs to be covered include: Web Application Security Virtual Lab, Browser Security Virtual Lab, Data Loss and Prevention Virtual Lab; and Identify Management Virtual Lab *Prerequisites: 5X2 Computer Security, 5x3 Network Security*

CSC 591 / Master's Project (US 5 4 0 | ECTS 10 4 0)
In this course the students will perform experimental and theoretical investigation of a contemporary topic in cyber security engineering. Their study will consists of three main parts. In the first part, students will conduct a study of current state of the art in cybersecurity analysis, detection and protection. In the second part, they will focus on one application in healthcare, smart city, manufacturing, etc. and show how the techniques learned in the first part can be used to secure and protect the application selected for their master project. In the third part, students will study leadership and communication skills that will be used to describe the problem addressed in their master project and their approach to solve that problem.

CSC 531 Programming Languages (US 5 4 0 | ECTS 10 4 0)
This is an advanced course in computer programming languages that introduce techniques and methods for developing and extending correct, stable, maintainable, and efficient software. Code and memory profiling as a support for program perfecting. Software developing aids and methods such as code-inspection and method-based testing. The students carry out a project in which a non-trivial program is developed, extended, or changed from a specification.
Prerequisite: Graduate Student Status in Engineering or Science; Introduction to

Programming C/C++ (CSC201/CSC210) or equivalent

CSC 543 Artificial Intelligence (US 4 4 0 | ECTS 8 4 0)
Artificial intelligence (AI) is a research field that studies how to realize intelligent human behaviours on a computer. AI's goal is to make a computer that can learn, plan, and solve problems autonomously. Although AI has been studied for more than half a century, it still cannot make a computer that is as intelligent as a human in all aspects. In some cases, the computer equipped with AI technology can be even more intelligent than us. This module will study the fundamental knowledge for understanding AI, including data representation, pre-processing, transformation, and regression. We will also introduce some search algorithms for problem-solving; knowledge representation and reasoning, pattern recognition, fuzzy logic, and neural networks.
Prerequisites: Graduate Student Status in Engineering or Science; Introduction to Programming/Probability and Statistics (CSC 210/IEE 305) or equivalent

CSC 532 Research Methods and Ethics (US 3 3 0 | ECTS 6 3 0)
This course will help students to design their thesis projects by addressing the fundamentals of research designs and methods. The course covers various issues—the choice of research topic, the articulation of research questions, the development of theory, the derivation of empirically testable hypotheses, and the analysis of quantitative and qualitative data. *Prerequisite: Graduate Student Status in Engineering or Science*

CSC 541 Data Mining (US 4 4 0 | ECTS 8 4 0)
Data Mining studies algorithms and computational paradigms that allow computers to find patterns and regularities in databases, perform prediction and forecasting, and improve their performance through interaction with data. It is currently regarded as the key element of a more general process called Knowledge Discovery that deals with extracting useful knowledge from raw data. The knowledge discovery process includes data choice, cleaning, coding, using different statistical and machine learning techniques, and visualization of the generated structures. This course will cover all these issues and will illustrate the entire process by examples. Special emphasis will be given to the Machine Learning methods as they supply the relevant knowledge discovery tools. Important related technologies, as data warehousing and on-line analytical processing (OLAP) will be also discussed. The students will use recent Data Mining software. *Prerequisites: Graduate Student Status in Engineering or Science*

CSC 542 Computer Vision (US 5 4 0 | ECTS 10 4 0)
This course covers an introduction to the analysis of images and video to recognize, reconstruct and model objects in the three-dimensional world. It also covers an introduction to computer vision including fundamentals of image formation, camera imaging geometry, feature detection and matching, stereo, motion estimation and tracking, image classification and scene understanding. A set of applications that include finding known models in images, depth recovery from stereo, camera calibration, image stabilization, automated alignment, tracking, boundary detection, and recognition will be discussed. *Prerequisites: Graduate Student Status in Engineering or Science*

CSC 561 Advanced Computer Graphics (US 4 4 0 | ECTS 8 4 0)
This course is intended to supply a graduate-level introduction to modern computer graphics. It will cover some of the basic background of 3D computer graphics in the areas of geometry, physical simulation and rendering. The course is intended to bring incoming graduate students to the research frontier and prepare them for further work in the field. As such, at least half the material in the course will go over topics of current research interest,

such as the physical simulation and coupling of solids and fluids, and precomputation-based methods for real-time rendering. *Prerequisites: Graduate Student Status in Engineering or Science*

CSC 562 Augmented, Virtual and Mixed Reality (US 4 4 0 | ECTS 8 4 0)
This course covers the technical and experiential design foundation required for the implementation of immersive environments in current and future virtual, augmented and mixed reality platforms. The curriculum covers a wide range of literature and practice starting from the original Computer Science and HCI concepts following the evolution of all supporting technologies including visual displays for VR, AR and MR, motion tracking, interactive 3D graphics, multimodal sensory integration, immersive audio, user interfaces, IoT, games and experience design. *Prerequisites: Graduate Student Status in Engineering or Science*

CSC 591 Master's Project (US 8 3 0 | ECTS 16 3 0)
In this course the students will perform fundamental or experimental investigation of a contemporary topic/problem in computer science, particularly related to the taught modules. Student will do one of the following kinds of project.
- Theoretical project that will develop a new algorithm or some form of proof of concept
- A new desktop, web, mobile, AR or VR-based Software development application
- Experimental project that includes data collection, data analysis, research design, results analysis and comparison.
The project work should be new and original. The re-implementation of the existing works/methods is not acceptable.

ECO 101 Microeconomics (US 3 3 0 | ECTS 6 3 0)
This course introduces microeconomic concepts such as supply and demand analysis, theories of the firm and individual behaviour, competition and monopoly, and welfare economics. The purpose of microeconomics is to give students a thorough understanding of the principles of eco- nomics that apply to the functions of individual decision-makers, both consumers and producers, within the economic system. No Prerequisite

ECO 103 Macroeconomics (US 3 3 0 | ECTS 6 3 0)
This course provides an overview of macroeconomics. Topics include the determination of output, national income, economic growth, unemployment, inflation, the business cycle, fiscal policy and monetary policy, international trade interest rates, and inflation. This module will allow students to examine the impact of individual and collective economic activity on the economy. Emphasis will be placed on basic macroeconomic principles which provide the foundation for the process of making economic decisions to enhance society. *Prerequisite: ECO 101 Microeconomics*

ECO 310 European Economic History (US 3 3 0 | ECTS 6 3 0)
The course covers major factors and institutions to have influenced the economic development of European nations, and the impact of these nations on the U.S. and other nations' development is also discussed. No Prerequisites

ECE 201 Logic and Computing Devices and Lab (US 3 3 2 | ECTS 6 3 2)
Introduction to designing, building, simulating, and testing digital logic circuits. *Prerequisites: MAT 120 Calculus I and PHY 111 Physics with Calculus I.*

ECE 202 Electric Circuits I and Lab (US 4 3 2 | ECTS 8 3 2)
Study of DC resistive circuits, Kirchhoff's Laws, nodal and mesh analysis, power sources, Thevenin's and Norton's theorems, RC, RL, RCL circuit solutions with initial conditions using homogenous or non-homogenous ordinary differential equations with constant coefficients. Introduction to sinusoidal steady-state solutions. *Prerequisites: MAT 120*

Calculus I and PHY 111 Physics with Calculus I.

ECE 262 Electric Circuits II and Lab (US 4 3 2 | ECTS 8 3 2)
Continuation of the study of electric circuits, including sinusoidal steady-state analysis, magnetically coupled circuits, power calculations for sinusoidal steady-state circuits, balanced three-phase circuits, Laplace transforms, transient analysis of circuits using the Laplace transform, two-port parameters, and ideal op-amps. Prerequisites: ECE 202 Electric Circuits and Lab, MAT 130 Calculus II, and PHY 112 Physics with Calculus II and Lab. *Prerequisite or Corequisite: MAT 250 Differential Equations*

ECE 272 Computer Organization and Lab (US 4 3 2 | ECTS 8 3 2)
This course discusses the evolution, structure, *components, and operation of a modern computer. Prerequisites: ECE 201 Logic and Computing Devices and Lab and CSC 201 Introduction to C.*

ECE 317 Random Signal Analysis (US 3 3 2 | ECTS 6 3 2)
Introduction to engineering problems of a probabilistic nature. Systems transformations, statistical averages, simulation, and estimation of system parameters. *Prerequisite or Corequisite: ECE 330 Signals, Systems, and Transforms*

ECE 320 Electronics I and Lab (US 4 3 2 | ECTS 8 3 2)
Introduction to electronic materials and devices; principles of design; design of DC and AC circuits using diodes, bipolar junction transistors, field-effect transistors, and use of transistors in digital circuits. *Prerequisites: ECE 262 Electric Circuits II and Lab, MAT 250 Differential Equations, and PHY 112 Physics with Calculus II and Lab*

