جامعة الامير سلطان
PRINCE SULTAN
UNIVERSITY

University Bulletin

2023

Deanship of Admissions
and Registration

بسم الله الرحمن الرحيم

THE PSU ACADEMIC CURRICULA BULLETIN

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MESSAGE FROM THE PRESIDENT

Prince Sultan University is directly linked to one of the major milestone changes in the higher education system in the Kingdom of Saudi Arabia, namely the successful introduction of private higher education to this country when it was needed most. PSU is firmly committed to providing quality education with the highest international standards. Doing the best has been, and will continue to be PSU's guiding light. The emphasis at PSU is not on the quantity of students and programs, but on the quality of our graduates, who are in high demand in the marketplace. Thus, our undergraduate programs are aimed at producing the next generation of professionals who will help direct the course of progress in Saudi Arabia in the fields of engineering, business, and modern technology in a globalized world.

Since its inception in 1999, this university has been moving forward continuously in building a strong, dynamic institution. Its educational efforts are focused on enhancing academic quality, personal growth, strong leadership, and practical training – all of which will prepare students to excel in their chosen career fields in accordance with the Saudi Vision 2030.

Our vision is to be recognized as a model of excellence in private higher education in the Kingdom and the Middle East region. To this end, we have established up-to-date educational programs in several important fields. The academic curricula are carefully designed and based on international standards. We offer our students a unique educational experience in a supportive learning environment of scholastic excellence.

It is my pleasure to introduce the Prince Sultan University Undergraduate Bulletin, one of the most important tools available to you as you map out your path to completing your PSU degree. This bulletin is intended to provide the information you need regarding the academic offerings available in PSU's degree-granting programs. It is the official source of information regarding degree requirements, rules and regulations, programs of study and courses. Becoming familiar with the bulletin is, perhaps, the best thing to use in exploring the degree programs available at PSU. Reading the bulletin will save you time and highlight what is expected of PSU students.

Good luck on the journey ahead. The University welcomes you to begin that march via a challenging and fruitful academic life en route to a promising career and attractive future.

Dr. Ahmed S. Yamani
PRESIDENT

PRINCE SULTAN UNIVERSITY

INTRODUCTION

Prince Sultan University (PSU) is a non-profit institution established in Riyadh, Saudi Arabia, in 1999 by AI-Riyadh Philanthropic Society for Science, and licensed by the Ministry of Education in Saud Arabia. It is fully accredited by the Education and Training Evaluation Commission (ETEC) in Saudi Arabia.

The rapid increase in the Saudi population, the rising demand for higher education, and the enormous pressure on public institutions to educate the growing numbers of young men and women contributed to the establishment of PSU. As such, PSU aspires to be Saudi Arabia's premier university providing quality undergraduate professional education in the most timely and responsive manner.

PSU VISION

Prince Sultan University aspires to become the leading non-profit, private university in the Middle East, providing a quality education equal to other reputable universities in the world.

PSU MISSION

Prince Sultan University aims to provide the Middle East with quality education to the highest international standards. In its efforts toward successful and responsible life-long learning, PSU integrates modern technology, pedagogy and human values for the advancement of scientific research, productivity and leadership towards a more meaningful social life.

PSU is committed to effective management of institutional resources to optimize its multiple roles as a catalyst for new learning opportunities, national and international partnerships, continuous studies, professional growth, community service and diversity in educational horizons for the good of humanity.

EDUCATIONAL GOALS

In support of its vision and mission, PSU has a variety of goals that center on the students: their studies and relations with the community and its needs. In particular, the University aims to:

- provide students with a command of theoretical and practical knowledge in their chosen fields of professional specialization and advanced studies
- cultivate student awareness of the increasingly complex and globally competitive environment of the new century
- foster an environment conducive to critical thinking, sound ethics, and commitment to lifelong learning
- prepare students for positions of leadership in the workplace and in the community
- create a stimulating environment for academic research and community service

PSU expects to graduate individuals who will be confident, motivated, and articulate as they act upon reasoned decisions in their personal, civic, and professional lives. To achieve this, the University crafted curricular programs so that PSU students have:

- a broad knowledge-base of different disciplines in addition to their more specialized knowledge in their chosen areas
- a deep understanding of the complexities and interrelationships between humans and their environment
- a genuine understanding and realization of their own potentials, limitations, and mental as well as physical development
- skills and capabilities that can be applied to a variety of situations in a fast changing world

All PSU graduates should possess a general understanding of and appreciation for:

- science and technology
- humanities, society, culture, and the arts
- local and global interaction
- the interrelationships among these elements

To achieve the above goals, PSU students must thoroughly engage in and interact with programs designed to develop skills, capabilities and understanding in the following areas:

- communications
- problem solving
- science and technology
- humanity - at home and abroad
- values and ethics

VALUES

Guided by its mission statement, PSU strives to uphold the following values:

- academic and personal integrity
- academic environment that nurtures excellence in learning, teaching, and research
- high quality service and efficiency
- effective management operations
- lifelong learning among students, faculty, staff and the at large community
- respect for individuals in the community
- positive interpersonal relationship among members of the community
- professional development and personal growth among members of the community

UNDERGRADUATE FIELDS OF STUDY

At present, PSU offers fifteen "student-centered" degree programs that are carefully designed to cater to the needs of the citizens and residents of the Kingdom of Saudi Arabia as well as the entire Middle East region and to meet the employment demands of the business and government sectors, locally and globally. Housed in PSU's four colleges, these programs are as follows:

COLLEGE OF BUSINESS ADMINISTRATION [CBA]

ACCOUNTING | AVIATION MANAGEMENT - M* | FINANCE | MARKETING

COLLEGE OF COMPUTER AND INFORMATION SCIENCES [CCIS]

COMPUTER SCIENCE | INFORMATION SYSTEMS | SOFTWARE ENGINEERING

COLLEGE OF ENGINEERING [CE]

COMMUNICATIONS AND NETWORKS ENGINEERING - M*

CONSTRUCTION ENGINEERING MANAGEMENT - M*

PRODUCTION AND MANUFACTURING ENGINEERING MANAGEMENT - M*

CIVIL AND ENVIRONMENTAL ENGINEERING - M*

ELECTRICAL ENGINEERING - M*

COLLEGE OF ARCHITECTURE AND DESIGN [CAD]

ARCHITECTURE –W*

INTERIOR DESIGN –W*

COLLEGE OF HUMANITIES AND SCIENCES [CHS]

ENGLISH – APPLIED LINGUISTICS –W*

ENGLISH – TRANSLATION –W*

COLLEGE OF LAW [CL]

LAW

* M = Men students only | W = Women students only | all other programs for M and W students on PSU's Men's and Women's Campuses

STRUCTURE OF ACADEMIC PROGRAMS

The structure follows the international academic curricula standards and consists of the following elements:

- **Preparatory Year Program** [PYP]**:** one year of preparatory study that prepares students for their future enrolment in the University's undergraduate programs, providing them with the necessary guidance and counseling that ensure their wellbeing in their new educational environment.
- **General Education Requirements** [University Requirements]: set of core academic subjects that every PSU college student takes.
- **College Requirements**: set of courses designed to meet the specific needs of individual colleges.
- **Program Requirements**: set of courses designed to meet the specific needs of individual degree programs.
- **Major or Core Requirements**: set of core subjects that constitute the main areas of knowledge in a particular field of specialization of an academic degree program.
- **Electives**: complementary courses that are incorporated into the various program curriculums for purposes of adding depth or breadth of learning.
- **Experiential Learning or Community Link:** set of programs or activities targeted to enrich the student knowledge through practical experience, observations of real work behaviors, and hands-on application of knowledge gained from classroom lectures and discussions to actual situations such as solving real organization problems and concerns.
- **Language of Instruction**: the medium of instruction at PSU is English except for those subjects that are devoted to the study of the Arabic, Islamic Studies and Islamic Law.
- **PSU Environment:** the University maintains a small class size, standard faculty-to-student ratio, computer and science laboratories, sports facilities and community/ industry link programs, thus providing ample opportunities for students to advance and grow intellectually, professionally, physically, socially and culturally.
- **Faculty Research and International Engagement:** the University encourages and supports faculty research and promotes collaboration with other higher educational institutions in the Kingdom, the region and internationally in order to address the major educational, economic and social needs of Saudi society as well as the global needs.

EXPERIENTIAL LEARNING/COMMUNITY LINK

The Experiential Learning/Community Link programs at PSU consist of Cooperative Education (Co-Op), Internship, Senior Project, and Industry Link. It is a planned and progressive educational strategy in which each program offers students opportunities to work as "apprentices" with professionals in the field and thereby experience the real work environment before graduation. Students learn new skills, test academic theories, and explore professional goals while making valuable contributions to the workplace.

All PSU students must either take the Co-Op or the Internship Program. Different majors at PSU require additional links programs. The departments details the Co-Op and Internship conditions and setups.

CO-OP (10 credit hours):

A career-related professional program that is available to PSU students. Co-Op students experience paid full-time work with an employer in a real work environment. They work 28 weeks and receive 10 hours of credits. The employer could be a business firm, a government agency, or any other organization that is approved by the respective department within the local, national, or international community.

Participants must have obtained a GPA of at least 2.00 GPA (out of 4.00), completed at least all requirements except the Co-Op credit hours, and received department approvals before starting the program.

Special coordinators are assigned to manage communications between the participants, the faculty Co-Op advisors, and the workplace supervisors. Students meet with their respective faculty advisors several times to prepare resumes, select workplaces options, sit for interviews and make arrangements to begin their Co-Ops. Once students have been matched with their approved jobs, the respective community link coordinators, faculty Co-Op advisors, and the workplace supervisors work together with the assigned students to detail the career learning objectives. At the end of the Co-Op, students are required to submit reports restating their learning objectives and how the job experiences have fulfilled these objectives.

During the Co-Ops, faculty advisors or community link coordinators, if distance permits, make on-site visits to the students and their workplace supervisors.

(--- 492) is the course number the students are enrolled in order to receive the academic credit for the Co-Op. The course carries a 10-credit hours load and follows the normal grading system. Grades are based on the students' reports and presentations along with the evaluations from their workplace supervisors.

INTERNSHIP PROGRAM (3 or 6 credit hours):

The Internship Program offers PSU undergraduate students of PSU introductions to career options in professional work experiences. These experiences can be on part-time or full-time bases.

Under this program, participants work around 100 hours for each credit hour with a maximum of 6 credit hours. Normally, 3 credit hours are registered for part-time interns who work around 20 hours a week in one semester while also taking other classes.

To be eligible for internships, students must satisfy all their academic requirements, have completed at least 90 credit hours, and the curriculum requirements specified by their respective departments.
Community link coordinators are assigned to manage communications between the participants, faculty internship advisors and the workplace supervisors. Students meet with their respective faculty advisors several times to prepare resumes, select workplaces options, sit for interviews and make arrangements to begin the their Internships. Once students have been matched with their approved jobs, the respective community link coordinators, faculty Co-Op advisors, and the workplace supervisors work together with the assigned students to detail the career learning objectives. At the end of the Internships, students are required to submit reports restating their learning objectives and how their job experiences have fulfilled these objectives.

During the Internships, faculty advisors or community link coordinators, if distance permits, make on-site visits to the students and their workplace supervisors.

(--- 490) is the course number the students are enrolled in order to receive the academic credit for their Internships. The course carries a 3 credit hours load and follows the normal grading

system. Grades are based on the students' reports and presentations along with the evaluations from their workplace supervisors.

INDUSTRY LINK (3 credit hours)

These are elective activities that follow pre-planned programs administered by the students' major departments. Students choose either to spend time in local or possibly foreign firms or to enroll in their orientation programs. The objective of these activities is to expose students to various work environments in leading industrial and public organizations.

(--- 494) is the course number in which students are enrolled in order to receive the academic credit for Industry Link. The course is a 3 credit hours class and follows the normal grading system Grades are based on the students' reports and presentations along with the evaluations from the employers (if applicable).

SENIOR PROJECT (variable credit loads)

The objectives, requirements, and the set-ups of Senior Projects worked out in concert within the students' departments. Students are encouraged to propose their own ideas *vis- à-vis* the Senior Projects.

(--- 499) is the course number in which the students are enrolled in order to receive academic four. The number of credits assigned and number of times a Senior Project can be taken (e.g. once in the fall term, another in the spring term) varies between departments.

EXPERIENTIAL LEARNING REPORT GUIDELINES

While the work supervisors are responsible for providing the Experiential Learning students with necessary assistance to acquire rigorous and varied experiences, the students in turn must be punctual, perform assigned tasks, work diligently, attend meetings and so on.
Students are advised to keep journals to record their activities and accomplishments along with their thoughts and reflections on their experiences. Complete and thorough journals are critical to writing successful Experiential Learning Reports. The reports must be well organized and well documented. While the tone of the reports is upbeat, the final pages of the reports must focus on constructive criticism.

GRADUATION REQUIREMENTS

To receive their baccalaureate degrees, students must satisfy their academic programs' requirements related to number of credits, grade point average, program of study, experiential/community link, and other courses within the maximum period that is specified in the PSU Undergraduate Rules and Regulations. The requirements in detail are:

- Pass the Preparatory Year Program
- Complete the credits required by the respective academic programs
- Earn an overall cumulative grade point average (GPA) of at least 2.00 (out of 4.00)
- Earn a program grade point average (GPA) of at least 2.00 (out of 4.00)
- Satisfy PSU general education requirements
- Satisfy department requirement
- Satisfy major (specialization) requirements
- Satisfy Experiential Learning /Community Link requirements (e.g., Co-Op, internship, senior project, etc.)

PREPARATORY YEAR PROGRAM

The Preparatory Year Program (PYP) is an essential part of the PSU education. It is a general program that prepares students for future enrollment in the undergraduate degree programs. In addition to developing core academic skills, the PYP also provides students with the necessary counseling and guidance that can ensure their well-being in their new educational environment. The core subjects in the PYP include: English, Computing Skills, Personal Development Skills and Physical Education.