ECE 321 Electronics II and Lab (US 4 3 2 | ECTS 8 3 2)
Analysis and design of discrete amplifier circuits at low and high frequencies; operational amplifiers, frequency response, feedback, stability, and applications of analogue integrated circuits. *Prerequisite: ECE 320 Electronics I and Lab*

ECE 330 Signals, Systems, and Transforms and Lab (US 4 3 2 | ECTS 8 3 2)
Study of systems models, analysis of signals, Fourier series and transforms, sampling and Z transforms, discrete Fourier transforms. *Prerequisites: ECE 262 Electric Circuits II and Lab and MAT 250 Differential Equations*

ECE 371 Microprocessor Interfacing and Lab (US 4 3 2 | ECTS 8 3 2)
This course discusses the structure, programming, and interfacing of microcontrollers. Prerequisites: ECE 262 Electric Circuits II and Lab and ECE 272 Computer Organization and Lab. *Prerequisite or Corequisite: ECE 320 Electronics I and Lab.*

ECE 382 Electromagnetics (US 3 3 0 | ECTS 6 3 0)

Topics from electrostatics, magnetostatics, Maxwell's equations, electromagnetic wave propagation, transmission lines, waveguides, and antennas. *Prerequisites: MAT 250 Differential Equations, ECE 262 Electric Circuits II and Lab, and PHY 112 Physics with Calculus II and Lab*

ECE 404 Semiconductor Devices (US 3 3 0 | ECTS 6 3 0)
Study of the principles of operation, external characteristics, modelling, and applications of some of the more important semiconductor devices. *Prerequisite: ECE 320 Electronics I and Lab*

ECE 409 Introductions to Linear Control Systems (US 3 3 0 | ECTS 6 3 0)
Introduction to classical linear control systems. Topics include continuous descriptions of systems, time and frequency domain response, stability, system

specifications, and design. *Prerequisite: ECE 317 Random Signal Analysis.*

ECE 427 Communications Systems (US 3 3 0 | ECTS 6 3 0)
Study of communications system design and analysis. Topics include signals and spectra, baseband signalling and detection in noise, digital and analogue modulation and demodulation techniques, and communications link budget analyses. *Prerequisites: ECE 330 Signals, Systems, and Transforms and ECE 317 Random Signal Analysis.*

ECE 430 Digital Communications (US 3 3 0 | ECTS 6 3 0)
Introduction to modern digital communication systems, emphasizing modulation and detection, considering the effects of noise. *Prerequisite: ECE 427 Communications Systems*

ECE 438 Computer Communications (US 3 3 0 | ECTS 6 3 0)
Digital data transmission techniques, modems and communications channels, communications software and protocols, packet switching, wide-area network architecture, internetworking, end-to-end protocols, congestion control. Prerequisites: Senior standing in Electronics and Communications Engineering

ECE 467 Introduction to Digital Signal Processing (US 3 3 0 | ECTS 6 3 0)
Introduction to analysis, design, and applications of digital signal processing systems; design of digital filters; applications of the z-transform and the Discrete Fourier Transform to analyse discrete-time signals and systems. *Prerequisite: ECE 330 Signals, Systems and Transforms*

ECE 495 Integrated System Design I (US 2 3 0 | ECTS 4 3 0)
Considers engineering design of systems in a continuous process of project definition, planning, execution, and evaluation. This process includes consideration of both technical and non-technical factors in design. Strong emphasis is placed on the development of effective technical communications skills, particularly oral communications competency. *Prerequisites: ECE 320 Electronics I and Lab, ECE 330 Signals, Systems, and Transforms and Lab, ECE 382 Electromagnetics, and ECE 409 Introduction to Linear Control Systems*

ECE 496 Integrated System Design II (US 2 3 0 | ECTS 4 3 0)
Integrated Systems Design II is a team-based, project-oriented course where teams of 4-5 students work on a semester-long design project. *Prerequisites: ECE 321 Electronics II and Lab, ECE 371 Microprocessor Interfacing and Lab, ECE 382 Electromagnetics, ECE 409 Introduction to Linear Control Systems, and ECE 495 Integrated System Design I.*

ENG 101 English Composition I (US 3 3 0 | ECTS 6 3 0)
This course provides students with opportunities to develop productive writing processes, to be able to identify and use claims and evidence effectively and to work on understanding and employing conventions of genres. No prerequisite.

ENG 102 English Composition II (US 3 3 0 | ECTS 6 3 0)
This course focuses on those foundational aspects of rhetorical practice specific to argumentation, such as invention and arrangement strategies; approaches to addressing audiences that range from the committed to resistant; and writing competencies specific to institutional settings, such as summary, synthesis, and analysis. *Prerequisite: English 101*

ENG 120 American Literature: 1865 to the Present (US 3 3 0 | ECTS 6 3 0)
This course surveys American literature from 1865 to the present, moving from Whitman and Twain to Stein and Saunders, through the examination of specific texts by major authors, against the social, historical,

and philosophical background of the period. Texts are drawn from a variety of literary genres, including poems, short stories, manifestoes and
essays. Major literary movements to be covered include Realism, Naturalism, Modernism, and Postmodernism. No prerequisite.

EAP 094 English for Academic Purposes: Pre-Intermediate Level (MQF Level 3) (US 4 12 0 | ECTS 8 12 0)
This 8-week / 20 hour per week course begins the process of helping students develop Academic English for the purpose of entering AUM by using a communicative approach in all four skills: reading, writing, listening and speaking. For students with test scores at the Elementary Level.

EAP 096 English for Academic Purposes Intermediate Level (MQF Level 4) (US 4 12 0 | ECTS 8 12 0)
This 8-week / 20 hour per week course focuses on Academic English for the purpose of entering AUM by using a communicative approach in all four skills: reading, writing, listening and speaking. For students with test scores at the *Pre-Intermediate Level.*

EAP 098 English for Academic Purposes: High-Intermediate Level (MQF Level 5) (US 4 12 0 | ECTS 8 12 0)
This 8-week / 20 hour per week course focuses on Academic English for the purpose of entering AUM by using a communicative approach in all four skills: reading, writing, listening and speaking. For students with test scores at the Intermediate Level.

ENR 102 A&B Introduction to Engineering Lecture Series (US 3 3 0 | ECTS 6 3 0)
This course provides first-year students with an understanding of the engineering disciplines and design process. It motivates the need for math, science, and engineering science as prerequisites to specialized engineering design. Students will attend a series of 50-minute lectures. Lecture topics will include contemporary technical challenges in engineering, engineering ethics and engineering teamwork. Students will complete a Career Plan, which involves the preparation of a resume and the development of an academic plan. No prerequisite.

ENR 211 Dynamics (US 1 1 0 | ECTS 2 1 0)
This course provides the breadth of engineering sciences needed by civil engineers in dynamics. The course will be readings with recitation sections for problem-solving in a collaborative learning environment. Dynamics of particles and rigid bodies as applied to mechanical systems, introduction to mechanical vibrations. Prerequisites: CIE 214 and MAT 250.

ENR 212 Engineering Economics (US 1 1 0 | ECTS 2 1 0)
Engineering Economics covers methods and modern techniques of engineering economic analysis for decision making, cost estimation, cash flow evaluation, taxes and depreciation, per cent value, annual equivalent, internal rate of return, cost/benefit analysis, sensitivity analysis. The course is web-based and has a complete set of materials including pre-requisite review material, course content, quiz problems, and exercise problems. *Prerequisite: MAT 130*

FIN 201 Introduction to Finance (US 3 3 0 | ECTS 6 3 0)
As the first module in finance, this course will introduce both the basic theory of finance and the basic tools and models needed to study finance. Topics include the terminology of finance, time value of money, risk and return, and the valuation of assets including bonds, stocks, and corporate projects. Also, studies will be on the governance and financing of the firm and the distribution of profits to shareholders. *Prerequisites: ACC102 Principles of Accounting II, ECO 103 Macroeconomic and MGT 101 Principles of Management*

FIN 250 Corporate Finance (US 3 3 0 | ECTS 6 3 0)
This course is intended for students who have an interest in deepening their understanding of the corporate financial decision-making process. Some review of the introductory finance module is done but the topics, such as risk and return and valuation of assets are greatly expanded. In addition, topics such as bankruptcy are introduced to illustrate the meeting of theory and practice. The objective is to expand on the basic finance principles from the introduction to the finance course. This course will not only expand and deepen those principles but apply these principles to topics such as financing and valuation. In addition, this course will delve deeper into the theory behind the principles of finance for a greater student understanding of financial concepts. *Prerequisite: FIN 201 Introduction to Finance*

FIN 301 Money and Markets (US 3 3 0 | ECTS 6 3 0)
This course covers a broad range of topics including both the theory of how prices and rates are set in the market as well as the institutional framework for the worlds' financial systems. Topics covered include interest rates, the concept of money, exchange rates, monetary policy, banking structures and functions, central banks, determinants of the money supply, fiscal policy and monetary policy, and international economies. No Prerequisite.

FIN 305 Investments and Portfolio Management (US 3 3 0 | ECTS 6 3 0)
This is an introduction to the theory and the practice of investing with an emphasis on a range of significant concepts. Both the theory of investing as well as the operational aspects of investing and portfolio management will be studied. The concepts covered are essential to anyone involved in the financial industry and the module is a key building block in the study of finance. *Prerequisite: FIN 201 Introduction to Finance*

FIN 310 Taxation (US 3 3 0 | ECTS 6 3 0)
The course on taxation focuses on the U.S. tax system and covers such topics as US federal income tax treatment of individual taxpayers, inclusions, exclusions, deductions, credits, rates of taxation, special tax computations, and the tax aspects of property transactions, the federal income tax treatment of corporations and partnerships, and introduction to tax research. *Prerequisite: ACC 201 Intermediate Accounting I.*

FIN 350 Auditing (US 3 3 0 | ECTS 6 3 0)
Auditing provides a conceptual introduction to the nature and value of assurance services, the organization of the accounting profession, Generally Accepted Auditing Standards (GAAS), professional ethics, legal responsibilities, financial audits by external auditors, planning and acceptance, internal control, evidence, and reporting, implementation, and application of generally accepted auditing standards to transaction cycles and classes of transactions, and sampling techniques used in tests of controls and tests of details. *Prerequisite: ACC 210 Managerial Accounting and ACC 301 Advanced Accounting*

FIN 360 International Finance (US 3 3 0 | ECTS 6 3 0)
This course provides a conceptual foundation for understanding global financial issues, and a practical understanding of financing sources for international commerce as well as interpreting the recent wave of international financial crises affecting the global capital markets. *Prerequisite: FIN250 Corporate Finance.*

FIN 370 Taxes, Law and Regulation (US 3 3 0 | ECTS 6 3 0)
This course examines the organization of the corporation, with an emphasis on taxation and the corporation's legal responsibilities. The course focuses on the principles of corporate tax laws, the essentials of securities regulations, the legal aspects of director and insider

responsibilities, and the workings of copyright and patent laws.

FIN 380 Financial Statement Analysis (US 3 3 0 | ECTS 6 3 0)
Students will gain competencies to conduct a financial analysis of a corporation, knowledge about how financial metrics are mapped into stock prices, infer the future performance of firms from current data, compare and contrast different valuation models, identify drivers of value, and find intrinsic values. *Prerequisite: FIN 250 Corporate Finance*

FIN 410 Markets, Institutions, and Derivatives (US 3 3 0 | ECTS 6 3 0)

Students will understand the workings of financial markets, insight into the working of the global financial system, and recognize pricing variables for derivatives. Knowledge ascertained from this course will be the structure of the primary and secondary markets, primary intermediaries in the financial markets, types of financial derivatives and their functions, and the pricing aspects of the financial derivatives. *Prerequisite: FIN 250 Corporate Finance and FIN 301 Money and Markets*

FIN 420 Research and Decision Making (US 3 3 0 | ECTS 6 3 0)
Effectively performing research on accounting and financial reporting issues, reaching appropriate conclusions, and documenting one's conclusions are critical to being successful in the accounting and auditing professions. This course guides advanced accounting students through the research process. *Prerequisite: Senior Accounting Majors Only. Prerequisite: ACC 210 Managerial Accounting and ACC 301 Advanced Accounting*

FIN 430 Finance: Theory and Applications (US 3 3 0 | ECTS 6 3 0)
This is a capstone course. It is intended to review some of the key concepts in finance and see how those apply to business situations. For this reason, the course is designed around case studies that will cover a variety of finance topics. It is required that in addition to the business core this course should only be taken after a minimum of three finance courses have been successfully completed. The topics may vary in a particular section but may include hedging, finance in emerging markets, mergers and acquisitions, bankruptcy, and IPOs. Most cases will require research into the nature of the problem as well as a proposed solution for the problem. In addition to the finance content of the cases, students will be expected to effectively communicate their solutions with written cases and oral presentations that reflect their individual research. Prerequisite: FIN 360 International Finance; FIN 380 Financial Statement Analysis and FIN 410 Markets, Institutions and Derivatives

FIN 510 Financial Accounting (US 3 3 0 | ECTS 6 3 0)
Financial accounting provides information used for decisions about the firm made by external stakeholders, such as banks and financial markets. This course provides an overview of financial accounting theory and its applications. Topics include balance sheets, financial statement analysis, income statements, revenue recognition, cash flows, inventory, GAAP, and IFRS. *Prerequisite: Graduate Standing*

FIN 520 Economics for Managers (US 3 3 0 | ECTS 6 3 0)
This course introduces economic topics relevant to managers. Both microeconomic topics (such as supply and demand, elasticities, cost analysis and market structure) and macroeconomic topics (such as the measurement of economic activity, business cycles and money supply) are covered. *Prerequisite: Graduate Standing*

FIN 530 Managerial Accounting (US 3 3 0 | ECTS 6 3 0)
Managerial accounting provides information for stakeholders inside the firm (upper management, other departments). This course provides accounting tools to

support managerial decision making. *Prerequisite: FIN 510 Financial Accounting*

FIN 540 Money and Banking (US 3 3 0 | ECTS 6 3 0)
This module provides an overview of the roles of money, interest rates, and monetary policy in the global economy. The functions of financial markets and financial institutions are explained. Managers must understand these topics to function effectively. *Prerequisite: Graduate Standing.*

GRD 101 Introduction to Visual Design (US 3 3 0 | ECTS 6 3 0)
This course is an introduction to two-dimensional design. Explores the development of perceptual ability through the analysis of two-dimensional concepts of line, shape, value, colour, space, and organization. Topics covered include elements of design, the colour wheel, and colour properties. Class is project-based with homework assigned each class period. The class will be taught in a studio. No Prerequisite

GRD 111 Drawing and Visualization (US 3 3 0 | ECTS 6 3 0)
This is an introduction to composition, line and rendering in black and white drawing media. Students will study the basic techniques for a descriptive and expressive use of drawing media. Drawing and visualization are core knowledge areas for the Graphic Design and Animation course. The class will be taught in a studio. No Prerequisite

GRD 201 Figure Drawing and Anatomy (US 3 3 0 | ECTS 6 3 0)
This course focuses on the study of the human figure through an exploration of anatomy, combined with various drawing processes. This is an introduction to basic human anatomy needed to draw the figure, rendering the human figure in line and tone, and rendering believable three-dimensional volumes in two-dimensional media. Classis project-based, with homework assigned each class period. *Prerequisite: GRD 111 Drawing and Visualization*

GRD 211 Digital Art Tools (US 3 3 0 | ECTS 6 3 0)
Digital Art Tools teaches students how to utilize the basic tools of the graphic design and animation field, which focuses on building basic skills in the most common digital imaging tools. It will cover pixel-based imaging (Photoshop); vector-based imaging (Illustrator); use of Photoshop and Illustrator as ideational tools for exploring visual problems, possibilities, and solutions; use of Photoshop and Illustrator to create digital images for output; and integration of Photoshop and Illustrator with traditional analogue medial and tools. No Prerequisite

GRD 301 Time, Image, Sound (US 3 3 0 | ECTS 6 3 0)
Time, Image, Sound is an introduction to the creation and editing of cinema/video, including images and sound. It introduces the fundamentals of time-based media, camera and lens technology, composition for digital screens, lighting, directing, sound recording, and non-linear editing. Utilizing digital technology, students will produce several video projects with an emphasis on visual storytelling, information communication, and personal expression. No Prerequisite

GRD 311 Painting and Colour (US 3 3 0 | ECTS 6 3 0)
Paint and Colour is an introduction to the application of colour using paint. Students will investigate practical and theoretical dimensions of colour through mixing and applying paint, explorations into the use of colour, basic organizational and technical concepts of painting, preparation and proper use of materials, basic concepts related to colour's associations in emotional contexts, commercial uses, and cultural roles. Class is project-based. No Prerequisite

GRD 321 3D Design and Modelling (US 4 4 0 | ECTS 8 4 0)
This is an introduction to 3D design and 3D modelling, areas of knowledge that are necessary for computer animation. Students will be exposed to the use of computer modelling to explore the principles of 3-dimensional design; projects involving objects; animal, and architectural modelling; aesthetic concepts of spatial proportion; scale, angle; position; silhouette; negative space; rhythm; balance; light/shadow; and texture. This class is project-based with homework assigned each class period. No Prerequisite

GRD 331 Animation I: Motion and Methods (US 4 4 0 | ECTS 8 4 0)
This is an introduction to the art and practice of animation. It is a studio-based class, which will emphasize learning through process, experimentation, and creation. Students will explore the limitless possibilities of animated motion in the context of cinema, computer games and the Internet. All genres and styles are within the scope of this class, including Anime, cartoons, computer game art, experimental art and special effects. In addition to how we will also explore and discuss why, the role and potential of animation in our society, and its place in other cultures as well. No Prerequisite