Grades earned in the Preparatory Year Program (PYP) and/or through standardized international examinations* are used to determine the students' readiness for the first year academic undergraduate studies at PSU.

*Students who meet the university's requirements for IELTS or TOEFL or SAT international examinations may be exempted from taking some PYP courses. Students interested in being exempted from some PYP courses should submit their IELTS or TOEFL or SAT scores to the Registrar's Office.

INTENSIVE ENGLISH PROGRAM [IEP]:

In 2012, the Intensive English Program (IEP) was offered to new students. The IEP is designed for students with limited experience using English who need intensive instruction and practice in all aspects of the English language before entering the Preparatory Year Program (PYP). The IEP aims to build skills in reading, writing, listening, speaking, vocabulary, grammar and critical-thinking. The structure of the IEP is as follows:

COURSE #	TITLE	CRS	HRS
IENG 001	INTENSIVE ENGLISH – READING AND WRITING	6	12
IENG 002	INTENSIVE ENGLISH – LISTENING AND SPEAKING	6	12
SEMESTER TOTAL		**12**	**24**

DURATION OF THE PYP:

The length of time required to complete the Preparatory Year Program (PYP) varies with students' language ability and performance in their studies. Students who enter the program require from one to four semesters to complete the PYP objectives and achieve the necessary skills for admission into the university's undergraduate degree programs.

PYP BENEFITS:

At the beginning of each academic term, PYP students receive an orientation where they learn about the requirements within each department and the career opportunities related to each major. The orientation also gives them important information that helps make their transition into university much easier.

PYP students are assigned Academic Advisors who help them with course scheduling and answers questions related to their PYP studies.

The Student Affairs Office provides individual counseling for PYP students who may need assistance adjusting to their new academic experience, as well as tutorial sessions for those students requiring additional help in their courses.

The Preparatory Year Program also arranges individual counseling for students who may need it. In addition, regular tutorial sessions are held in locations close to classrooms throughout the academic day in order to render additional instructional assistance to students. Faculty from Preparatory Year Program departments is available during scheduled tutorial office hours.

The program also incorporates an Open Day that includes meetings with the Rector, the Vice- Rectors, and academic deans and chairs through which students are familiarized with the requirements within each department and the career opportunities related to different fields of study.

A Career Day activity is an important part of the program. It offers students a chance to see presentations by PSU faculty and representatives of large industrial and commercial firms with whom PSU graduates may someday seek employment. Students can also take part in many practical demonstrations that are designed to make them realize the kind of skills required for different types of future undertakings.

PYP Academic Objectives Are To:

- improve students' oral and written English language proficiency in scientific and technical subjects likely to be encountered at the university level.
- equip students with the required mathematical and analytical knowledge, bearing in mind that future instruction in these fields will be conducted in English.
- enhance students' capacities with computer application skills and gain proficiency in word processing, spreadsheets, presentations, data base management, and graphics.
- expose students to, and familiarize them with, the various academic opportunities available at PSU and the future careers that these opportunities may lead to.
- instill in the students the required sense of organization and time management, as well as useful study habits and skills that will facilitate their academic success.
- promote student awareness of the importance of physical health, personal hygiene, team activities by encouraging them to utilize the available facilities.

Structure Of The PYP:

Course #	TITLE	CRs	HRs	Course #	TITLE	CRs	HRs
ENG 010	English I – Reading and Writing	4	10	ENG 030	English II – Reading and Writing	4	10
ENG 020	English I – Listening and Speaking	4	10	ENG 040	English II – Listening and Speaking	4	10
MATH 001	Mathematics I	4	4	MATH 002	Mathematics II	4	4
CMP 011	Computer I	1	2	CMP 012	Computer II	1	2
PDS 001	Personal Development Skills	1	2	PDS 002	Personal Development Skills	1	2
H|PE 001	Physical Education I	1	2	H|PE 002	Physical Education II	1	2
Semester Total		15	30	Semester Total		15	30
PYP Total						**30**	**60**

MATH 001 and MATH 002 are not required for the students who would like to join the College of LAW and the College of Humanities and Sciences. Students who would like to join the College of LAW must study LAW001 and LAW 002 while students who would like to join the College of Humanities and Sciences must study ENG 011 and ENG 012.

COLLEGE OF BUSINESS ADMINISTRATION [CBA]

The College of Business Administration (CBA) at PSU offers four (4) undergraduate programs: Accounting, Aviation Management, Finance, and Marketing. These programs are designed to enable graduates to meet and respond proactively to the local and international business environments that are fast changing, complex, global, and diverse. The degree programs expose students to the breadth of business knowledge, scientific tools and techniques, and support services.

The Accounting, Finance and Marketing, programs were developed taking into account the needs of the local community, the interdisciplinary nature of the subjects, and the ever-changing nature of the development in these fields. The rigor of AACSB standards together with two bench marking exercises guided and informed the crafting of the curriculums of these degree programs. CBA faculty examined the content and structure of the business colleges at three exemplary Saudi universities before turning their attention to the content and design of the top American undergraduate business programs.

The Aviation Management program, launched in fall of 2011, is representative of the CBA ability to respond to community needs and job market demands. Saudi Arabia has set course to develop its transportation system to facilitate business, travel and tourism in the nation and the air transport industry is the key link in this drive hence the CBA responded to this situation and partnered with the preeminent international school in aviation, Embry Riddle Aeronautical University, in fashioning the curriculum for AVM program.

In brief, the CBA's four undergraduate programs are well constructed to enable student acquisition of the knowledge needed and the professional skills demanded in their respective fields. Lastly, these programs are guided by the following vision and mission of the CBA.

CBA VISION

The College of Business Administration aspires to be the hallmark of excellence and innovation in business education in the Kingdom of Saudi Arabia and the Middle East.

COLLEGE MISSION

The College of Business Administration aims to create an innovative academic environment that promotes excellence in business education, research, and service in the Kingdom of Saudi Arabia through commitment to quality and continuous improvement in accordance with international standards.

CBA UNDERGRADUATE ACADEMIC PROGRAMS

- Bachelor of Science in Accounting
- Bachelor of Science in Aviation Management
- Bachelor of Science in Finance
- Bachelor of Science in Marketing

GRADUATION REQUIREMENTS

To receive bachelor degrees, students must satisfy the requirements related to credits, grade point average, program of study, experiential/community link, and other courses within the maximum period that is specified in the PSU Undergraduate Rules and Regulations. The requirements are as follow:

- Pass the Preparatory Year program
- Complete the credits required by the respective major
- Earn an overall cumulative grade point average (GPA) of at least 2.0 (out of 4.0)
- Earn a program grade point average (GPA) of at least 2.0 (out of 4.0)
- Satisfy PSU university requirements
- Satisfy CBA college requirements
- Satisfy Program requirements
- Satisfy Experiential Learning /Community Link requirements (e.g., Co-Op, internship, senior project, etc.)

STRUCTURE OF UNDERGRADUATE ACADEMIC PROGRAMS

The structure of undergraduate academic programs consists of the following elements:

- **University Requirements:** set of core academic subjects that all PSU students in a college must take.
- **College Requirements**: set of courses designed to meet the specific needs of individual colleges.
- **Program Requirements**: set of courses designed to meet the specific needs of individual degree programs.
- **Major or Field of Specialization Requirements:** set of core subjects that constitute the main areas of knowledge in a particular field of specialization of each academic degree.
- **Electives:** a discrete number of courses allotted in each academic degree that can expand the students' knowledge in their fields of specialization or to broaden the range of their intellectual pursuits.
- **Experiential Learning or Community Link**: set of programs or activities targeted to enrich the students' knowledge through practical experience, observations of real work behaviors, and hands-on application of knowledge gained from classroom lectures and discussions to actual situations such as solving real organization problems and concerns.
- **Language of Instruction:** except for those subjects that are devoted to the study of the Arabic Language and Islamic Studies, the medium of instruction at PSU is English.

CBA Degree Programs

Students seeking a degree in the CBA must earn a minimum of 135 credits according to the framework illustrated in the CBA program table below.

Number of Credits	Accounting	AVM	Finance	Marketing
University Requirements	23	23	23	23
College Requirements - General Business | Business Fundamentals	61	61	61	61
Program Requirements	45	43	43	40
Non-Business Electives	6	8	8	11
Total	135	135	135	135

The CBA curricular design is composed of three types of required courses as described above: University, College and Program together with Non-Business Electives. All CBA degree programs share the same list of university requirements, but differ in the composition of college and program requirements. Below are the College's University Required Courses.

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

BACHELOR OF SCIENCE IN ACCOUNTING
BS IN ACCOUNTING

INTRODUCTION

The BS in Accounting Program of Prince Sultan University was accredited by the Ministry of Education in Saudi Arabia on 21/9/1426 H, 24/10/2005 G. The decision to run BS in Accounting Program (the Directive No. 7/B/4453, is dated 3/4/1420 H, 17/7/1999 G; Written Telegram No. 10117, is dated 25/5/1420 H, 6/9/1999 G).
The BS in Accounting program started in 2000 in the men's campus. The enrollment in this program started in the Academic Year (AY) 2000–2001. The program in the campus for women started in the AY 2013–2014. The main campus for both men and women is Prince Sultan University, Riyadh, Saudi Arabia. There is no branch campus for this program. The College of Business Administration (CBA) offers a flexible curriculum that leads to a Bachelor of Science degree in Accounting. Students seeking a degree in this field are required to take a minimum of 135 semester hours from the framework of courses.
The Department of Accounting of Prince Sultan University is the first university in the Middle East to be accredited by six major professional accountancy bodies:

- The Association of Chartered Certified Accountants (ACCA).
- The Institute of Management Accountants (IMA)
- The Chartered Institute of Management Accountants (CIMA)
- The Association of International Accountants (AIA)
- Chartered Institute of Public Finance and Accountancy (CIPFA)
- The Institute of Chartered Accountants in England and Wales (ICAEW)

The BS in Accounting program is accredited by the National Center for Academic Accreditation and Evaluation (NCAAA), Saudi Arabia for 7 years (2015-2022).

The program is benchmarked with the Department of Accounting, United Arab Emirates University (UAEU), UAE; Accounting and Financial Management, Northumbria University, UK; College of Business Administration, Rider University, USA; the School of Accountancy, University of Denver, USA; and Erivan K. Haub School of Business, Saint Joseph's University, USA.

The department aims to equip its students with the essential quantitative skills, commensurate to the AACSB Accounting Accreditation Standard A7. The revised curricula incorporate the courses offered by professional bodies such as ICAEW, ACCA, IMA, CIMA, AIA, and CIPFA. The Department of Accounting plans to offer four Accounting tracks in response to the contemporary business and accounting demands.

- Zakat and Tax
- Accounting Analytics
- Assurance
- General Track

This program provides a fast track to qualification as a Chartered Accountant, Certified Public Accountant, Certified Management Accountant, Chartered Management Accountant, or Chartered Public Finance Accountant.

Our students were placed for internship opportunities in Big Four accountancy firms (KPMG, Ernst & Young (EY), Deloitte, and PricewaterhouseCoopers (PwC)). Most of the students are offered a job during the internship. **100% of our students are offered a job within six months of their graduations.**

PROGRAM VISION

The Accounting Program aspires to become a center of excellence and innovation in accounting education and research in the Middle East.

PROGRAM MISSION

The Accounting Program endeavors to provide quality education and pave the way for the graduates to pursue professional careers and postgraduate studies. The program aims to meet the growing needs of the stakeholders through commitments to ethical standards and continuous improvement in accordance with accepted practices of international professional accounting bodies.

PROGRAM OBJECTIVES

The following five objectives guide the Department of Accounting:

- Maximize student experiences and employability
- Embed an agile curriculum that reflects the need of the profession
- Stakeholders engagement for operational efficiency
- Create students' awareness of accounting program opportunities
- Create mutually beneficial community relationship that enhances student experiences
- Continue to strengthen global perspectives and internationalization

PROGRAM LEARNING OUTCOMES

Upon successful completion of the Bachelor of Science in Accounting, graduates are expected to be able to:

- Demonstrate business and accounting knowledge in globalized and diversified environment
- Synthesise business information and problems through application of technical accounting concepts
- Apply analytical and critical thinking in business decision making.
- Articulate relevant professional codes of conduct and ethical standards related to the practice of accounting.
- Understand group dynamics and become a contributing team member and apply the principles of leadership.
- Ability to communicate effectively in oral form.
- Ability to communicate effectively in written form using modern technologies.

Career Opportunities

- Chartered Accountant.
- Certified Public Accountant.
- Chartered Management Accountant.
- Financial Controller.
- Business Advisory Consultant.
- Actuarial Consultant or Actuary.
- Management Consultant.
- Chartered Public Finance, Accountant
- Public Auditor.
- Internal Auditor.
- Tax and Zakat Consultant.
- Investment Analyst.
- Credit Analyst.