GRD 341 3D Character Animation (US 4 4 0 | ECTS 8 4 0)
3D Character Animation is an introduction to 3D animation that will emphasize traditional animation principles as they apply to 3D animation. Topics will include principles of anion, storyboarding, transformation and deformation of 3D objects, rigging, camera, and light animation, and using the computer as a tool to create animation for cinema and game applications, as well as an instrument of experimentation. *Prerequisite: GRD 321 3D Design and Modelling.*

GRD 351 Animation II: Production (US 4 4 0 | ECTS 8 4 0)
Animation II is a more advanced study of animation, which will concentrate on facilitating the student's production of animated projects and will cover idea generation, experimentation, problem-solving, planning and time management, application of the process of critical analysis to one's work, with the choice of animation technique, content and form left to the individual. Students will learn the importance of bringing projects to completion. Students should be prepared to spend a large amount of time outside of class finishing the assignments and final project. *Prerequisite: GRD 331 Animation I: Motion and Methods*

GRD 361 Graphic Design I: Typography (US 4 4 0 | ECTS 8 4 0)
Graphic Design I is an in-depth introduction to typography introducing function, history, and art of typography in visual and verbal communication for print and digital screens; technical and formal aspects of letterforms; production of effective and evocative communication.
Finished projects are pragmatic and expressionist, emphasizing the relationship between form and content. *Prerequisite: GRD 101 Introduction to Visual Design*

GRD 371 Storyboarding and Narrative (US 4 4 0 | ECTS 8 4 0)
This class will focus primarily on storyboarding and the aesthetic and practical uses of research, treatments, drawings, and found images as tools in the production of animations, films and game cinematics. Students will complete a series of assignments that will utilize different methods of finding inspiration to make a cohesive, narrative work. Various methods used in both commercial and independent productions will be presented as examples, and pre-production work from both live-action and animated films will be viewed throughout the quarter. Students will create several storyboards for short films, write treatments, and research design options. *Prerequisite: GRD 331 Animation I: Motion and Methods*

GRD 411 Graphic Design II: Visual Problem Solving (US 4 4 0 | ECTS 8 4 0)
Graphic Design II is an advanced exploration of graphic design exploring formal structures, research methods, the role of analysis and conceptual thinking in visual problem solving, the world of graphic design in a social, business, and historical context. Students will combine text, images, and graphic elements within research-driven design projects to create meaningful solutions for print and digital screens. *Prerequisite: GRD 361 Graphic Design I: Typography*

GRD 421 Motion Graphics (US 4 4 0 | ECTS 8 4 0)
Motion Graphics is an introductory class teaching effective communication using motion graphics; motion graphics in film titles; motion graphics in broadcast; motion graphics in commercial design; motion graphics in interactive media; motion graphics in game development, the combination of music, visuals and typography; basic theories of kinetic composition and aesthetics; history of the field, including the work of pioneers such as Norman McLaren, Saul Bass and Len Lye. *Prerequisites: GRD 331 Animation I: Motion and Methods and GRD 351 Animation II: Production*

GRD 431 Visual Design for Games (US 4 4 0 | ECTS 8 4 0)
The stages of development in the visual direction of a video game will be identified and detailed, and students will participate in the creation of the visual art direction of a product, giving special attention to the design of 3D models and animation. Visual Design for Games topics includes creating visual direction, concepting, art bibles, art production, and post-production strategies. Students will create proposals, create concepts, iteratively create artwork, and analyse competitive products. *Prerequisites: GRD 101 Introduction to Visual Design and GRD 201 Figure Drawing and Anatomy*

GRD 441 Graphic Design III: Web Design (US 4 4 0 | ECTS 8 4 0)
Graphic Design III is a web design-focused class covering basic concepts and techniques in the design; development and implementation of websites; the use of current industry-standard design applications such as Photoshop, Flash, and Illustrator; hand-coding in HTML and CSS for introductory web design; visual design fundamentals; composition; typography for the web; web colour; digital imaging; Informational navigation; structure; front-end design; implementation. *Prerequisite: GRD 411 Graphic Design II: Visual Problem Solving*

GRD 451 Interdisciplinary Game Project (US 4 1 0 | ECTS 8 1 0)
This course recreates the environment of an interdisciplinary game studio, one of the main employment opportunities for graduates of this course. Students work in teams to design and develop a video game that demonstrates their mastery of game design and development. Students will be guided through a full production cycle of game development from brainstorming a game concept to playtesting and polishing a complete, short game. The primary purpose of this module is for students to gain experience working intensely as a team or "game studio." Students will learn how to work successfully with people that have diverse skill sets, backgrounds, and interests. *Prerequisite: GRD 321 3D Design and Modelling and/or CSC 410 Game Modification*

GRD 461 Thesis Project I (US 410 |ECTS 8 10)
This class gives the student an opportunity to apply the knowledge and skills obtained as a major in this course and prepare for their chosen field. This production-based course is the first of a two-course sequence that provides the student with a Graphic Design and Animation capstone experience. Students will employ the knowledge they have learned and the skills they have acquired in all their GDA courses to date to produce a significant project in

the medium of their choice. These courses connect the student's work through three components: class lectures and discussions, independent analysis and reflection, and the creation of a significant project. The module sequence is designed to be taken in two consecutive semesters. *Prerequisite: Senior Standing, GRD 331 Animation I: Motion and Methods, and GRD 361 Graphic Design I: Typography*

GRD 462 Thesis Project II (US 4 1 0 | ECTS 8 1 0)
This class gives the student an opportunity to apply the knowledge and skills obtained as a major in this course and prepare for their chosen field. This production-based course is the second of a two-course sequence that provides the student with a Graphic Design and Animation capstone experience. Students will employ the knowledge they have learned and the skills they have acquired in all their GDA courses to date to produce a significant project in the medium of their choice. These courses connect the student's coursework through three components: class lectures and discussions, independent analysis and reflection, and the creation of a significant project. The course sequence is designed to be taken in two consecutive semesters. *Prerequisite: GRD 461 Thesis Project I*

HIS 101 History of the Mediterranean (US 3 3 0 | ECTS 6 3 0)
This course provides an introductory survey to the vast scope of Mediterranean experience through roughly 5000 years of human history. Students are encouraged to examine the rationales behind those events that are selected for focus and discussion. The islands of Malta and Goo provide an excellent case study for exploring how some of these broad historical currents played out in a specific place at a specific time. Thus, at several points in the course, students explore how big topics such as the Roman Empire developed in the local environment and examine how such big topics impacted the daily life of ordinary people. No prerequisite

HIS 120 History of Malta (US 3 3 0 | ECTS 6 3 0) The Maltese archipelago is a group of islands (Malta, Goo, and Comino) sixty miles south of Sicily. Except for Malta's deep and well-sheltered harbour, the islands are poor in natural resources, yet their history is incredibly rich. Lying at the very heart of the Mediterranean, a sea which has witnessed extensive intercultural exchange and cross-fertilization throughout its millennial existence, the islands have consistently attracted attention from all latitudes of the basi. Whether as a temporary stopover for seafarers or as a long-term base for invaders and colonizers, Malta has been at the centre of these interactions which, in turn, moulded the islands' history. The aim of the course is to outline the main episodes of this history, always within the wider framework of Mediterranean civilization, from prehistoric to modern times, and to ultimately illustrate the road which gradually transformed Malta from a base, fief, or colony, into an independent state. No Prerequisite

HIS 130 History of USA (US 3 3 0 | ECTS 6 3 0)
The module guides its participants through approximately 500 years of American history, from the times of pre-Columbian natives to the dawn of the twenty-first century. Themes covering major political and economic events will be blended with social, intellectual, and cultural history to deliver as broad a view as possible of how the United States came to be the nation they are today, with all the inherent contradictions of such a process, where phenomenal economic success could rest on extensive labor exploitation. The aim, in

fact, is to give voice to the wide gamut of humanity who willingly or reluctantly contributed to the molding of a multi-ethnic America

IEE 175 Computer Programming for Engineering Applications (US 3 3 0 | ECTS 6 3 0)
This course teaches the Fundamentals of C, complexity and efficiency analysis, numerical precision and representations, intro to data structures, structured program design, application to solving engineering problems. *Prerequisite or Co-requisite MAT 120*

IEE 250 Introduction to Systems and Industrial Engineering (US 3 3 0 | ECTS 6 3 0)
This course gives students background and a foundation in the design and operation of systems. *Prerequisite MAT 130*

IEE 265 Engineering Economics (US 3 3 0 | ECTS 6 3 0)
This course introduces students to the fundamentals of economic analysis and the time value of money for engineers. Construction of financial models in Microsoft Excel including Income, Cash Flow, and Balance Sheet. Estimation of required capital and project acceptance criteria. *Prerequisite MAT 120*

IEE 270 Mathematical Foundations and Numerical Computation (US 3 3 0 | ECTS 6 3 0)

This course will provide students with knowledge of the basics of data structures, transformations, computer methods, their implementation in MATLAB, and their applications in solving engineering problems. *Prerequisites IEE 175, MAT 130, and PHY 111*