Structure of the Program

The Accounting undergraduate program has three components:

University Requirements	23	Credits
College Requirements	61	Credits
Program Requirements	45	Credits
Non-Business Electives	6	Credits
TOTAL	135	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	TITLE	CRs	Course #	TITLE	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
PSY 101	Introduction to Psychology	3	ARAB 103	Arabic Writing II	2
COM 201	Communications Skills	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
					Total = 23

ACCOUNTING PROGRAM REQUIREMENTS

COLLEGE REQUIREMENTS			ACCOUNTING PROGRAM REQUIREMENTS		
GENERAL BUSINESS COURSES			INTERNSHIP OPTION		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
BUS 101	INTRODUCTION TO BUSINESS	3	ACC 213	FINANCIAL MEASUREMENT AND DISCLOSURE 1	3
ECON 101	MICROECONOMIC ANALYSIS	3	ACC 224	STRATEGIC COST ANALYSIS	3
ECON 103	MACROECONOMIC ANALYSIS	3	ACC 315	FINANCIAL MEASUREMENT AND DISCLOSURE 2	3
IS 101	INTRODUCTION TO INFORMATION TECHNOLOGY	2	ACC 356	ZAKAT AND TAX ACCOUNTING	3
STAT 271	STATISTICAL ANALYSIS	3	ACC 317	CORPORATE REPORTING AND GOVERNANCE	3
ENG 103	RESEARCH WRITING TECHNIQUES	3	ACC 348	AUDITING AND ASSURANCE	3
SCI 101	INTRODUCTION TO PHYSICAL SCIENCES	3	ACC 339	INTERNATIONAL PUBLIC SECTOR ACCOUNTING STANDARDS	3
STAT 101	INTRODUCTION TO STATISTICS AND PROBABILITY	3	ACC 453/ACC 463/ACC 443	ZAKAT AND TAX TRACK I/ACCOUNTING ANALYTICS TRACK I/ASSURANCE TRACK I	3
MATH 101	FINITE MATH	3	ACC454/ACC 464/ACC 444	ZAKAT AND TAX TRACK II/ACCOUNTING ANALYTICS TRACK II/ASSURANCE TRACK II	3
PE 1--	PHYSICAL EDUCATION	1	ACC 430	INTERNATIONAL FINANCIAL REPORTING STANDARDS	3
PE 1--	PHYSICAL EDUCATION	1	ACC 421	MANAGERIAL CONTROL AND DECISION MAKING	3
ETHC 301	BUSINESS ETHICS	3	ACC 472	PROFESSIONAL PRACTICES AND ETHICS IN ACCOUNTING	3
	SUBTOTAL	31	ACC 455/ACC 465 /ACC 445	ZAKAT AND TAX TRACK III/ACCOUNTING ANALYTICS TRACK III/ASSURANCE TRACK III	3
FUNDAMENTALS OF BUSINESS			ACC 490	INTERNSHIP IN ACCOUNTING	3
ACC 111	FOUNDATIONS IN FINANCIAL ACCOUNTING	3	FIN 360	CAPITAL INVESTMENT AND FINANCING	3
ACC 222	FOUNDATIONS IN MANAGERIAL ACCOUNTING	3	NBX ---	NON-BUSINESS ELECTIVE I	3
BUS 201	ORGANIZATIONAL BEHAVIOR	3	NBX ---	NON-BUSINESS ELECTIVE II	3
BUS 231	LEGAL ENVIRONMENT OF BUSINESS	3		SUBTOTAL	51
BUS 351	INTERNATIONAL BUSINESS	3			
BUS 373	MANAGEMENT INFORMATION SYSTEMS	3			
BUS 495	STRATEGIC MANAGEMENT	3			
CS 202	COMPUTER APPLICATIONS FOR BUSINESS	3			
FIN 301	PRINCIPLES OF FINANCE	3			
MKT 301	PRINCIPLES OF MARKETING	3			
	SUBTOTAL	30		**TOTAL**	112

Accounting Major Study Plan

Year 1 **Semester 1** **Semester 2**

COURSE #	TITLE	CRs	COURSE #	TITLE	CRs
BUS101	Introduction To Business	3	ACC 111	Foundations In Financial Accounting	3
SCI 101	Introduction To Physical Sciences	3	ECON 101	Microeconomic Analysis	3
MATH 101	Finite Math	3	PSY 101	Introduction To Psychology	3
ENG 101	Intensive English Writing	3	ENG 103	Research Writing Techniques	3
ISC 101	Islamic Ethics	2	ARAB 103	Arabic Writing Ii	2
ARAB 101	Arabic Writing I	2	ISC 103	Islamic Economic System	2
PE ---	Physical Education	I	PE ---	Physical Education	I
	TOTAL	17		TOTAL	17

Year 2 **Semester 1** **Semester 2**

COURSE #	TITLE	CRs	COURSE #	TITLE	CRs
ACC 222	Foundations in Managerial Accounting	3	ACC 213	Financial Measurement And Disclosure I	3
BUS 201	Organizational Behavior	3	ACC 224	Strategic Cost Analysis	3
ECON 103	Macroeconomic Analysis	3	FIN 301	Principles Of Finance	3
STAT 101	Introduction To Statistics And Probability	3	CS 202	Computer Applications For Business	3
COM 201	Communications Skills	3	STAT 271	Statistical Analysis	3
IS 101	Introduction To Information Technology	2	ETHC 301	Business Ethics	3
	TOTAL	17		TOTAL	18

Year 3 **Semester 1** **Semester 2**

COURSE #	TITLE	CRs	COURSE #	TITLE	CRs
ACC 315	Financial Measurement And Disclosure Ii	3	ACC 317	Corporate Reporting And Governance	3
BUS 231	Legal Environment Of Business	3	ACC 348	Auditing And Assurance	3
BUS 373	Management Information Systems	3	ACC 339	International Public Sector Accounting Standards	3
ACC 356	Zakat And Tax Accounting	3	BUS 351	International Business	3
MKT 301	Principles Of Marketing	3	FIN 360	Capital Investment And Financing	3
ISC 105	Holy Quran Sciences	2	ISC 203	New Financial Transactions	2
	TOTAL	17		TOTAL	17

YEAR 4 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRs	COURSE #	TITLE	CRs
ACC 430	International Financial Reporting Standards	3	ACC 455 /ACC 465 /ACC 445	Zakat And Tax Track Iii/Accounting Analytics Track Iii/Assurance Track Iii	3
ACC 453 /ACC 463 /ACC 443	Zakat And Tax Track I /Accounting Analytics Track I/Assurance Track I	3	ACC 472	Professional Practices And Ethics In Accounting	3
ACC 454 /ACC 464 /ACC 444	Zakat And Tax Track Ii/Accounting Analytics Track Ii/Assurance Track Ii	3	ACC 490*	Internship In Accounting	3
ACC 421	Managerial Control And Decision Making	3	BUS 495	Strategic Management	3
NBX ---	Non-Business Elective I	3	NBX ---	Non-Business Elective Ii	3
ARAB 203	Arabic Writing Iii	2			
	Total	17		Total	15

Note: Internship in Accounting (ACC 490) is only allowed after the completion of all program level courses.

BACHELOR OF SCIENCE IN AVIATION MANAGEMENT
BS IN AVIATION MANAGEMENT

INTRODUCTION

The Aviation Management (AVM) Program is the only program of its type in Saudi Arabia. The Program equips students with the knowledge and skillsets necessary to pursue careers in the increasingly important domestic and international aviation industry.

The design of the AVM Program provides students with a thorough foundation in both the aviation sector and modern business practices. Upon graduation, these professionals are equipped to find meaningful and rewarding employment in the following fields: air cargo and logistics, airline operations and management, airport operations and management, aviation regulatory laws and policies, aviation safety and security, and human resources within the aviation sector. Complementing their aviation industry training, these graduates are also skilled in the following business areas: computing and information technology, economics, finance, international business, marketing, statistics, and strategic management.

The AVM Program prepares students to support firms in the aviation sector to better compete in a highly dynamic and ever-changing domestic and global business environment. The Program is innovative and up to date, benchmarking itself with other high-quality aviation management programs worldwide. The Program and the CBA boast a well-qualified faculty with a balance of good teachers and researchers in their areas of specialization.

PROGRAM VISION

The B.S. in Aviation and Management program is to be recognized as a program of excellence in aviation and management education, research, and service both locally and regionally.

PROGRAM MISSION

Our mission is to graduate leading and inspiring business professionals in aviation and management, who can act as leaders of technology-enabled change and innovation as well as ethically, socially, and environmentally responsible agents in organizations. Through knowledge discovery, dissemination, and application, we want to advance the design, management, operations, and interaction of business, financial, technological, and social systems aimed at the long-term economic sustainability of the aviation industry in Kingdom of Saudi Arabia.

PROGRAM OBJECTIVES

The Aviation Management undergraduate program offers interdisciplinary professional education designed aimed at preparing learners for lifelong careers in designing, managing, or consulting about management and aviation management, etc. in public, corporate, and non-profit organizations. Our primary goal is to produce graduates who will be well-equipped in:

- Strategic Management: Exhibit deep appreciation of business goals, models, and processes for domestic and global economic ecology of organizations with a focus on the ‘big picture’.
- Business Functional Analysis: Perform analyses to identify business functional requirements, constraints, and models to facilitate business solution development and deployment.
- Business Management: Evaluate, adopt, exploit, and manage to meet short- and long-term organizational goals by formulating new or improved business processes.
- Interdisciplinary Problem-Solving: Exhibit creative and interdisciplinary problem-solving skills, as well as exceptional project management prowess with ability to create new knowledge through theory and project work.
- Technology Awareness and Appreciation: Consciously seek awareness, and exhibit

appreciation, of the role of new technology and innovation in improving business/management processes and models of organizations and economies.
- Ethical Understanding and Reasoning: Conscientiously seek to fulfil ethical and legal responsibilities in organizations and society.
- Communication and Interpersonal Skills: Exhibit excellent communication and interpersonal skills in promoting effective teamwork, cooperation, and collaboration as well as a good understanding of group and individual dynamics in organizations

PROGRAM LEARNING OUTCOMES

Upon successful completion of the Bachelor of Science (BSc) in Aviation Management, graduates are expected to:

- Appreciate the fundamental functions of aviation management.
- Understand the contemporary theories relative to essential aviation management functions, operations, and procedures.
- Conceptualize and analyze challenges or issues impacting aviation management.
- Formulate and justify strategies and solutions in aviation management.
- Understand ethical standards for those in aviation management.
- Ability to work as a team member in the aviation sector.
- Demonstrate oral and written communication skills in analyzing information required in aviation management.

CAREER OPPORTUNITIES

- Air Cargo and Logistics
- Airline Management
- Airline Operations
- Airline Planning
- Airport Management
- Airport Operations
- Airport Planning
- Aviation Marketing
- Aviation Regulatory Agencies
- Aviation Sales

Structure of the Program

The Aviation Management undergraduate program has the following components:

University Requirements	23	Credits
College Requirements	61	Credits
Program Requirements	43	Credits
Non-Business Electives	8	Credits
Total	135	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
PSY 101	Introduction to Psychology	3	ARAB 103	Arabic Writing II	2
COM 201	Communications Skills	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
					Total = 23

AVIATION MANAGEMENT PROGRAM REQUIREMENTS

COLLEGE REQUIREMENTS			AVIATION PROGRAM REQUIREMENTS		
GENERAL BUSINESS COURSES			Co-Op Option		
COURSE #	TITLE	CRs	COURSE #	TITLE	CRs
BUS 101	Introduction to Business	3	AVM 201	Introduction To Air Transport Industry	3
ECON 101	Microeconomic Analysis	3	AVM 310	Aviation Laws And Policies	3
ECON 103	Macroeconomic Analysis	3	AVM 320	Airline Operations	3
IS 101	Introduction to Information Technology	2	AVM 330	Airport Operations	3
STAT 271	Statistical Analysis	3	AVM 340	Airline Management	3
ENG 103	Research Writing Techniques	3	AVM 350	Airport Management	3
SCI 101	Introduction to Physical Sciences	3	AVM 370	Air Logistics And Cargo	3
STAT 101	Introduction to Statistics and Probability	3	AVM 410	It In Air Transport Industry	3
MATH 101	Finite Math	3	AVM 430	Aviation Safety And Security	3
PE 1--	Physical Education	1	AVM 450	Human Resources In Aviation	3
PE 1--	Physical Education	1	AVM 492	**Co-Op In Aviation Management *[See Below]**	**10**
ETHC 301	Business Ethics	3	BUS 102	Principles Of Management	3
	Subtotal	31	NBX ---	Non-Business Elective I	3
FUNDAMENTALS OF BUSINESS			NBX ---	Non-Business Elective Ii	3
ACC 111	Foundations in Financial Accounting	3	NBX ---	Non-Business Elective Iii	2
ACC 222	Foundations in Managerial Accounting	3		Subtotal	51
BUS 201	Organizational Behavior	3			
BUS 231	Legal Environment of Business	3			
BUS 351	International Business	3			
BUS 373	Management Information Systems	3			
BUS 495	Strategic Management	3			
CS 202	Computer Applications for Business	3			
FIN 301	Principles of Finance	3			
MKT 301	Principles of Marketing	3			
	Subtotal	30			
	Combined Subtotals	61		**Total**	112

- The Internship option is on hold.

Aviation Management Study Plan

Year 1 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
BUS 101	Introduction to Business	3	ACC 111	Foundations in Financial Accounting	3
SCI 101	Introduction to Physical Sciences	3	ECON 101	Microeconomic Analysis	3
MATH 101	Finite Math	3	ENG 103	Research Writing Techniques	3
ENG 101	Intensive English Writing	3	PSY 101	Introduction to Psychology	3
ISC 101	Islamic Ethics	2	IS 101	Introduction to Information Technology	2
ARAB 101	Arabic Writing I	2	ARAB 103	Arabic Writing II	2
PE ---	Physical Education	1	ISC 103	Islamic Economic System	2
	Total	17		Total	18

Year 2 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
ACC 222	Foundations in Managerial Accounting	3	AVM 201	Introduction to Air Transport Industry	3
BUS 102	Principles of Management	3	BUS 201	Organizational Behavior	3
ECON 103	Macroeconomic Analysis	3	BUS 231	Legal Environment of Business	3
STAT 101	Introduction to Statistics and Probability	3	FIN 301	Principles of Finance	3
COM 201	Communications Skills	3	MKT 301	Principles of Marketing	3
ARAB 203	Arabic Writing Skills	2	STAT 271	Statistical Analysis	3
PE ---	Physical Education	1			
	Total	18		Total	18

Year 3 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
AVM 310	Aviation Laws and Practices	3	AVM 340	Airline Management	3
AVM 320	Airline Operations	3	AVM 350	Airport Management	3
AVM 330	Airport Operations	3	AVM 370	Air Logistics and Cargo	3
BUS 351	International Business	3	BUS 373	Management Information System	3
CS 202	Computer Applications for Business	3	ETHC 301	Business Ethics	3
NBX ---	Non-Business Elective I	3	NBX ---	Non-Business Elective II	3
	Total	18		Total	18

Co-Op Option

Year 4 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
AVM 410	IT in Air Transport Industry	3	AVM 492	Co-Op in Aviation Management (Continuation from Summer before)	10
AVM 430	Aviation Safety and Security	3			
AVM 450	Human Resources in Aviation	3			
BUS 495	Strategic Management	3			
ISC 105	Holy Quran Sciences	2			
ISC 203	New Financial Transactions	2			
NBX ---	Non-Business Elective III	2			
	Total	18		Total	10

BACHELOR OF SCIENCE IN FINANCE
BS IN FINANCE

INTRODUCTION

The Bachelor of Science in Finance program provides students with the knowledge that qualifies them to pursue a broad range of careers. The program recognizes that rigor and precision are essential in the financial practices of today's financial institutions. There are three tracks for students to choose from: real estate, insurance, and investment. In addition, the Co-Op and internship options insure that, prior to graduation that Finance majors experience career-related job training. Finance graduates have the full package of knowledge, communications skills, and workplace nous to succeed in a broad range of careers.

PROGRAM VISION

Our vision is to be the center of excellence for finance education in the Middle East.

PROGRAM MISSION

Our mission is to prepare finance graduates for a dynamic business environment through an excellent education, relevant research and engaging community service.

PROGRAM OBJECTIVES

- Apply cognitive skills to solve financial cases.
- Demonstrate proficiency in core finance knowledge.
- Express financial decisions eloquently.
- Employ financial databases and software.
- Lead and work in teams.
- Relate financial decisions to ethical standards
- Relate financial decisions to ethical standards

PROGRAM LEARNING OUTCOMES

Upon successful completion of the Bachelor of Science in Finance, graduates are expected to be able to:

- analyze and solve financial cases quantitatively and qualitatively.
- convey ideas and concepts effectively through oral and written communications.
- demonstrate ability to lead and work effectively in teams.
- explain main concepts and models in finance.
- generate responsible and ethical financial decisions.
- utilize databases and software to make financial decision.

CAREER OPPORTUNITIES

- Financial management
- Financial planner
- Financial consultant
- Commercial banks
- Insurance companies
- Real-estates establishments
- Government agencies
- Financial institutions

STRUCTURE OF THE PROGRAM – CO-OP OPTION

The Finance undergraduate program has the following components:

University Requirements	23	Credits
College Requirements	61	Credits
Program Requirements	48	Credits
Non-Business Electives	3	Credits
TOTAL	135	Credits

UNIVERSITY REQUIREMENTS

REQUIRED COURSES IN ENGLISH			REQUIRED COURSES IN ARABIC		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ENG 101	INTENSIVE ENGLISH WRITING	3	ARAB 101	ARABIC WRITING I	2
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	ARAB 103	ARABIC WRITING II	2
COM 201	COMMUNICATIONS SKILLS	3	ARAB 203	ARABIC WRITING III	2
			ISC 101	ISLAMIC ETHICS	2
			ISC 103	ISLAMIC ECONOMIC SYSTEM	2
			ISC 105	HOLY QURAN SCIENCES	2
			ISC 203	NEW FINANCIAL TRANSACTIONS	2
	SUBTOTAL	9		SUBTOTAL	14
					TOTAL = 23

Finance Program Requirements

College Requirements			Finance Program Requirements		
General Business Courses			Co-Op Option		
Course #	Title	CRs	Course #	Title	CRs
BUS 101	Introduction to Business	3	MATH 211	Business Calculus	3
ECON 101	Principles of Microeconomic	3	FIN 250	Financial Market & Institutions	3
ECON 102	Principles of Macroeconomic	3	FIN 310	Corporate Finance	3
IS 101	Introduction to Information Technology	2	FIN 315	Financial Statement Analysis And Reporting	3
STAT 271	Statistical Analysis	3	FIN 320	Principles Of Investment	3
ENG 103	Research Writing Techniques	3	FIN 340	Real Estate Principles	3
SCI 101	Introduction to Physical Sciences	3	FIN 351	Regulations Of Applied & Digital Finance	3
STAT 101	Introduction to Statistics and Probability	3	FIN 321	International Finance	3
MATH 101	Finite Math	3	FIN 420	Investment Portfolio Management	3
PE 1--	Physical Education	1	FIN 462	Financial Modeling And Stocks Valuation	3
PE 1--	Physical Education	1	FIN 472	Applied Finance Lab	2
ETHC 301	Business Ethics	3	FIN335/FIN365/FIN 440/FIN ---	Fintech And Financial Data Analysis Track I/ Investment And Security Valuation Track I/ Real Estate Finance Track I/General Finance Track Course I	3
	Subtotal	31	FIN432/FIN465/FIN 445/FIN ---	Fintech And Financial Data Analysis Track Ii / Investment And Security Valuation Track Ii / Real Estate Finance Track Ii / General Finance Track Course Ii	3
			FIN 492	**CO-OP IN FINANCE * [See Below]**	10
Fundamentals of Business			NBX ---	Non-Business Elective I	3
ACC 111	Foundations in Financial Accounting	3		Subtotal	51
ACC 222	Foundations in Managerial Accounting	3		**Total**	**112**
BUS 201	Organizational Behavior	3	Upper Divisions Finance Tracks		
BUS 231	Legal Environment of Business	3	Course #	Fintech and Financial Data Analysis	CRs
BUS 351	International Business	3	FIN 335	Financial Data Analysis	3
BUS 373	Management Information Systems	3	FIN 432	Finance Of Artificial Intelligence And Fintech	3
BUS 495	Strategic Management	3	Course #	Investment & Securities Valuation	CRs
CS 202	Computer Applications for Business	3	FIN 365	Fixed Income Securities Valuation	3
FIN 210	Principles of Finance	3	FIN 465	Financial Derivatives Securities Valuation	3
MKT 301	Principles of Marketing	3	Course #	Real Estate Finance	CRs
Subtotal		30	FIN 440	Real Estate Appraisal	3
	Combined Subtotals	61	FIN 445	Real Estate Finance & Investment	3
			Course #	General Finance Track	CRs

	• FIN 335/ FIN 365 • FIN 335/ FIN 465 • FIN 335/ FIN 440 • FIN 335/ FIN 445 • FIN 365/ FIN 440 • FIN 365/ FIN 445 • FIN 440/ FIN 465 • FIN 445/ FIN 465	* STUDENTS SHOULD CHOOSE ONE COMBINATION OF THESE GROUPS	

- The Internship option is on hold.

* STUDENTS ARE REQUIRED TO DECLARE THEIR TRACK ON OR BEFORE THEY COMPLET 72 CREDIT (i.e., YEAR 3 SEMESTER 1), OTHERWISE THEY WILL BE CONSIDERED IN THE GENERAL FINANCE TRACK.

FINANCE MAJOR STUDY PLAN

YEAR 1 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
BUS101	INTRODUCTION TO BUSINESS	3	ACC 111	FOUNDATIONS IN FINANCIAL ACCOUNTING	3
ECON 101	PRINCIPLES OF MICROECONOMIC	3	ECON 102	PRINCIPLES OF MICROECONOMIC	3
MATH 101	FINITE MATH	3	PSY 101	INTRODUCTION TO PSYCHOLOGY	3
ENG 101	INTENSIVE ENGLISH WRITING	3	ENG 103	RESEARCH WRITING TECHNIQUES	3
ARAB 101	ARABIC WRITING I	2	ARAB 103	ARABIC WRITING II	2
ISC 101	ISLAMIC ETHICS	2	ISC 103	ISLAMIC ECONOMIC SYSTEM	2
IS 101	INTRODUCTION TO INFORMATION TECHNOLOGY	2	PE ---	PHYSICAL EDUCATION	1
	TOTAL	18		TOTAL	17

YEAR 2 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ACC 222	FOUNDATIONS IN MANAGERIAL ACCOUNTING	3	FIN 250	FINANCIAL MARKETS & INSTITUTIONS	3
SCI 101	INTRODUCTION TO PHYSICAL SCIENCES	3	ARAB 203	ARABIC WRITING III	2
COM 201	COMMUNICATIONS SKILLS	3	BUS 231	LEGAL ENVIRONMENT OF BUSINESS	3
FIN 210	PRINCIPLES OF FINANCE	3	MATH 211	BUSINESS CALCULUS	3
STAT 101	INTRODUCTION TO STATISTICS AND PROBABILITY	3	MKT 301	PRINCIPLES OF MARKETING	3
CS 202	COMPUTER APPLICATIONS FOR BUSINESS	3	STAT 271	STATISTICAL ANALYSIS	3
PE ---	PHYSICAL EDUCATION	1	ISC 203	NEW FINANCIAL TRANSACTIONS	2
	TOTAL	19		TOTAL	19

YEAR 3 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
FIN 340	REAL ESTATE PRINCIPLES	3	FIN 315	FINANCIAL STATEMENT ANALYSIS AND REPORTING	3
FIN 320	PRINCIPLES OF INVESTMENT	3	BUS 373	MANAGEMENT OF INFORMATION SYSTEMS	3
BUS 201	ORGANIZATIONAL BEHAVIOR	3	FIN 321	INTERNATIONAL FINANCE	3

ETHC 301	Business Ethics	3	FIN 335 / FIN 365 / FIN 440 / FIN ---	Fintech And Financial Data Analysis Track I/ Investment And Security Valuation Track I/ Real Estate Finance Track I/ General Finance Track Course I	3
FIN 351	Regulations Of Applied & Digital Finance	3	FIN 462	Financial Modeling And Stocks Valuation	3
FIN 310	Corporate Finance	3	BUS 351	International Business	3
	Total	18		Total	18

Co-Op Option

Year 4 **Semester 1** **Semester 2**

Course #	TITLE	CRs	Course #	TITLE	CRs
FIN 472	Applied Finance Lab	2	FIN 492	Co-Op in Finance (Continuation from Summer before)	10
FIN 420	Investment Portfolio Management	3			
FIN432/FIN465/FIN 445/ FIN ---	Fintech And Financial Data Analysis Track Ii/ Investment And Security Valuation Track Ii/ Real Estate Finance Track Ii/ General Finance Track Course Ii	3			
BUS 495	Strategic Management	3			
NBE ---	Non-Business Elective I	3			
ISC 105	Holy Quran Sciences	2			
	Total	16		Total	10

***** *Note: CO-OP in Finance (FIN 492) is only allowed after the completion of all courses.*

BACHELOR OF SCIENCE IN MARKETING
BS IN MARKETING

INTRODUCTION

Marketing is the process through which organizations discover and study the needs of the target customers and design, price, promote, and distribute goods, services, and ideas that satisfy these needs.

Marketing is pervasive in today's society and its philosophy, principles, and techniques are applicable to every conceivable type of organizations. In the past, marketing career opportunities were limited mainly to manufacturing, retailing, wholesaling, consulting and advertising organizations. This is no longer the case as marketing is seen as indispensable to organizational success.

The Marketing major prepares students to practice marketing in today's highly dynamic and challenging environments. To accomplish this objective, the Marketing curriculum contains a wide range of courses together with a mix of business, management and useful general courses.

PROGRAM VISION

The Marketing Program envisions being a dynamic and leading program that transforms students into future marketing leaders and practitioners.

PROGRAM MISSION

The Marketing Program aims to provide a quality program that integrates the latest knowledge and best practices in marketing, and train students with communication skills, ethics, creativity, and international orientation.

OUR SLOGAN

In Marketing Department, we "Make the Difference for Best Future".