IEE 277 Object-Oriented Modelling and Design (US 3 3 0 | ECTS 6 3 0)
This course covers modelling and design of complex systems using all views of the Unified Modelling Language (UML). Most effort will be in the problem domain (defining the problem). Some effort will be in the solution domain (producing hardware or software). *Prerequisite IEE 175*

IEE 295 Systems and Industrial Engineering Second Year Colloquium (US 1 1 0 | ECTS 2 1 0)
This colloquium is designed to help students understand what Systems and Industrial Engineers (SIE) do as professionals. Students will interact with speakers and explore various roles of SIE to solve real engineering problems. The course helps students select course options within the SIE programs and helps focus on possible SIE application areas. *Prerequisite IEE 250 or IEE 265*

IEE 305 Introduction to Engineering Probability and Statistics (US 3 3 0 | ECTS 6 3 0)
This course covers axioms of probability, discrete and continuous distributions, sampling distributions, as well as engineering applications of statistical estimation, hypothesis testing, and confidence intervals. *Prerequisite MAT 130*

IEE 321 Probabilistic Models in Operations Research (US 3 3 0 | ECTS 6 3 0)
The goal of this course is to apply probability theory to model and analyse systems with time varying randomness. Such stochastic systems are commonly encountered in engineering, computer science, biology, finance and public policy. This course is an introduction to the

systematic study of such probabilistic systems. *Prerequisite IEE 305*

IEE 330R Engineering Experimental Design (US 3 3 0 | ECTS 6 3 0)
This class teaches the design and analysis of observational and factorial experiments employing numerical and graphical methods. Topics include control charts, probability plots, multiple regression analysis, confidence and prediction intervals and significance tests. *Prerequisite IEE 305*

IEE 340 Linear Programming (US 3 3 0 | ECTS 6 3 0)
This course covers linear programming models, solution techniques, sensitivity analysis and duality. *Prerequisite IEE 270*

IEE 367 Engineering Management (US 3 3 0 | ECTS 6 3 0)
This class teaches students strategic, tactical and operational planning; innovation and technological cycles; the elements of entrepreneurship, and human relations topics for technical managers. *Prerequisite IEE 265*

IEE 370 Embedded Computer Systems (US 4 3 1 | ECTS 8 3 1)
This course covers Boolean algebra, combinational and sequential logic circuits, finite state machines, simple computer architecture, assembly language programming, and real-time computer control. The computer is used as an example of systems engineering design; it is analysed as a system, not as a collection of components. *Prerequisite PHY 240*

IEE 377 Software for Engineers (US 3 3 0 | ECTS 6 3 0)
This course covers rapid prototyping of decision support systems using Visual Basic for Applications (VBA) and Excel. Use of VBA, Excel, and external packages to solve optimization problems, to perform simulations, and to perform forecasting. Rapid design and implementation of decision support systems for financial, supply chain, and facility location problems. *Prerequisite IEE 175*

IEE 383 Integrated Manufacturing Systems (US 3 3 0 | ECTS 6 3 0)
This course introduces the integrated manufacturing enterprise and automation. Topics include computer-aided design, process planning, computer numerical control machining, machine vision, application of robots and automation. *Prerequisite: Upper Division Standing*

IEE 406 Quality Engineering (US 3 3 0 | ECTS 6 3 0)
This class introduces quality, improvement and control methods with applications in design, development, manufacturing, delivery and service. Topics include modern quality management philosophies, engineering/statistical methods (including process control, control charts, process capability studies, loss functions, experimentation for improvement) and TQM topics (customer driven quality, teaming, Malcolm Baldridge and ISO 9000). *Prerequisite IEE 305*

IEE 410A Human Factors and Ergonomics in Design (US 3 3 0 | ECTS 6 3 0)
This course considers human characteristics in the requirements for design of systems, organizations, facilities and products to enable human-centred design which considers human abilities, limitations and acceptance. *Prerequisite or Co-requisite IEE 305*

IEE 431 Simulation Modelling and analysis (US 3 3 0 | ECTS 6 3 0)
This course develops the student's ability to model and analyse real systems using discrete event simulation. Through this course, the student understands the power and characteristics of discrete event simulation modelling. *Prerequisite IEE 305*

IEE 457 Engineering Project Management (US 3 3 0 | ECTS 6 3 0)
This course covers the foundations, principles, methods and tools for effective design and management of projects in technology-based organizations. It focuses on the scope, time, cost, performance and quality concerns of engineering projects characterized by risk and uncertainty. Initiating, planning, executing, monitoring, controlling and closing processes are addressed. Project Management software is utilized. *Prerequisite: Upper Division Standing*

IEE 462 Production Systems Analysis (US 3 3 0 | ECTS 6 3 0)
This class covers production systems, quantitative methods for forecasting, aggregate planning, inventory control, materials requirement planning, production scheduling, manpower planning and facility design. *Prerequisites IEE 305 and IEE 340*

IEE 464 Cost Estimation (US 330 |ECTS 630)
Course focuses on principles of cost estimation and measurement systems with specific emphasis on parametric models. Approaches from the fields of hardware, software and systems engineering are applied to a variety of contexts (risk assessment, judgment and decision making, performance measurement, process improvement, adoption of new tools in organizations, etc.). Material is divided into five major sections: cost estimation fundamentals, parametric model development and calibration, advanced engineering economic principles, measurement systems, and policy issues. *Prerequisite: Upper Division Standing*

IEE 498A Cross disciplinary Design I (US 3 3 0 | ECTS 6 3 0)
Students work in cross-disciplinary teams to solve industry sponsored real-world design problems using the design process. Teaming, design process, design concept, design proposal. *Prerequisite: Senior Status and IEE 305; Prerequisite or Co-requisite IEE 410A or 431*

IEE 498B Cross Disciplinary Design II (US 3 3 0 | ECTS 6 3 0)
Students receive instruction on formal methods in the design process, project management, and communication skills. They are also guided in the implementation of their projects by professional mentors with many years of project management and design experience in various industries. *Prerequisite IEE 498A*

IEE 506 Quality Engineering (US 3 3 0 | ECTS 6 3 0)
This class introduces quality, improvement and control methods with applications in design, development, manufacturing, delivery and service. Topics include modern quality management philosophies, engineering/statistical methods (including process control, control charts, process capability studies, loss functions, experimentation for improvement) and TQM topics (customer driven quality, teaming, Malcolm Baldridge and ISO 9000).
Prerequisite: IEE 305 / Introduction to Engineering Probability and Statistics or equivalent

IEE 514 Law for Engineers and Scientists (US 3 3 0 | ECTS 6 3 0)
Topics covered in this course include patents, trade secrets, trademarks, copyrights, product liability, contracts, employment relations and other legal matters important to engineers and scientists.

IEE 515 Technical Sales and Marketing (US 3 3 0 | ECTS 6 3 0)
Principles of the engineering sales process in technology-oriented enterprises; selling strategy, needs analysis, proposals, technical communications, electronic media, time management and ethics; practical application of concepts through study of real-world examples.

IEE 522 Engineering Decision Making under Uncertainty (US 3 3 0 | ECTS 6 3 0)
Application of principles of probability and statistics to the design and control of engineering systems in a random or uncertain environment. Emphasis is placed on Bayesian decision analysis. Graduate-level requirements include a semester research project. *Prerequisite: IEE 305 / Introduction to Engineering Probability and Statistics or equivalent*

IEE 530 Engineering Statistics (US 3 3 0 | ECTS 6 3 0)
This class introduces statistical methodology of estimation, testing hypotheses, goodness-of- fit, nonparametric methods and decision theory as it relates to engineering practice.
Significant emphasis on the underlying statistical modelling and assumptions. *Prerequisite: IEE 305 / Introduction to Engineering Probability and Statistics or equivalent*

IEE 531 Simulation Modelling and Analysis (US 3 3 0 | ECTS 6 3 0)
This course is designed to develop student's ability to model and analyse real systems using discrete event simulation. Through this course, the student will understand the power and characteristics of discrete event simulation modelling. *Prerequisite: IEE 305 / Introduction to Engineering Probability and Statistics or equivalent*

IEE 540 Survey of Optimization Methods (US 3 3 0 | ECTS 6 3 0)
This class introduces survey of methods including network flows, integer programming, nonlinear programming, and dynamic programming. Model development *and solution algorithms are covered. Prerequisite: IEE 305 / Introduction to Engineering Probability and Statistics or equivalent; IEE 340 Linear Programming, or equivalent*

IEE 554A The Systems Engineering Process (US 3 3 0 | ECTS 6 3 0)
Process and tools for systems engineering of large-scale, complex systems: requirements, performance measures, concept exploration, multi-criteria trade-off studies, life cycle models, system modelling, etc.