PROGRAM OBJECTIVES

- To provide students with recent marketing knowledge at corporate and operational levels
- To develop students' ability to apply marketing concepts and methods to develop marketing solutions
- To train students to analyze business environment and specific situations to make marketing decisions
- To investigate marketing problems from local and global perspective
- To extend the research outcomes to benefit the industry and/or community
- To develop effective communication skills which integrate the information technology
- To instill ethical values in marketing practices and decision making
- To develop students' ability to produce unique responses to marketing issues
- To enhance students' global perspective and able to work in cross-cultural teams

PROGRAM LEARNING OUTCOMES

Upon successful completion of the Bachelor of Science in Marketing, graduates are expected to be able to:

- Describe the marketing concepts applicable in the business environment.
- Relate the marketing concepts and real marketing practices in the industry
- Differentiate the marketing strategies applicable in various sectors
- Evaluate current marketing practices with the changes in the local and international business environment
- Assess the practicality and suitability of marketing concepts in the specific context
- Formulate and justify appropriate marketing strategies
- Demonstrate the ability to express ideas explicitly
- Use technology in data-gathering, analysis and dissemination of output
- Indicative of understanding of universal ethical issues and standards
- Produce novel ideas and/or design creative solutions
- Demonstrate ability to work collectively
- Relate the global marketing practices to the local context

CAREER OPPORTUNITIES

- Marketing specialist
- Consumer analyst
- Merchandise, brand management
- Advertising
- Public relations
- Government organizations
- Service ministries
- Financial institutions

STRUCTURE OF THE PROGRAM

The Marketing undergraduate program has three components:

University Requirements	23	Credits
College Requirements	61	Credits
Program Requirements	40	Credits
Non-Business Electives	11	Credits
TOTAL	135	Credits

UNIVERSITY REQUIREMENTS

REQUIRED COURSES IN ENGLISH			REQUIRED COURSES IN ARABIC		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ENG 101	INTENSIVE ENGLISH WRITING	3	ARAB 101	ARABIC WRITING I	2
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	ARAB 103	ARABIC WRITING II	2
COM 201	COMMUNICATIONS SKILLS	3	ARAB 203	ARABIC WRITING III	2
			ISC 101	ISLAMIC ETHICS	2
			ISC 103	ISLAMIC ECONOMIC SYSTEM	2
			ISC 105	HOLY QURAN SCIENCES	2
			ISC 203	NEW FINANCIAL TRANSACTIONS	2
	SUBTOTAL	9		SUBTOTAL	14
					TOTAL = 23

Marketing Program Requirements

College Requirements			Marketing Program Requirements		
General Business Courses			Co-Op Option		
Course #	Title	CRs	Course #	Title	CRs
BUS 101	Introduction to Business	3	MKT 310	Consumer Behavior	3
ECON 101	Microeconomic Analysis	3	MKT 320	Promotion Management	3
ECON 103	Macroeconomic Analysis	3	MKT 340	Marketing Channels	3
IS 101	Introduction to Information Technology	2	MKT 350	Marketing Research	3
STAT 271	Statistical Analysis	3	MKT 470	Strategic Marketing	3
ENG 103	Research Writing Techniques	3	**MKT 492**	**Co-Op in Marketing* [see below]**	**10**
SCI 101	Introduction to Physical Sciences	3	MKT ---	Marketing Elective I	3
STAT 101	Introduction to Statistics and Probability	3	MKT ---	Marketing Elective II	3
MATH 101	Finite Math	3	MKT ---	Marketing Elective III	3
PE 1--	Physical Education	1	BUS 371	Production and Operations Management	3
PE 1--	Physical Education	1	ECON 207	Money and Banking	3
ETHC 301	Business Ethics	3	NBX ---	Non-Business Elective I	3
	Subtotal	31	NBX ---	Non-Business Elective II	3
			NBX ---	Non-Business Elective III	3
			NBX ---	Non-Business Elective IV	2
				Subtotal	51
fundamentals of Business				**Total**	**112**
ACC 111	Foundations in Financial Accounting	3	Marketing Electives		
ACC 222	Foundations in Managerial Accounting	3	Course #	Title	CRs
BUS 201	Organizational Behavior	3	MKT 330	Professional Selling and Sales Management	3
BUS 231	Legal Environment of Business	3	MKT 360	Retail Management	3
BUS 351	International Business	3	MKT 370	Business-to-Business Marketing	3
BUS 373	Management Information Systems	3	MKT 410	Global Marketing	3
BUS 495	Strategic Management	3	MKT 420	Direct Marketing	3
CS 202	Computer Applications for Business	3	MKT 430	Marketing on the Internet	3
FIN 301	Principles of Finance	3	MKT 440	Service Marketing	3
MKT 301	Principles of Marketing	3	MKT 450	Marketing in Non-Profit Organizations	3
	Subtotal	30	MKT 460	Export Marketing and Management	3
	Combined Subtotals	61			

- The Internship option is on hold.

Marketing Study Plan

Year 1 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
BUS101	Introduction to Business	3	ACC 111	Foundations in Financial Accounting	3
SCI 101	Introduction to Physical Sciences	3	ECON 101	Microeconomic Analysis	3
MATH 101	Finite Math	3	ENG 103	Research Writing Techniques	3
ENG 101	Intensive English Writing	3	PSY 101	Introduction to Psychology	3
ISC 101	Islamic Ethics	2	IS 101	Introduction to Information Technology	2
ARAB 101	Arabic Writing I	2	ARAB 103	Arabic Writing II	2
PE ---	Physical Education	1	ISC 103	Islamic Economic System	2
	Total	17		Total	18

Year 2 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
ACC 222	Foundations in Managerial Accounting	3	MKT 301	Principles of Marketing	3
BUS 201	Organizational Behavior	3	FIN 301	Principles of Finance	3
ECON 103	Macroeconomic Analysis	3	BUS 373	Management of Information Systems	3
STAT 101	Introduction to Statistics and Probability	3	STAT 271	Statistical Analysis	3
COM 201	Communications Skills	3	ETHC 301	Business Ethics	3
ARAB 203	Arabic Writing Skills	2	CS 202	Computer Applications for Business	3
PE ---	Physical Education	1			
	Total	18		Total	18

Year 3 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
MKT 310	Consumer Behavior	3	MKT 350	Marketing Research	3
MKT 320	Promotion Management	3	MKT ---	Marketing Elective I	3
MKT 340	Marketing Channels	3	MKT ---	Marketing Elective II	3
BUS 351	International Business	3	BUS 231	Legal Environment of Business	3
ECON 207	Money and Banking	3	BUS 371	Production and Operations Management	3
NBX ---	Non-Business Elective I	3	NBX ---	Non-Business Elective II	3
	Total	18		Total	18

Co-Op Option

Year 4 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
MKT 470	Strategic Marketing	3	MKT 492	Co-Op in Marketing (Continuation from Summer before)	10
MKT ---	Marketing Elective III	3			
BUS 495	Strategic Management	3			
NBX ---	Non-Business Elective II	3			
NBX ---	Non-Business Elective III	2			
ISC 105	Holy Quran Sciences	2			
ISC 203	New Financial Transactions	2			
	Total	18		Total	10

CBA COURSES

ACCOUNTING

Course Description

ACC 111 Foundations in Financial Accounting
Credit hours: 3 (3,1,0) Prerequisite: None

This is an introductory course with the objective to provide the students with broad knowledge of financial accounting concepts. This course introduces the basic accounting concepts, the operation of accounting system, and interpretation of financial statements in business firms. Topics covered include the need of accounting information, concepts underlying the preparation of financial statements in business firms, the accounting cycle, and other measurement and disclosure issues.

ACC 222 Foundations in Managerial Accounting
Credit hours: 3 (3,1,0) Prerequisite: None

This course is an introduction to managerial accounting and cost concepts. In addition to the study of the accounting cycle of manufacturers, it emphasizes on the recording of business transactions relating to the manufacture of inventory and the preparation of financial statements. Emphasis is also placed on the analysis of cost behavior, budgeting concepts, standard cost systems and variance analysis, and the use of accounting information to make decisions.

ACC 213 Financial Measurements and Disclosure 1
Credit hours: 3 (3,1,0) Prerequisite: ACC 111

The purpose of this course is to provide students with deep understanding of the conceptual framework of financial reporting, the basic concepts underlying the preparation of financial statements, reporting and other issues related to current and non-current assets. Classification and presentation requirements of income statement and statement of financial position. In this course, the necessity of proper disclosure is emphasized. The students will learn the preparation of financial statement in line with the IFRSs framework so that they will be ready to meet the market requirement as Saudi Arabia adopts IFRSs for non financial companies from the year 2017.

ACC 315 Financial Measurements and Disclosure 2
Credit hours: 3 (3,1,0) Prerequisite: ACC 213

This course is the second part of the Financial Measurements and Disclosure. This is a highly technical course on financial accounting and is solely intended for students who plan to work in accounting. The primary objective is to teach financial reporting standards for liability and equity activities. More specific topics are to help students develop useful skills and techniques as well as to gain an appreciation for accounting in general. Other topics for this course include revenue recognition, financial reporting standards for liabilities and owners' equity, accounting for pensions and post-retirement benefits, lease accounting, accounting changes and errors, statement of cash flows, and the full disclosure principle. Due to the international nature of Saudi Arabia's industries, both International Financial Reporting Standards (IFRS) and United States' Generally Accepted Accounting Principles (GAAP) will be used.

ACC 224 Strategic Cost Analysis

Credit hours: 3 (3,1,0) Prerequisite: ACC 222

This course focuses on accounting for costs and other financial variables within a firm. This is a highly technical course on costing, thus revolves around costs, cost measurement, cost allocation, cost management, cost analysis, and other cost-related topics. The purpose of this course is to train and prepare students for a career in accountancy. This course's primary objective is to teach and prepare cost accountants for the community and region. More specific topics help students develop useful skills and techniques as well as to gain an appreciation for accounting in general.

ACC 317 Corporate Reporting and Governance

Credit hours: 3 (3,1,0) Prerequisite: ACC 315

This course aims to introduce to students, various types of combinations that corporations might be interested to participate in order to create synergy and competitive advantages. It exposes students with the application of relevant international financial reporting standards in the preparation of the consolidated financial statements for the group of companies. This course strengthens the students' level of understanding on the financial performance of the companies in order to be able to provide meaningful interpretation and analysis to the users of accounts. It also emphasizes students on the role of accountants and the importance of becoming highly ethical and maintaining professionalism when carrying out their duties.

ACC 339 International Public Sector Accounting Standards

Credit hours: 3 (3,0,0) Prerequisite: ACC 315

This course offers a broad introduction to the field of financial reporting for public sector entities. IPSAS standards were developed to improve the quality of general-purpose financial reporting by public sector entities, leading to better-informed assessments of the resource allocation decisions made by governments, thereby increasing transparency and accountability. This course will equip students with relevant understanding and knowledge about financial reporting in the public sector. It is very important for students who are planning to work with the government or any public sector entities as the Kingdom may potentially adopt IPSAS for its governmental reporting as the standards are considered as good practice to ensure effective resource allocation for governmental decision-making.

ACC 356 Zakat and Tax Accounting

Credit hours: 3 (3,0,0) Prerequisite: ACC 213

This course introduces relevant laws governing individual income taxation and Zakat. It introduces the Zakat Collection and Tax Law of the Kingdom of Saudi Arabia (KSA). The course includes training on how to prepare Zakat and Tax returns. The major goal of the Islamic law of obligatory alms (Zakat) at degree level is to introduce candidates to the Islamic religious taxation and legal foundations and basics of the subject. The Islamic law of obligatory alms or Zakat law is law that includes legal aspects, which regulate the imposition, calculation and subjects of taxation. The major function of the course therefore, is to provide a sound understanding of how Zakat law evolved and developed, and to critically examine the significance of this law in the hierarchy of branches of Islamic law practices.

ACC 430 International Financial Reporting Standards
Credit hours: 3 (3,0,0) Prerequisite: ACC 317

This financial reporting course offers a broad introduction to the field of International Financial Reporting and International Financial Reporting Standards (IFRS). It traces the history of the International Accounting Standards Board (IASB) from its early roots through to recent changes and updates and future developments. The qualification is structured in an accessible and user-friendly way that underlines key information and provides useful summaries. It examines and breaks down specific standards topic-by-topic. There are case studies, which are based on real-life examples, and many exercises, multiple-choice questions and sample answers for you to test your knowledge as you progress through the course

ACC 421 Managerial Control and Decision Making
Credit hours: 3 (3,1,0) Prerequisite: ACC 224

This is an advanced course that addresses issues related to the production and reporting of accounting information for managerial purposes. Discussion covers issues such as short and long-term decision making, financial and operating control, methods to face competition, compensation issues, and management accounting control system design.

ACC 348 Auditing and Assurance
Credit hours: 3 (3,0,0) Prerequisite: ACC 213

This course provides a detailed overview of auditing and professional practice. It introduces the assurance and auditing services in the audit profession. Next, there is discussion of professional ethics and legal liability issues for auditors. The remainder of the course focuses on the major issues associated with financial statement audits, including audit planning, audit evidence, tests of controls and substantive testing.

ACC 472 Professional Practices and Ethics in Accounting
Credit hours: 3 (3,0,0) Prerequisite: ACC 348

The course aims to explore a range of employability skills which will enhance students' future transition to professional life and assist in career planning. It will also provide opportunities for students to consider the professional skills needed within a work environment and to develop the employability skills needed for future career progression.

ACC 464 Forensic Accounting and Ethics (Track)
Credit hours: 3 (3,0,0) Prerequisite: ACC 315

This course is designed to give students a basic knowledge about a new field in accounting. Forensic accounting uses the accounting skills to investigate fraud or embezzlement and to analyze financial information for use in legal proceedings.

ACC 463 Data Analytics in Accounting (Track)
Credit hours: 3 (3,0,0) Prerequisite: ACC 111, ACC 222

The course introduces data management and analysis, reviews the use of spreadsheets and SQL (Structured Query), and introduce tools for visual analytics and statistical programming. /it also introduces the application of these skills to business and audit areas such as internal controls, substantive testing, risk assessment, and data governance. In addition, topics such as machine learning and XBRL (eXtensible Business Reporting Language) and the impact of analytics in industry and on the audit profession will be considered.

ACC 443 Advanced Auditing (Track)
Credit hours: 3 (3,0,0) Prerequisite: ACC 348

This course is an advanced course of auditing. It provides a comprehensive coverage on audit

and assurance practice. Upon completion of the course, students are expected to know the appropriate quality control policies and procedures in practice management and recognizing the auditor's position in relation to the acceptance and retention of professional appointments, identify and formulate the work required to meet the objectives of audit assignments and apply the International Standards on Auditing, evaluate the findings and the results of work performed and draft suitable reports on assignments.

ACC 453 Value Added Tax

Credit hours: 3 (3,0,0) Prerequisite: ACC 356

The emphasis of this course is to gain an in-depth practical knowledge of the VAT legislation and get a clear understanding of the principles of VAT and application of the framework as it applies in the Saudi Arabia. On successful completion of this course, students may apply for the VAT Compliance Diploma exam from the Association of Taxation Technicians (ATT), UK.

ACC 444 Cases in Auditing

Credit hours: 3 (3,0,0) Prerequisite: ACC 348

The emphasis of this course is on the practical application of audit procedures on realistic financial audit case scenarios. Upon completion of this course, students will gain proficiency in audit planning, evidence collection and documentation, evaluation of internal control, and assessment of fraud risk.

ACC 445 IT Applications in Auditing

Credit hours: 3 (3,0,0) Prerequisite: ACC 348

To meet business objectives and to thoughtfully manage IT related business risks, it is important to effectively managing information technology (IT). This course examines the key principles related to auditing information technology processes and related controls and is designed to meet the increasing needs of audit, compliance, security and risk management professionals.

ACC 454 International Taxation

Credit hours: 3 (3,0,0) Prerequisite: ACC 356

International tax provides the core knowledge of the underlying principles and major technical areas of taxation as they affect the activities of individuals and businesses. It should also enable computation of tax liabilities, explain the basis of their calculations, apply tax planning techniques for individuals and companies and identify the compliance issues for each major tax through a variety of business and personal scenarios and situations.

ACC 455 Cases in Zakat and Tax

Credit hours: 3 (3,0,0) Prerequisite: ACC 356

The emphasis of this course is to gain an in-depth practical knowledge of the zakat and taxes legislation and get a clear understanding of the principles of zakat and taxes and relevant application to cases as it applies in the Saudi Arabia. Upon completion of this course, students will gain proficiency in calculation of zakat and taxes.

ACC 465 Big Data and AI in Accounting

Credit hours: 3 (3,0,0) Prerequisite: ACC 463

The course develops a deep understanding of how cyber security advisory, robotics process automation and forecasting and predictive analytics can solve accounting and business problems, the practical challenges and the skills accountants need to work alongside intelligent systems.

ACC 490 Internship in Accounting

Credit hours: 3 (3,0,0) Prerequisite: ACC 317, ACC 472

Students work around 100 hours for each credit hour under this course. Normally 3-credit hours are registered for part-time interns who work around 20 hours a week for one semester for an employer while also taking other classes. Full-time interns may satisfy the 3-credit hours by working 300 hours full-time during the summer. The student must have a good academic record and have completed 90 credit hours including ACC301 (Corporate Reporting) and also must be approved by the Department of Accounting.

AVIATION MANAGEMENT

AVM 201 INTRODUCTION TO AIR TRANSPORT INDUSTRY

Credits: 3 (3,0,0) Prerequisite: BUS 102

The course introduces the core concepts, characteristics and principles of air transport business and aviation management. The structure of the air transport industry and air transport practices are explained and analyzed. Regional and worldwide trends in the industry trends are examined and the ethical issues in business practices within the industry are discussed.

AVM 310 AVIATION LAWS AND POLICIES

Credits: 3 (3,0,0) Prerequisites: BUS 231, AVM201

The course exposes students to laws and policies that impact aviation in the KSA, identifying specific national and international organizations responsible for the development, implementation, and enforcement of such laws and policies. Applicable international treaties will also be examined.

AVM 320 AIRLINE OPERATIONS

Credits: 3 (3,0,0) Prerequisite: AVM201

This course introduces the student to the fundamental of airline operations. Areas of study include aviation market analysis, cargo operations, ground operations, fleet planning & scheduling and how these four areas work together to create and maintain airline scheduled operations. Aviation terminology is emphasized and current events that will shape the future of aviation will be analyzed and discussed.

AVM 330 AIRPORT OPERATIONS

Credits: 3 (3,0,0) Prerequisite: AVM201

The course introduces the various complex systems employed in commercial service airports to both meet governmental certification requirements, as well as the needs of stakeholders including airlines and air travelers.

AVM 340 AIRLINE MANAGEMENT

Credits: 3 (3,0,0) Prerequisites: AVM310, AVM320

A study on aviation business by looking at key elements of airline industry such as organization, management, operation as well as diversification of their business units; understanding the airline's revenue management, fluctuated demand and supply; as well as learning how airlines cooperate with their tourism related organizations, airline alliances, travel agencies, wholesalers and hotel industries amid the ever intense competition. Learn the airline's strategy to improve their products and services for revenue maximization. Study introduction of Customer Relationship Management and Loyalty Marketing, applied by the airlines for their customer retention. Study the changing behavior of passengers, channel of distributions, marketing and sales planning. Understand other marketing issues such as air cargo services, low cost carrier, General Sales Agency for the airlines, electronic marketing, sales promotion and their communication to the public.

AVM 350 AIRPORT MANAGEMENT

Credits: 3 (3,0,0) Prerequisites: AVM 310, AVM 330

Students will be introduced to the processes and challenges involved with the management of an airport including the planning, organizing, evaluating, and controlling of airport activities within an increasingly entrepreneurial environment both domestically and internationally.

AVM 370 AIR CARGO AND LOGISTICS

Credits: 3 (3,0,0) Prerequisite: AVM310

The course will provide a thorough knowledge of physical supply, in-plant movement and storage, physical distribution that comprise logistics systems in the aviation industry, facility location, transportation, networks, and logistics information systems, air cargo management and supply chain management. The students will have exposure to intra and inter industry competition in air cargo industry, facilities and intermediaries involved in air cargo movement, air cargo security challenges, air cargo operations, network design and fleet planning, inventory management, warehousing, and air cargo revenue management.

AVM 410 IT IN AIRPORT INDUSTRY

Credits: 3 (3,0,0) Prerequisites: IS101, AVM340, AVM 350

The course will develop knowledgeable and effective users of information technology in aviation. A combination of technical and managerial material is presented. This material is necessary to achieve an understanding of the operations and strategic uses of management information systems in the aviation industry. Emphasis is placed on the use of computers as an information processor, a decision tool, and a means of linking management more closely to the organization. In addition, topics relating to the management of information resources are presented.

AVM 430 AVIATION SAFETY AND SECURITY

Credits: 3 (3,0,0) Prerequisites: AVM340, AVM350, AVM370

The course will provide a thorough knowledge of safety awareness, both during operation and implantation. International regulations and ICAO recommendations but is also enhanced by industry best practice recommendations. This course aims to provide knowledge relation to key safety and security approaches and practices, with sessions covering safety in relation to the entire aviation movement area, with the intention of raising awareness of safety hazards and risks commonly encountered in the aviation industry working environment. The students will have exposure to intra and inter industry competition in safety and security industry, facilities and intermediaries involved in air safety movement, aviation security challenges.

AVM 450 HR IN AVIATION MANAGEMENT

Credits: 3 (3,0,0) Prerequisites: AVM 340, AVM 350

Students will be introduced to the use of Human Resources Management (HRM) in civil aviation organizations, and how HRM is used to select, motivate, advance, and reward employees. Special requirements for those employed in civil aviation organizations is also discussed.

AVM 460 AIR TRANSPORT ECONOMICS

Credits: 3 (3,0,0) Prerequisites: AVM340, AVM350

This course merges the institutional and technical aspects of the aviation industry with their theoretical economic underpinnings. It applies economic theory to all aspects of the aviation industry, bringing together numerous informative articles and institutional developments that characterize the field of airline economics. The course offers a self-contained theory and applications-orientation tailored for management professionals in the aviation industry.

AVM 480 TRENDS IN AIR TRANSPORTATION

Credits: 3 (3,0,0) Prerequisites: AVM340, AVM350

The course offers an overview of existing trends and issues in air transportation along with those on the horizon. At the global level current issues such as fuel costs, customer care and satisfaction, challenges posed by profitability and security, competition within the industry, together with a look at advances in technology and their import are covered. On the local level, issues unique to Saudi Arabia – e.g. travel of pilgrims to Holy sites, study the impact of air transport on the Saudi and regional economies, etc. are also discussed.

AVM 490 INTERNSHIP IN AVIATION MANAGEMENT

Credits: 3 (3,0,0) Prerequisites: good academic record and completed 90 credit hours

The course provides a close look at the actual functioning of a firm in the aviation industry through experiential learning. An office replaces the classroom as interns confront the challenges of work environment and hone their analytical skills by dealing with real-life business situations. Professional skills are cultivated as interns discipline their behavior to conform with the expectations of the industry, improve their teamwork and work-Communications skills, and familiarize them with the business etiquette.

AVM 492 CO-OP [COOPERATIVE EDUCATION]

Credits: 10 Prerequisite: Department consent

The Co-Op is a career-related professional program available to all Aviation Management students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to AVM students who have accumulated the requisite number or more credits. The Co-Op option counts for 10 credit hours (CRs) for practical onsite experience over a 7 month period, i.e. spanning one semester and a summer.

BUSINESS

BUS 101 INTRODUCTION TO BUSINESS

Credits: 3 (3,0,0) Prerequisite: None

This course is a survey of the modern business world. It provides the student with a general knowledge of the composition and functions of the business organization as well as its role as a social institution. The course deals with business environment, management functions (planning, organization, and control), and business functions (marketing, human resources, operations, and finance). This course is a prerequisite to all higher courses in business.

BUS 102 PRINCIPLES OF MANAGEMENT

Credits: 3(3,0,0) Prerequisite: None

The course examines the scope of the manager's role and fundamental management principles. It defines the role of management and discusses major contribution of the evolution of management theory. It spells out managerial functions, skills, theoretical approaches that can be used within the manager's unique environment and demonstrates the process of setting objectives, planning, decision-making, and strategy formulation.

BUS 201 ORGANIZATIONAL BEHAVIOR

Credits: 3(3,0,0) Prerequisite: BUS 101

This course provides the student with a general review needed to understand and predict behavior in organizations at the individual, group, and organizational levels. The course discusses such related topics as motivation, attitudes, leadership, power, and managerial decision making as well as organizational design, change and development.

BUS 231 LEGAL ENVIRONMENT OF BUSINESS

Credits: 3 (3,0,0) Prerequisite: BUS 101

The course surveys the legal environment in which business operates. Topics covered include forms of doing business in Saudi Arabia, commercial regulations and laws, and the main elements of corporate law in Saudi Arabia. Also touched upon are legal aspects of managerial decisions, e.g. contracts, sales, banking security instruments, patents, negotiable instruments, and leases.

BUS 351 INTERNATIONAL BUSINESS

Credits: 3(3,0,0) Prerequisite: BUS 101

This course is a survey of international business operations and functional activities. It provides a thorough examination of international trade and investment patterns, international business environments, and the effects of international business on the objectives of both the international firms and nation states. It also presents issues involved in managing a multinational firm, and addresses current issues and trends affecting Saudi international business involvement.

BUS 371 PRODUCTION AND OPERATIONS MANAGEMENT

Credits: 3 (3,0,0) Prerequisites: BUS 101, STAT 101, MATH 101 or MATH 111

This course describes the tools used in designing, operating, and controlling the production/ operations function in manufacturing/service organizations. A systems approach is followed in explaining the basic operating function, the problems and decisions managers encounter along with solution techniques and models.

BUS 373 MANAGEMENT INFORMATION SYSTEMS

Credits: 3 (3,0,0) Prerequisites: BUS 101, STAT 101, MATH 101 or MATH 111

This course provides students with an understanding of how information technologies (i.e., computer hardware, computer software, and computer networks) are used in organizations to support and enhance strategic goals. Emphasis is placed on technical concepts fundamental to business applications and management control of information systems.

BUS 495 STRATEGIC MANAGEMENT AND BUSINESS POLICY

Credits: 3 (3,0,0) Prerequisites: MKT 301, FIN 301, BUS 371 OR AVM340, AVM350

This is the capstone course in the undergraduate business curriculum. It integrates the knowledge and skills students gain in other courses and allows them to use the same in formulating sound business strategies. Business strategy is considered within the framework of a global competitive environment and real-life cases are analyzed and discussed and cross-functional solutions are sought.

FINANCE

FIN 301 PRINCIPLES OF FINANCE

Credits: 3 (3,1,0) Prerequisites: BUS 101, ACC 111

The course examines financial management and finance functions. Topics include: financial analysis, planning and control, time value of money, risk analysis, valuation, capital budgeting, cost of capital, acquisition of fund through borrowing, stock issue, and dividend policies. This course is a prerequisite to all higher finance courses.

FIN 330 PRINCIPLES OF INSURANCE

Credits: 3 (3,0,0) Prerequisite: FIN 301

The course covers the theory of risk and risk taking; an analysis of the role of the insurance institution in dealing with risks to individual and business; insurance industry; and types of insurers. It explains the principles of individual life, automobile, homeowners, and health insurance. In addition, selected social insurance programs, as well as functions of sales and rate- making of carriers are surveyed.

FIN 340 REAL ESTATE PRINCIPLES

Credits: 3 (3,0,0) Prerequisite: FIN 301

The course introduces real estate markets and practices. Specific attention is given to market analysis, appraisal, mortgage financing, investment, owning vs. renting. It also includes an introductory analysis of property development and marketing, and management of residential and commercial property.

FIN 350 PRINCIPLES OF INVESTMENT

Credits: 3 (3,0,0) Prerequisite: FIN 301

The course surveys a broad range of topics relating to investment. Areas covered include: investment environment, investment policies and objectives, risk and return tradeoff, security analysis and valuation techniques; introduction to principles of fundamental and technical analysis, portfolio management and the options and futures markets. The course also focuses on individual investment decisions. A simulation game of investment in the local and international stock markets is used during the semester to put all of the above into practice.

FIN 360 CAPITAL INVESTMENT AND FINANCING

Credits: 3(3,0,0) Prerequisite: FIN 301

The course deals with the analysis of capital assets investment and the sources of long-term financing. Topics include: capital budgeting, risk and uncertainty, common stock and debt financing, lease financing, hybrid financing (preferred stock, warrants and convertibles), dividend policies, merger and acquisition. Attention is also paid to the sources of funds available for small businesses including venture capital.

FIN 370 FINANCIAL INSTITUTIONS AND COMMERCIAL BANKS

Credits: 3 (3,0,0) Prerequisite: FIN 301

The course analyzes objectives, functions, practices and problems of financial institutions – in particular commercial banks. Topics covered include: financial institution and commercial bank administration, deposits, loans, credit analysis, and other financial management issues related to financial institutions' and commercial banks' assets and liabilities management. The course uses case problems and/or computer simulation.

FIN 380 INTERNATIONAL FINANCE
Credits: 3 (3,0,0) Prerequisite: FIN 301

The course examines the field of international finance. Topics include: balance of payments analysis, foreign exchange markets, exchange rate exposure and hedging, multinational capital budgeting, global capital sourcing, working capital management, and export/import financing.