IEE 557 Engineering Project Management (US 3 3 0 | ECTS 6 3 0)
Foundations, principles, methods and tools for effective design and management of projects in technology-based organizations This course focuses on the scope, time, cost, performance and quality concerns of engineering projects characterized by risk and uncertainty. Initiating, planning, executing, monitoring, controlling and

closing processes are addressed. Project Management software is utilized. *Prerequisite: IEE 305 / Introduction to Engineering Probability and Statistics equivalent*

IEE 562 Production Systems Analysis (US 3 3 0 | ECTS 6 3 0)
This class covers production systems, quantitative methods for forecasting, aggregate planning, inventory control, materials requirement planning, production scheduling, manpower planning and facility design. *Prerequisite: IEE 305 / Introduction to Engineering Probability and Statistics or equivalent; IEE 340 Linear Programming or equivalent, or consent of faculty member.*

IEE 564 Cost Estimation (US 3 3 0 | ECTS 6 3 0)
Course focuses on principles of cost estimation and measurement systems with specific emphasis on parametric models. Approaches from the fields of hardware, software and systems engineering are applied to a variety of contexts (risk assessment, judgment and decision making, performance measurement, process improvement, adoption of new tools in organizations, etc.). Material is divided into five major sections: cost estimation fundamentals, parametric model development and calibration, advanced engineering economic principles, measurement systems, and policy issues.

IEE 565 Supply Chain Management (US 3 3 0 | ECTS 6 3 0)
Fundamentals of Supply Chain Management including inventory/logistics planning and management, warehouse operations, procurement, sourcing, contracts and collaboration. *Prerequisite: IEE 305 / Introduction to Engineering Probability and Statistics or equivalent; IEE 340 Linear Programming, or equivalent, or consent of faculty member.*

IEE 567 Financial Modelling for Innovation (US 3 3 0 | ECTS 6 3 0) This a graduate level course in the economics of technology development for students interested in commercializing research discovery. Topics include Pro Forma financial statements, the time value of money, valuation approaches, and entrepreneurship

IEE 598A Master's Capstone I (US 3 3 0 | ECTS 6 3 0)
Students work in teams to solve problems that have practical significance and require application of graduate-level course material. Usually up to three students may work together on the project and produce a joint report. An oral presentation of the project to the faculty advisor is required.

IEE 598B Master's Capstone II (US 3 3 0 | ECTS 6 3 0)
Students work in teams to solve problems that have practical significance and require application of graduate-level course material. Usually up to three students may work together on the project and produce a joint report. An oral presentation of the project to the faculty advisor is required

MGT 101 Principles of Management (US 3 3 0 | ECTS 6 3 0)
This course is an introduction to the range of issues in management and covers such topics as management processes, values and attitudes, ethics and diversity, the global environment of management, strategic planning, organizational structures, motivation, leadership, teams,

human resources, organizational control, organizational communications, and career management. No Prerequisite

MGT 102 Principles of Marketing (US 3 3 0 | ECTS 6 3 0)
This course introduces basic marketing terminology and the relationships between and among these terms relevant to the creation and implementation of basic marketing strategy. The course content also focuses upon the controllable and uncontrollable variables which have bearing on the success or failure of marketing programs. The course also provides students with opportunities to demonstrate their ability to connect concepts discussed in the text and those same concepts appearing in academic and practitioner publications and popular business periodicals. No Prerequisite

MGT 301 Operations Management (US 3 3 0 | ECTS 6 3 0)
Operations management focuses on the effective application of managerial techniques and concepts related to the delivery of services, manufacturing, and supply chain processes. Topics may include operations strategy, fore- casting, project management, quality management, supply chain management, facility location and layout, productivity, inventory management, and scheduling. *Prerequisites: ACC 102 Principles of Accounting II and ECO 101 Microeconomics*

MGT 320 International Business (US 3 3 0 | ECTS 6 3 0)
This course is designed to develop students' knowledge and the skills needed to face the challenges of globalization. It provides participants with the global perspective required to expand their intercultural communication competencies and conduct business internationally. The subjects scheduled are diversified in nature and scope. They cover many fields of knowledge, such as the multi-national company's environment, culture, strategy and organization and the role of managers in today's global business. The course topics and assignments are intended to enrich participants' professional and personal lives. No Prerequisite

MGT 330 Principles of Sustainability (US 3 3 0 | ECTS 6 3 0)
This course discusses and analyses the concept of sustain- ability within a business and management setting. It will analyse the complex relationship between business and the environment, and it will explore the nature of business in today's global context where addressing environmental and social issues is becoming increasingly important. Furthermore, it aims to discuss how the talents of business might be used to solve world's environmental and social problems. Rather than focusing on a "doom and gloom" approach, the course aims to emphasize the solutions towards a sustainable economy. No Prerequisite

MGT 340 Management Information Systems (US 3 3 0 | ECTS 6 3 0)
This is an introductory course in MIS. It emphasizes the use of information technology to support business operations and management and includes the use of spreadsheets to analyse and represent data. Topics include strategic uses of IT, databases, data warehouse, decision support and artificial intelligence, e-commerce, systems development, IT infrastructure, network security, and social, ethical, and legal considerations. No Prerequisite

MGT 350 Consumer Behaviour (US 3 3 0 | ECTS 6 3 0)

Topics include an analysis of the environmental, social, and psychological factors that influence an individual's consumer decisions. Specific areas studies will be consumer motivation, attitudes, learning and decision processes, and lifestyles, reference groups, communication, and cultural influences. *Prerequisite: MGT 102 Principles of Marketing*

MGT 360 Organizational Behaviour (US 3 3 0 | ECTS 6 3 0)

This course focuses on the nature and consequences of human behaviour in organizations. The prediction, explanation, and management of individual and group behaviour in the organization depends on an understanding of the concepts of organizational behaviour. Classroom experiences focus on both understanding and practicing these concepts. Topics cover both the individual level, e.g., perception, attitudes, motivation -- and the group level, e.g., leadership, group dynamics, communication, power and politics, and decision making. *Prerequisite: MGT 101 Principles of Management*

MGT 410 Entrepreneurship (US 3 3 0 | ECTS 6 3 0)

This course will provide an overview of the opportunity recognition and evaluation process by examining how people, the industry, and the social environment interact to identify, create, and shape entrepreneurial opportunities. The focus of this course is on creativity and innovation within an entrepreneurial context. Students learn creative tools and applications to assist in designing new business ideas and ventures. *Prerequisite: MGT 101 Principles of Management*

MGT 420 Global HR Management (US 3 3 0 | ECTS 6 3 0)

This course concerns concepts, theories, principles and techniques for effectively managing a workforce glob- ally. The focus is on effective strategies relating to human resource strategy, staffing, development, performance management, remuneration management, legal/regulatory compliance, and employee/labour relations in geo-graphically dispersed and culturally diverse organizations. The purpose of the course is to help students understand the issues related to effectively managing a workforce in a global organization and how human resource strategies and programs can enable the workforce to contribute to organizational success. *Prerequisite: MGT 101 Principles of Management*

MGT 450 Principles of Marketing Research (US 3 3 0 | ECTS 6 3 0)

This course focuses on how to match research design (exploration, surveys, observation and experiments) with an organization's marketing problems. One learns how to design questionnaires, collect, and analyse survey data, prepare and conduct focus groups, and design experiments. Some knowledge of statistics required. Prerequisite: MGT 102 Principles of Marketing

MGT 500 Writing and Presenting Academic Research (US 3 3 0 | ECTS 6 3 0)

This course aims to develop knowledge and skills in designing and communicating research in a variety of fields, including, but not limited to, the humanities and the social sciences. Designing research means proceeding from purposes to questions to decision about approach, then design frame, then data-gathering methods, then to

analytical methods. Communicating research means mastering the basic form of all research projects: introduction; literature review; discussion of methods; presentation of findings; discussion of those findings; conclusion. Communicating research also involves knowing how to deliver work in written (reports, theses, dissertations), oral (conference presentations) and multimedia (PowerPoint; Prezi) formats.

MGT 510 Business Law (US 3 3 0 | ECTS 6 3 0)
Managers must be familiar with law as it affects the formation and operation of businesses. This module provides an overview of business law for business students. The module is designed to familiarize students with basic legal issues important to starting and operating a business and to recognize when they need professional legal assistance. *Prerequisite: Graduate Standing*

MGT 520 Strategic Management (US 3 4 0 | ECTS 6 4 0)
This course provides a framework for developing, implementing, and evaluating business strategy. As a capstone course for the MBA, all functional areas of business are integrated. *Prerequisite: Must have completed 24 credits (48 ECTS credits) in the MBA*

MGT 530 Financial Management (US 3 4 0 | ECTS 6 4 0)
This course presents concepts and techniques to analyse and implement investment decisions by firms. The course focuses on the effect of time and uncertainty on decision-making. In the process, the course develops a framework for corporate financial decision-making, thus providing a solid foundation in the principles and practice of financial management. Topics include basic discounting techniques, stock and bond valuation, capital budgeting under certainty and uncertainty, asset pricing models, and efficient markets. *Prerequisites: FIN 520 Economics for Managers; FIN 510 Financial Accounting*

MGT 540 Operations Management (US 3 4 0 | ECTS 6 4 0)
This module provides an overview of operations management and supply chain management as sources of competitive advantage. *Prerequisite: Graduate Standing*