FIN 430 HEALTH INSURANCE
Credits: 3 (3,0,0) Prerequisite: FIN 330

The course is about individual and group health insurance and employee benefits. Topics discussed: types of policy contracts, calculation of premiums, insurance company organization, management and operations.

FIN 431 PROPERTY AND LIABILITY INSURANCE
Credits: 3 (3,0,0) Prerequisite: FIN 330

The course concentrates on aspects of liability insurance related to property and liability risks, ways of dealing with them, contracts claim payment process, underwriting, rates and rate making, financial analysis and reinsurance.

FIN 440 REAL ESTATE INVESTMENT AND APPRAISAL
Credits: 3 (3,0,0) Prerequisite: FIN 340

Techniques of financial analysis and planning for real estate investment are the focus of this course. Topics include objectives of real estate investment, cash flow generated by commercial investment, and analysis of the investment environment. Another theme of the course is the theory and principle of appraising real property. Market data analysis, income approach to value, comparable sales analysis and descent cash flow analysis are other elements.

FIN 441 REAL ESTATE FINANCE AND PROPERTY MANAGEMENT
Credits: 3 (3,0,0) Prerequisite: FIN 340

The main topics of the course are: instruments and sources of financing both residential and commercial real estate, real estate mortgage risk analysis, and the policies of major institutions related to real estate financing. It also deals with techniques and general practices of property management, record keeping, marketing and leasing, tenant billing; rent collection, repair and maintenance, management of residential buildings, office buildings, industrial properties and shopping centers.

FIN 450 SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT
Credits: 3 (3,0,0) Prerequisite: FIN 350

This course examines the factors affecting the value of financial securities: earning expectations, required rate of return, uncertainty and investor attitudes. Fundamental and technical approaches, such as timing and screening are analyzed and applications of alternative valuation techniques are considered. A rigorous outline of the modern portfolio theory along with portfolio construction designed for individuals and institutions are looked at. Computer applications featuring various portfolio selection models are employed as well.

FIN 460 DERIVATIVE SECURITIES MARKETS

Credits: 3 (3,0,0) Prerequisites: 15 CRs in Finance including FIN 350

The course provides students with the techniques, concepts and applications relevant to financial derivative securities. Topics include analysis of various types of options and strategies of option trading, principles of trading commodities on future markets, speculation and hedging using derivative securities.

FIN 470 CASES IN FINANCIAL MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: FIN 350

Intensive analyses of financial problems relating to financial planning, asset management, capital structure, capital budgeting and dividend policies are done viacase studies. Students are required to analyze selected problems both verbally and in writing.

FIN 490 INTERNSHIP IN FINANCE

Credits: 3 Prerequisite: Department permission and 15 Finance CRs not counting FIN 301 The internship tends to be a full time work during summer and part time for the fall andthe spring positions. One semester hour is equivalent to 100 hours of training. Students develop
new skills through a practical training in a career-related job. The course must be repeated once.

FIN 492 CO-OP [COOPERATIVE EDUCATION]

Credits: 10 Prerequisite: Department consent

The Co-Op is a career related professional program available to all Finance students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to Finance students who have accumulated the requisite number or more credits. The Co-Op option counts for 10 credit hours (CRs) for practical onsite experience over a 7-month period, i.e. spanning one semester and a summer.

MARKETING

MKT 301 PRINCIPLES OF MARKETING
Credits: 3(3,0,0) Prerequisite: BUS 101

This course surveys marketing activities and the decisions affecting them in consumer, industrial, and international markets. Marketing planning and decision making are examined from firms' and consumers' points of view. Topics covered include: the marketing concept and its company- wide implications and integration of marketing with other functions. Also covered are activities of marketing research– identification of marketing opportunities, development of marketing mix strategies (e.g. decisions concerning pricing, distribution, promotion and product design). Marketing systems views in terms of both public and private policy. Are also discussed. This course is a prerequisite to all higher marketing courses.

MKT 305 PRINCIPLES OF MARKETING FOR MMGD
Credits: 3 (3,0,0) Prerequisite: Junior Standing

The course looks at the application of basic concepts and strategies for the effective marketing of goods and services. Current global trends and their impact on domestic and world-wide competition are analyzed and an emphasis is placed on the application of a critical thinking process to the development of a strategic marketing plan. Other topics include: basic marketing concepts, competitive analysis, market research, target marketing and the development of
customer-based strategies affecting product, price, promotion and distribution.

MKT 310 CONSUMER BEHAVIOR
Credits: 3 (3,0,0) Prerequisite: MKT 301

This course draws on the behavioral sciences and focuses on the application of cultural, social, and psychological concepts to the analysis of consumer behavior. Implications for marketing strategy are discussed and analyzed.

MKT 320 PROMOTION MANAGEMENT
Credits: 3 (3,0,0) Prerequisite: MKT 301

This course discusses the major marketing communications functions including advertising, direct marketing, sales promotion, public relations, personal selling, and marketing on the internet. An understanding is developed of how organizations use these techniques and venues, not as separate entities, but as a part of a holistic strategy to communicate with its target markets. Topics include: overview of the nature of marketing communications and promotion management, the communications process, the objectives of the different forms of communications/promotion, the effectiveness of each tool, and how a company can best use each tool in the development of an integrated marketing communications strategy.

MKT 330 PROFESSIONAL SELLING AND SALES MANAGEMENT
Credits: 3 (3,0,0) Prerequisite: MKT 301

The course deals with the sales function and its relationship to the total marketing program. Topics include: sales strategies and objectives, the development and administration of sales organizations and sales force, and control and evaluation of sales operations.

MKT 340 MARKETING CHANNELS

Credits: 3 (3,0,0) Prerequisite: MKT 301

This course focuses on the nature and operation of channels employed in the distribution of goods and services. Topics include: importance of distribution channels, their types in the consumer industrial and service's markets, steps in establishing new channels, vertical and horizontal distribution systems, economic and behavioral problems in wholesaling and retailing, and marketing logistics.

MKT 350 MARKETING RESEARCH

Credits: 3 (3,0,0) Prerequisites: STAT 271, MKT 301.

This course presents a broad overview of the marketing research process. Concepts and methods of marketing research are discussed along with the role of marketing research in aiding decision making. Topics include: problem analysis and definition, determination of information needs and sources, research design, sampling, data collection methods, data analysis and interpretation, and writing the final research report.

MKT 360 RETAIL MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: MKT 301

This course focuses on the study of policies, strategies, methods, and procedures for marketing in a retail environment. Major topics include: the social, legal, ethical, and international issues associated with retail marketing, target market analysis, development of the retail marketing mix, the relationships among retailing, major marketing functions, and other business functions, use of technology to improve systems and performance in retail environments, and recent retail trends.

MKT 370 BUSINESS-TO-BUSINESS MARKETING

Credits: 3 (3, 0, 0) Prerequisite: MKT 301

The aim of this course is to provide business students with a general understanding of the theory and practice of business-to-business marketing in contrast to consumer goods marketing.

Students are introduced to the scope of business marketing including manufacturing, institutional, reseller and government markets. The course discusses how firms develop marketing strategies to take advantage of opportunities in these unique markets.

MKT 410 GLOBAL MARKETING

Credits: 3 (3,0,0) Prerequisite: MKT 301

This course targets the fundamentals and key issues of global marketing. The course surveys the modern world marketing environment in which international marketers operate (cultural, political, legal, and economic environments) and the rules governing international marketing. Strategic and operational issues in international marketing management are discussed, including planning and implementation of marketing strategies in a global setting. Current issues and trends affecting Saudi global marketing involvement are also addressed.

MKT 420 DIRECT MARKETING

Credits: 3 (3,0,0) Prerequisite: MKT 301

The course examines the principles of direct marketing from the perspective of marketers who attempt to sell to both consumer and organizational markets. Students are introduced to the scope of direct marketing, including the internet, e-mail, direct marketing, mail order, lead generation, circulation, relationship/loyalty programs, store traffic building, fund raising, pre-selling, post-selling, and research.

MKT 430 MARKETING ON THE INTERNET

Credits: 3 (3,0,0) Prerequisites: IS 101, MKT 301

This course looks at the internet and internet marketing. Students learn how to create and publish web pages, develop web marketing skills, as well as research methods companies use to make money on the internet. Finally, students examine the impact of the internet on today's world.

MKT 440 SERVICE MARKETING

Credits: 3 (3,0,0) Prerequisite: MKT 301

This course covers a range of topics related to service marketing. The unique characteristics of services are explained, and their consequences for marketing mix formulation are analyzed. Distinctive marketing problems are critically assessed using concepts and how best addressed using strategies. Opportunities for service organization that do not sell a physical good as their main offering to the public (e.g. airlines, banks, government agencies, hotels, medical facilities, and restaurants) are explored for and discovered. Current issues and trends in service marketing are discussed as well.

MKT 450 MARKETING IN NON-PROFIT ORGANIZATIONS

Credits: 3 (3,0,0) Prerequisite: MKT 301

This course centers on the application of marketing concepts and tools cued to the marketing activities of public agencies, health services, public transportation, the arts, schools, museums, etc. Topics include: the role of marketing planning and research, definition of target markets, the development of the marketing mix including product and service development, pricing, promotion, public relations, and service distribution.

MKT 460 EXPORT MARKETING AND MANAGEMENT

Credits: 3 (3,0,0). Prerequisites: BUS 351, MKT 301

This course teaches students, in a practical way, how to analyze foreign markets' opportunities and formulate policies and programs to profit from these opportunities. Topics covered include: studying and analyzing export markets, export promotion, export channels and intermediaries, setting up and managing export operations, and the technical aspects of the export business. An analysis of the Saudi export policy and the implications of World Trade Organization (WTO) membership are also discussed. Students have chances to observe and practice actual export business as carried out by leading Saudi exporters.

MKT 470 STRATEGIC MARKETING

Credits: 3 (3,0,0). Prerequisite: 15+ Marketing CRs

This course is concerned with strategic marketing planning. The focus is on making strategic decisions and developing plans for implementing them. The general goal of the course is enabling students to integrate the various marketing tools into consistent programs aimed at achieving sustainable and profitable positions in the marketplace.

MKT 490 INTERNSHIP IN MARKETING

Credits: 3 Prerequisite: Department permission

Full-time interns satisfy the 3-credit hours by working 300 hours full-time during the summer. Internship students must have a good academic record, have completed at least 90 credit hours along with 15 credit hours in Marketing, and approval from the Finance and Marketing Departments. Students submit a paper that re-states their learning objectives and how the work experiences have fulfilled them. A community link coordinator manages the participants' relationships with their faculty advisors and the workplace supervisors.

MKT 492 CO-OP [COOPERATIVE EDUCATION]

Credits: 10 Prerequisite: Department consent

The Co-Op is a career related professional program available to all Marketing students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to Marketing students who have accumulated the requisite number or more credits. The Co-Op option counts for 10 credit hours (CRs) for practical onsite experience over a 7 month period, i.e. spanning one semester and a summer.

MKT 499 SENIOR PROJECT IN MARKETING

Credits: 3 Prerequisite: Department consent

The objectives of the project are to find solutions to the actual marketing problems facing a firm, or to help a firm plan and execute a marketing plan. The faculty advisor in conjunction with the department will suggest issues to be addressed. The project could be an individual one or a team-based, and is conducted with the cooperation of a firm(s) under the supervision of a faculty member. A written report is required. The course follows the normal grading procedures.

COLLEGE OF COMPUTER & INFORMATION SCIENCES [CCIS]

The College of Computer & Information Sciences takes into account the needs of the local community, the interdisciplinary nature of its fields, and navigating the rapids of change and innovation in the science. In putting together the CCIS degree programs, the contents and structures of curricula and practices the United States, Canada, Germany and the UK are taken into account, as wells as the recommendations of these leading international bodies:

- Association of Computer Machinery (ACM)
- Association of Information Systems (AIS)
- Association of Information Technology Professionals (ATIP)
- Computer Science Accreditation Commission (CSAC)
- Institute of Electrical and Electronics Engineers (IEEE)

The CCIS opened its doors to students in 2001 offering Bachelor of Science (BS) degrees in Computer Science (CS) and Information Systems (IS). Noting the needs of the community and opportunities for CCIS graduates skilled in the areas of Digital Media Systems, Software Engineering, and Business Computing | E-Commerce, the CS Department crafted a BS-concentration in Digital Media Systems: CS-DMS, offered BS degree in Software Engineering: BSE, and the IS Department did the like with the latter: IS-BCE. Recently, CCIS introduces a track in Cybersecurity for CS, SE, and IS. Within the frameworks of all CCIS degree programs, students are given the freedom to fashion a good portion of their upper division courses to their individual likings.

CCIS VISION

To be one of the most prominent schools in the region in the area of computing.

CCIS MISSION

The College of Computer and Information Sciences aims to offer internationally proven computing programs in an academic environment that promotes excellence and innovation in education, research, and service to the community.

CCIS Degree Programs

- Bachelor of Science in Computer Science
- Bachelor of Science Computer Science (Digital Media Systems Concentration)
- Bachelor of Science Computer Science (Cyber Security Track)
- Bachelor of Science in Software Engineering
- Bachelor of Science in Software Engineering (Cyber Security Track)
- Bachelor of Science in Information Systems
- Bachelor of Science in Information Systems (Business Computing & E-Commerce Concentration)
- Bachelor of Science in Information Systems (Cyber Security Track)

Graduation Requirements

To receive bachelor's degrees, students must satisfy the requirements related to credits, grade point average, program of study, experiential/community link, and other courses within the maximum period that is specified in the PSU Undergraduate Rules and Regulations. The requirements are as follow:

- Pass the Preparatory Year program
- Complete the credits required by the respective majors
- Earn an overall cumulative grade point average (GPA) of at least 2.0 (out of 4.0)
- Earn a program grade point average (GPA) of at least 2.0 (out of 4.0)
- Satisfy PSU university requirements
- Satisfy CCIS college requirements
- Satisfy Program requirements
- Satisfy Experiential Learning /Community Link requirements (e.g., Co-Op, internship, senior project, etc.)