MGT 550 Organisational Design, Culture and Structure (US 3 3 0 | ECTS 6 3 0)
Unless a business is a sole proprietorship, it requires organization of individuals to accomplish its mission. This course provides an overview of issues in organizational design, effectiveness, and change. *Prerequisite: Graduate Standing and MGT 520 Strategic Management*

MGT 560 Marketing Management (US 3 3 0 | ECTS 6 3 0)
This module provides an overview of the role of marketing in the organization and its relationship with other functional areas of business. Prerequisite: Graduate Standing

MGT 610 Business Research Methods (US 4 4 0 | ECTS 8 4 0)

This course provides an overview of research methods for business. Students will finish this module with a proposal for their major research project. Prerequisite: MAT 501 Business Statistics

MGT 620 Research Project (US 12 0 0 | ECTS 24 0 0)
It is fundamental for an effective manager

to be directly familiar with the methodologies, issues, and techniques of contemporary research in the field. This course allows students to implement an independent research project from start to finish. *Prerequisite: Completion of all other MBA requirements and minimum 3.0 CGPA.*

MAT 101 Introduction to Data Analysis, Probability, and Statistics (US 3 3 0 | ECTS 6 3 0)
This course is a first module in probability and statistics intended for non-science/non-engineering majors. No prior knowledge of calculus, probability or statistics is assumed. The goal of this module is to build statistical thinking, which is defined as the intuitive understanding of statistical concepts together with the ability to apply them to real-life situations. No prerequisite

MAT 105 Introduction to MATLAB I (US 1 0 1 | ECTS 2 0 1)
This course introduces students to the MATLAB programming environment, arrays, creating and running script files, 2D plotting features, functions, programming elements, polynomials, curve fitting, and interpolation necessary for experimentation with math and engineering principles. *Prerequisite (MAT 220) Multivariable Calculus*

MAT 110 Pre-Calculus (US 3 3 0 | ECTS 6 3 0)
This course introduces the mathematical concepts needed for the study of calculus, especially functions. It emphasizes mathematical theory, as well as the utility of mathematics in engineering and science. The goal of the course is a thorough understanding of the mathematics, plus the ability to apply precalculus topics in a variety of situations. No prerequisite

MAT 120 Calculus I (US 4 3 0 | ECTS 8 3 0)
This course introduces the calculus of a single variable. It emphasizes mathematical theory, as well as the utility of calculus in engineering and science. The goal of the course is a thorough understanding of the mathematics, plus the ability to apply calculus in a variety of situations. No prerequisite

MAT 130 Calculus II (US 4 3 0 | ECTS 8 3 0)
This course continues the theory and practice of the calculus of one variable to model phenomena in engineering and science. It covers integration, applications of definite integrals, techniques of integration, infinite sequences and series, and calculus with parametric equations and polar coordinates. *Prerequisite: MAT 120 Calculus I*

MAT 201 Business Statistics (US 3 3 0 | ECTS 6 3 0)
This is a second course in statistics, that focuses on the necessary tools and techniques for the diverse areas of business study such as finance, marketing, and economics. The module covers hypothesis testing, linear regression, multivariate analysis, and non-parametric methods. Emphasis is on the application of the statistical methods and examples. Prerequisite MAT 101 or MAT 120

MAT 205 Introduction to MATLAB II (US 1 0 1 | ECTS 2 0 1)
Provides students with an understanding of two-dimensional arrays, manipulation of arrays, plots with special graphics, 3D plots, inline functions, solving a nonlinear equation with one variable, finding the maximum or minimum of a function utilizing MATLAB. *Prerequisite MAT 105*

MAT 220 Multivariable Calculus (US 4 3 0 | ECTS 8 3 0)

This course explores limits, continuity, derivatives, and integrals in contexts where several variables are used. Topics include vector operations, vector functions, functions of several variables, partial derivatives, multiple integrals, and vector calculus. The goal of the course is a thorough understanding of the mathematics, plus the ability to apply calculus in a variety of situations in engineering and science. *Prerequisite: MAT 130 Calculus II*

MAT 230 Discrete Mathematics (US 3 3 0 | ECTS 6 3 0)
Topics include propositional and predicate logic, combinatorics, mathematical induction, mathematical induction to prove the correctness of algorithms, running time of algorithms and asymptotic notation, mathematical recursion and recursive algorithms, graph theory and algorithms on graphs and trees, network models, automata theory, and basic computational geometry. *Prerequisite: MAT 101 Introduction to Data analysis, Probability and Statistics*

MAT 250 Differential Equations (US 3 3 0 | ECTS 6 3 0)
This course introduces the study of ordinary differential equations and their application to real-world problems. Topics include first- and second-order differential equations, systems of differential equations, matrix methods, Laplace transforms, and numerical methods. Applications include population modelling, falling body problems with air resistance, and mass-spring systems. *Prerequisite: MAT 130 Calculus II*

MAT 260 Linear Algebra (US 3 3 0 | ECTS 6 3 0)
Students will develop conceptual and computational skills essential for deeper understanding of mathematics and computer science by working with linear spaces, transformations, and matrices used to represent them. In addition, the course will focus on logical reasoning and constructing proofs. *Prerequisite: MAT 130 Calculus II*

MAT 501 Business Statistics (MBA) (US 3 3 0 | ECTS 6 3 0)
Managers must be able to use statistical techniques and understand statistical results to make evidence-based decisions. The purpose of this module is to provide a solid foundation in statistics for business. Only for Graduate Standing

MEE 207 Elements of Electrical Engineering (US 3 3 0 | ECTS 6 3 0)
The material in this course provides an understanding of the technology in many contemporary electrical and computer systems and provides the necessary confidence when purchasing, designing or troubleshooting these or subsequent devices. *Prerequisite PHY 240*

MEE 230 Introduction to Thermodynamics (US 3 3 0 |ECTS 6 3 0)
Introductory course in classical macroscopic engineering thermodynamics. The course covers the basic laws of thermodynamics, including conservation of mass and energy in reversible and irreversible processes. The thermodynamics of substances will be studied through the equations of state. Examples of engineering applications will be used throughout the course. *Prerequisite PHY 111*

MEE 250 Dynamics (US 3 3 0 | ECTS 6 3 0)
Dynamics of particles and rigid bodies as applied to mechanical systems, introduction

to mechanical vibrations. *Prerequisite CIE 214; Prerequisite or Co-requisite MAT 250*

MEE 300 Instrumentation Laboratory (US 3 1 4 | ECTS 6 1 4)
Lectures and lab on basic principles of laboratory practice and instrumentation; statistical measurement theory including probability distributions, finite statistics, uncertainty analysis regression analysis dynamics of measurement systems; transducers and signal conditioning circuits. *Prerequisites or Co-requisites MEE 331, MEE 230, MEE 207, and Upper Division Standing*

MEE 301 Engineering Analysis (US 3 3 0 | ECTS 6 3 0)
Vector analysis, complex variables, Fourier series, matrices, boundary value problems and applications to current engineering problems. *Prerequisite MAT 250*

MEE 302 Numerical Methods (US 3 3 0 | ECTS 6 3 0)
Introduction to linear algebra; solution of engineering problems based upon an integrated approach combining numerical analysis and the use of computers. *Prerequisites MAT 205, MAT 250, and MEE 250; Prerequisite or Co-requisite MEE 301*

MEE 313 Aerospace/Mechanical Engineering Design Laboratory (US 1 0 2 | ECTS 2 0 2)
Practical aspects of designing for manufacture and assembly. Emphasis on machining techniques. *Prerequisite Upper Division Standing*

MEE 324A Mechanical Behaviour of Engineering Materials (US 3 3 0 | ECTS 6 3 0)
Introduction to engineering mechanics of solid materials; concepts of stress and strain at a point; states of plane stress and plane strain, stress-strain constitutive relations; stress equilibrium; material/structural responses to applied loading/deflection; analysis of statically determinate and indeterminate engineering components, e.g., trusses, rods, beams, frames, thin-walled pressure vessels; failure theories; introduction to structural stability. *Prerequisite: CIE 214*

MEE 324B Engineering Component Design (US 3 3 0 | ECTS 6 3 0)
Application of failure analysis methods to the design of specific machine components such as slender/thin-walled pressure vessels, beams, shafts, gear sets, bearings. *Prerequisite MEE 324A*

MEE 324L Mechanics of Materials Laboratory (US 1 0 2 | ECTS 2 0 2)
Characterization of engineering materials for stress-strain relations, deformation, strength and fracture. The course integrates hands-on experience with instruments, specimens, recording and interpretation of data, and formal engineering report writing. *Prerequisite or Co-requisite MEE 324A or MEE 331R*

MEE 331 Introduction to Fluid Mechanics (US 3 3 0 | ECTS 6 3 0)

Fundamentals of fluid mechanics covering properties of fluids, fluid statics, dynamics of incompressible viscous and inviscid flows, control volume formulations of continuity, momentum and energy

equations, dimensional analysis, viscous pipe flow, boundary layers and drag. *Prerequisites MEE 230, MEE 250, MAT 250*

MEE 331R Fundamentals of Materials for Engineers (US 3 3 0 | ECTS 6 3 0)
Scientific principles that underlie and relate the behaviour and properties of materials to their engineering applications. *Prerequisites CHE 111 and PHY 111*

MEE 352 Dynamics of Machines (US 3 3 0 | ECTS 6 3 0)
Analysis of motions and forces in machines, design exercises. 1.5ES, 1.5ED. *Prerequisite MEE 250*

MEE 400 Senior Mechanical Engineering Laboratory (US 2 0 4 | ECTS 4 0 4)
This laboratory course involves experimental investigations to characterize a gas-cooled reactor, a wind tunnel tester, and an internal combustion engine. This is a writing emphasis course. The investigations are documented in technical memos and reported in oral presentations. *Prerequisites MEE 300 and Senior Standing*

MEE 432 Heat Transfer (US3 30 |ECTS 630)
Study of conduction, convection and radiation heat transfer, with applications to engineering problems. *Prerequisites MEE 230, MEE 331*

MEE 442 HVAC System Design (US 3 3 0 | ECTS 6 3 0)
Analysis and design of air conditioning systems for commercial and industrial buildings, including equipment and component selection. Energy-efficient concepts are emphasized. *Prerequisites MEE 230, MEE 331*

MEE 445 Renewable Energy Systems and Analysis (US 3 3 0 | ECTS 6 3 0)
Solar radiation intensity and location; basic concepts of solar thermal and photovoltaic processes; solar collectors; economic system design for electrical power and water heating, active and passive building heating and cooling, industrial processes. Wind energy fundamentals. Aerodynamic theory and economics of wind turbines. *Prerequisites MEE 230, MEE 331*

MEE 452 Planar Multibody Dynamics with Applications (US 3 3 0 | ECTS 6 3 0)
Kinematic and dynamic analysis of mechanical systems in planar motion, numerical methods and use of computer programs in analysis. *Prerequisites MEE 250, MEE 302, MEE 352*

MEE 455 Control System Design (US 3 3 0 | ECTS 6 3 0)
Mathematical modelling of dynamical systems, hardware and software issues; computer stimulations; classical control method including transient response, steady-state errors, bode diagrams, root locus and design of closed loop control systems; introduction to state feedback design and digital control. *Prerequisites MEE 250, MEE 301*

MEE 460 Mechanical Vibrations (US 3 3 0 | ECTS 6 3 0)
Free and forced vibrations of simple mechanical systems; effects of damping; introduction to multi-degree-of-freedom systems. *Prerequisites MEE 250, MAT 250*

MEE 462 Composite Materials (US 3 3 0 | ECTS 6 3 0)
Classification and characteristics of composite materials; mechanical behaviour of composite materials, micro and macro-

mechanical behaviour of laminae; mechanical behaviour of laminates; mechanical behaviour of short fibre composites. *Prerequisites MEE 302, MEE 324A, MEE 324B*

MEE 495 S ME Senior Colloquium (US 1 1 0 | ECTS 2 1 0)
Course provides transition between the academic experience and the world of work. Lectures on interviewing, resume writing, becoming a registered PE, financial planning, and engineering ethics are presented. Recent graduates are invited to share their experiences. *Prerequisite Senior Standing*

MEE 498A Cross Disciplinary Design I (US 3 3 0 | ECTS 6 3 0)
Students work in cross-disciplinary teams to solve industry sponsored real-world design problems using the design process. Teaming, design process, design concept, design proposal. *Prerequisite MEE 324B*

MEE 498B Cross Disciplinary Design II (US 3 3 0 | ECTS 6 3 0)
Students work in cross-disciplinary teams to solve industry sponsored real-world design problems using the design process. Teaming, design process, design concept, design proposal. ENGR 498A and ENGR 498B must be taken in consecutive semesters. This course is to prepare engineering seniors with a variety of backgrounds for professional practice by giving them the opportunity to work on real-life open-ended design problems with time and budgetary constraints. Students receive instruction on formal methods in the design process, project management, and communication skills. *Prerequisite MEE 498A*

PHI 101 Introduction to Philosophy (US 3 3 0 | ECTS 6 3 0)
This course provides students with both a broad background in the history of philosophy and the tools necessary to continue the study of philosophy either independently or in upper-level courses. Students will be introduced to many of the major thinkers, movements, ideas, and methods of Western Philosophy from its inception in Ancient Greece and Asia Minor to the present. No prerequisite

PHI 102 Introduction to Applied Ethics (US 3 3 0 | ECTS 6 3 0)
This course introduces students to the principles and practice of ethical reasoning through the critical analysis of specific ethical problems. The problems include but are not limited to environmental ethics, global justice, bioethics, violence and war, and personal morality.
Students will become familiar with the complexities of such problems and engage in critical reading and writing to develop the skills of ethical reasoning. No prerequisite

PHI 220 Business Ethics (US 3 3 0 | ECTS 6 3 0)
This course offers an examination of various ethical and moral issues arising in contemporary business and its activities which affect our society and the world. *Prerequisite: PHI 102 Applied Ethics*

PHI 501 Business Ethics US 3 3 0 | ECTS 6 3 0)
This course offers a generic but deep understanding of the philosophical foundations of ethical theories and their impact on culture generally and on political theories. The course thus offers a deeper insight into any theoretical approach to ethics that the student would have come in contact with (directly or indirectly) during

her undergraduate studies, whether these be Business Ethics, Applied Ethics, Environmental Ethics, Research Ethics, and more.

PHY 101 Introduction to the Physical Universe and Lab (US 4 3 2 | ECTS 8 3 2)
Physics focuses on the fundamental questions about the nature of the universe. This introduction to the physical universe explores its basic principles. The first theme is an exploration of the scientific process--that is, the process by which we know what we know. The second theme is the significance of 20th and 21st century physics, and the way modern physics was radically transformed from the classical physics of Newton and Maxwell. The third theme is energy, and how it ties together phenomena as large as galaxy clusters to phenomena as small as an atom. The final theme is the role that science in general and physics specifically play in society. No prerequisite

PHY 111 Physics with Calculus I and Lab (US 4 3 2 | ECTS 8 3 2)
This course emphasizes quantitative and conceptual under- standing of the fundamental principles of the physics back-ground to understand the world in motion around you.
Furthermore, students can use that background to study and understand momentum, energy, oscillations, fluid mechanics, and more. Topics include basic concepts of vectors, laws of motion, Newton's laws and their applications, rotational motion, conservation principles, oscillations, and fluids mechanics. No prerequisite

PHY 112 Physics with Calculus II and Lab (US 3 3 2 | ECTS 6 3 2)
The course has two main objectives: Provides the student with a clear and logical presentation of the basic concepts and principles of electromagnetism and to strengthen an understanding of the concepts and principles through a broad range of interesting applications to the real world. To meet these objectives, we have placed emphasis on sound physical arguments and problem-solving methodology. At the same time, this course attempts to motivate the students through practical examples that demonstrate the role of physics in other disciplines including engineering. The material in this course covers fundamental topics in electromagnetism: electrostatics, electric fields, electric potential and capacitance, direct current and magnetic fields. The students will learn the basic concepts of physics and its application. This course is specified for engineering and science students. *Prerequisite: PHY 111 Physics with Calculus I*

PHY 240 Introductory Electricity and Magnetism (US 4 3 1 | ECTS 8 3 1)
This course is a fundamental math/science course that provides students the foundation needed in terms of math and understanding of physical concepts to solve quantitative engineering problems. Topics include Coulomb's and Gauss' Law, electric fields and potentials, electrical and magnetic properties of matter, Ampere's and Faraday's laws, elementary DC and AC circuits, Maxwell's equations. *Prerequisite PHY 111*

PSY 101 Introduction to Psychology (US 3 3 0 | ECTS 6 3 0)
An educated, socially aware individual needs a working knowledge of the scientific method and a solid under- standing of the impact of society and culture on individuals and their behaviour. This Introduction to Psychology serves precisely this dual role

in students' general education. First and foremost, it demonstrates methods of modern science as applied to understanding human thought and behaviour. Second, it explores the impact of society and culture on individuals. No prerequisite

REL 101 Religious Worlds in Comparative Perspective (US 3 3 0 | ECTS 6 3 0)

This course introduces students to the foundational ideas and institutions of the world's three major monotheisms: Judaism, Christianity, and Islam. It surveys their histories from their points of origin until the present time, and it explores the range of interactions between these traditions in a variety of forums and settings. The course concludes by analysing the contrasting impacts and influences of the three monotheisms on the Mediterranean region and within Malta itself. No prerequisite

SOC 101 Introduction to Sociology (US 3 3 0 | ECTS 6 3 0)

This course introduces students to a sociological way of thinking about the institutions and groups to which they belong. Students are introduced to both classic and con- temporary social theories and to key concepts about their social worlds that enable them to see links between personal experience and public issues. Students are provided a solid grounding in the basic concerns of sociology and are encouraged to develop their own sociological imaginations through a variety of assessments. No prerequisite