Structure of Undergraduate Academic Programs

The structure of undergraduate academic programs consists of the following elements:

- **University Requirements:** set of core academic subjects that all PSU students in a college must take.
- **College Requirements**: set of courses designed to meet the specific needs of individual colleges
- **Program Requirements**: set of courses designed to meet the specific needs of individual degree programs
- **Major or Field of Specialization Requirements:** set of core subjects that constitute the main areas of knowledge in a particular field of specialization of each academic degree

- **Electives:** a discrete number of courses allotted in each academic degree that can expand the students' knowledge in their fields of specialization or to broaden the range of their intellectual pursuits
- **Experiential Learning or Community Link**: set of programs or activities targeted to enrich the students' knowledge through practical experience, observations of real work behaviors, and hands-on application of knowledge gained from classroom lectures and discussions to actual situations such as solving real organization problems and concerns
- **Language of Instruction:** except for those subjects that are devoted to the study of the Arabic Language and Islamic Studies, the medium of instruction at PSU is English.

CCIS Degree Programs

Students seeking a degree in the CCIS must take a minimum of 134 credits. The CCIS curricular design is composed of three types of required courses: University, College, and Program. All CCIS degree programs share the same list of university requirements but differ in the composition of college and program requirements. Below are the College's University Required Courses.

CCIS University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

BACHELOR OF SCIENCE IN COMPUTER SCIENCE
BS IN COMPUTER SCIENCE

INTRODUCTION

Computer Science (CS) is a rapidly changing field. The ideas and research results emanating from it are swiftly transformed into practice. Thus, the program in computer science offers not only technical instruction on the frontier of new developments but also provides students with a broad education that covers the core areas of computer science. This ensures a foundation for continued and sustainable career growth in the computing profession for our students.

This curriculum in Computer Science is deliberately oriented towards giving the students education in the broad area of computer science from which the student can acquire the necessary skills and experience needed to solve real-world practical problems. In addition, students are given the freedom to create their own computer science study program in either breadth or depth so as to enable them to pursue their strength and interests depending upon their future career plans.

DEPARTMENT VISION

The Computer Science Department aspires to prepare top quality graduates for the job market by providing them with a rigorous and thorough, up-to-date computing education.

DEPARTMENT MISSION

The Computer Science Department strives for excellence in creating, applying, and imparting knowledge in computer science and engineering through innovative computing programs, quality research in collaboration with industry, and service to the community and the nation.

CS PROGRAM VISION

To be the leading Computer Science program in Saudi Arabia and the Middle East region

CS PROGRAM MISSION

Provide high quality, computer science education to prepare top graduates through an environment that promotes innovative thinking, ethical behavior, lifelong learning, research, and service to the community.

PROGRAM OBJECTIVES

The offered program ensures that, at completion:

- Graduates serve as computing professionals, contributing to the planning, design, development, and production of computer science related projects.
- Graduates demonstrate professionalism and ethical responsibilities in all their endeavors.
- Graduates engage themselves in professional development, life-long learning, and advanced research through post graduate studies, culminating a positive impact on organizations, community, and society at large.
- Graduates demonstrate leadership skills taking initiatives and facilitating individuals and teams towards successful completion of professional duties.

PROGRAM LEARNING OUTCOMES | THE ABILITY TO:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

CAREER OPPORTUNITIES

- Software engineers
- Mobile| smart systems designers
- Marketers of computer soft/hardware
- Network designers, administrators, analysts
- Computer| network security officers, specialists
- Advanced study, research, and teaching
- Web developers and administrators
- System analysts
- Project leaders
- Database administrators
- Entrepreneurship

STRUCTURE OF THE PROGRAM

The Computer Science undergraduate program has three components:

University Requirements	23	Credits
College Requirements	44	Credits
Program Requirements	67	Credits
TOTAL	134	Credits

UNIVERSITY REQUIREMENTS

REQUIRED COURSES IN ENGLISH			REQUIRED COURSES IN ARABIC		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ENG 101	INTENSIVE ENGLISH WRITING	3	ARAB 101	ARABIC WRITING I	2
COM 201	COMMUNICATIONS SKILLS	3	ARAB 103	ARABIC WRITING II	2
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	ARAB 203	ARABIC WRITING III	2
			ISC 101	ISLAMIC ETHICS	2
			ISC 103	ISLAMIC ECONOMIC SYSTEM	2
			ISC 105	HOLY QURAN SCIENCES	2
			ISC 203	NEW FINANCIAL TRANSACTIONS	2
	SUBTOTAL	9		SUBTOTAL	14
				TOTAL	**23**

CCIS College Required Courses

CCIS College Required Courses			Require Option: Co-Op		
Course #	TITLE	CRs	Co-Op Option		
			Course #	TITLE	CRs
CS 101	Computer Programming I	4	CS 492	Co-Op in CS or CS-DMS or CS-CYS	10
CS 102	Computer Programming II	3			
CS 175	Digital Logic & Computer Organization	3			
CS 210	Data Structures and Algorithms	3			
CS 285	Discrete Math for Computing	3			
CS 330	Introduction to Operating Systems	3			
CS 331	Data Communications & Computer Networks	3			
ENG 103	Research Writing Techniques	3			
STAT 101	Introduction to Statistics and Probability	3			
MATH 111	Calculus I	3			
ETHC 303	Ethical and Social Aspects of Computing	3			
	Subtotal	34		Total	44

Program Requirements

Are divided into:

- Core Courses
- CS Elective Courses
- Business Background Courses

While all courses are theoretically available during the period of study, there are three qualifying factors that may limit the number of courses in reality. 1) Students must meet the prerequisites requirements. 2) Course availability depends on the demand and actual resources. 3) With the exception of the core courses, program elective course selection should be guided by individual preferences and future career aspirations.

CS Program Requirements

CS Core Courses			CS Elective Courses [select 5]		
Course #	TITLE	CRs	Course #	TITLE	CRs
PHY 105	Physics I	4	CS 313	Intro To Data Science	3
PHY 205	Physics II	4	CS 315	Parallel and Multicore Programming	3
SCI 101	Introduction to Physical Sciences	3	CS 336	Network Operations and Administration	3
MATH 113	Calculus II	3	CS 355	Computer Architecture	3
MATH 221 CS 223	Numerical Analysis* **OR** Computational Linear Algebra*	3	CS 360	Computer Graphics	3
			CS 370	Introduction to Artificial Intelligence	3
SE 201	Intro To Software Engr	3	CS 375	Web Design	3
CS 311	Design and Analysis of Algorithms	3	CS 381	Systems Programming	3
CS 320	Program Languages: Concepts & Paradigms	3	CS 387	Mobile Application Development	3
CS 340	Introduction to Database Systems	3	CS 412	Theory of Computation	3
SE 371	Web Engineering	3	CS 415	Internet Of Things (IoT)	3
CYS 401	Fund Of Cybersecurity	3	CS 417	Business Intelligence	3
CS 435	Distributed Systems	3	CS 421	Compiler Construction	3
CS 498	Senior Project I	1	CS 425	Advanced Software Engineering	3
CS 499	Senior Project Ii	3	CS 427	Network Design	3
	Subtotal	**42**	CS 430	Advanced Operating Systems	3
Business Background Courses [select 1]			CS 431	Emerging Topics In Network Security	3
ACC 101	Introduction to Financial Accounting	3	CS 437	Introduction to Parallel Computing	3
BUS 101	Introduction to Business	3	CS 439	Search Engines and Information Retrieval	3
BUS 201	Organizational Behavior	3	CS 440	Database Mgmt Systems: Design and Imp.	3
BUS 351	International Business	3	CS 447	Building E-Commerce Systems	3
BUS 373	Management Information System	3	CS 451	Enterprise Resource Planning & Automation	3
COM 401	Interpersonal Skills for Leaders & Managers	3	CS 455	Computational Bioinformatics	3
ECON 101	Microeconomic Analysis	3	CS 460	Introduction to Robotics	3
ECON 103	Macroeconomic Analysis	3	CS 462	Topics in Multimedia	3
FIN 301	Principles of Finance	3	CS 465	Machine Learning	3
MKT 301	Principles of Marketing	3	CS 469	Digital Image Processing	3
	Subtotal	**3**	CS 470	Advanced Artificial Intelligence	3
Free Electives			CS 471	Data Mining	3
--- ---	Free Elective I	3	CS 476	Natural Language Processing	3
--- ---	Free Elective II	3	CS 478	Content Management	3
	Subtotal	**6**	CS 483	Computer Arabization	3
Physical Education			CS 489	Selected Topics in Computer Science	3
PE ---	Physical Education	1	CS 493	Cybersecurity Capstone Project	3
			CS 494	Industry Link	3
	Subtotal	1	CS 495	Emerging Topics in Computer Science	3
			CYS 402	Secure Software Development	3
			CYS 403	Security Risk Management, Governance & Control	3

		CYS 404	CYBER-PHYSICAL SYSTEMS SECURITY	3
		CYS 405	PENETRATION TESTING AND ETHICAL HACKING	3
		DMS 310	INTRODUCTION TO VISUAL DESIGN	3
		DMS 322	FOUNDATIONS OF INTERACTIVE DIGITAL MEDIA	3
		DMS 327	3D MODELING AND DESIGN	3
		DMS 351	PRINCIPLES OF ANIMATION	3
		DMS 426	GAME DEVELOPMENT	3
		SE 311	SOFTWARE REQUIREMENTS ENGINEERING	3
		SE 322	SOFTWARE DESIGN AND ARCHITECTURE	3
		SE 365	HUMAN COMPUTER INTERACTION	3
		SE 401	SOFTWARE QUALITY ASSURANCE AND TESTING	3
		SE 411	SOFTWARE CONSTRUCTION	3
		SE 422	SOFTWARE MAINTENANCE AND EVOLUTION	3
		SE 423	SOFTWARE ENGINEERING PROJECT MANAGEMENT	3
		SE 453	SOFTWARE SECURITY ARCHITECTURE	3
		SE 477	ADVANCED BUSINESS PROCESS MANAGEMENT	3
		IS 205	BUSINESS PROCESS MANAGEMENT	3
		IS 251	ENTERPRISE ARCHITECTURES	3
		IS 351	CONFIGURATION MANAGEMENT	3
		SE / DMS / IS 3|4---	SE/DMS/IS ELECTIVE	3
			SUBTOTAL	**15**
COMBINED SUBTOTAL	**52**		**TOTAL**	**67**

- The Internship option is on hold.

Computer Science Major Study Plan

Year 1 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
CS 101	Computer Programming I	4	CS 102	Computer Programming II	3
SCI 101	Introduction to Physical Sciences	3	CS 175	Computer Organization & Digital Logic	3
MATH 111	Calculus I	3	MATH 113	Calculus II	3
ENG 101	Intensive English Writing	3	STAT 101	Introduction to Statistics and Probability	3
ISC 101	Islamic Ethics	2	ENG 103	Research Writing Techniques	3
ARAB 101	Arabic Writing I	2	ISC 103	Islamic Economic System	2
PE ---	Physical Education	1			
	Total	18		Total	17

Year 2 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
CS 210	Data Structures and Algorithms	3	SE 201	Introduction To Software Engineering	3
CS 285	Discrete Math for Computing	3	CS 320	Programming Languages	3
CS 223 / MATH 221	Comp. Linear Algebra | Numerical Analysis	3	CS 330	Introduction to Operating Systems	3
PHY 105	Physics I	4	PHY 205	Physics II	4
COM 201	Communications Skills	3	PSY 101	Introduction to Psychology	3
ISC 105	Holy Quran Sciences	2	ARAB 103	Arabic Writing II	2
	Total	18		Total	18

Co-Op Option

Year 3 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
CS 311	Design And Analysis Of Algorithms	3	CS 435	Distributed Systems	3
CS 331	Data Communications | Com. Networks	3	CS ---	Cs Electives-I	3
CS 340	Introduction To Database Systems	3	CS ---	Cs Electives-II	3
CYS 401	Fund Of Cybersecurity	3	CS 498	Senior Project I	1
ETHC 303	Ethical And Social Aspects Of Computing	3	SE 371	Web Engineering	3
--- ---	Free Elective-I	3	ISC 203	New Financial Transac.	2
			BUS ---	Business Course-I	3
	Total	18		Total	18

Year 4 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
CS ---	Cs Electives-III	3	CS 492	Co-Op in Computer Science (Continuation for next Summer)	10
CS ---	Cs Electives-IV	3			
CS ---	Cs Electives-V	3			
CS 499	Senior Project II	3			
--- ---	Free Elective-II	3			
ARAB 203	Arabic Writing III	2			
	Total	17		Total	10

BS IN COMPUTER SCIENCE (DIGITAL MEDIA SYSTEMS)
A Concentration of the CS Program (CS-DMS)

INTRODUCTION

The objective of the BSc in Computer Science with a concentration on Digital Media Systems (CS-DMS) is to introduce students to the fundamental creative design principles, processes, skills, and techniques in media production. This concentration provides a platform for students to explore and learn key conceptual, technical, and current issues related to digital media production. This platform also provides the students the opportunity to design and develop media production including graphic design, branding, animation, audio and video production, 3D modeling and game development.

CONCENTRATION OBJECTIVES | LEARNING OUTCOMES –

In addition to CS six learning Outcomes, the DMS concentration enables students after graduation to:
Demonstrate skills in developing digital media related work based on current industry trends and practices.

CAREER OPPORTUNITIES

- Interactive media designers and developers
- Graphic designers and game developers
- Web content developers and managers
- Web developers and administrators
- Mobile application developer
- Film and video editor
- Media database designer
- Sound effect editor
- Animator

CS-DMS CONCENTRATION REQUIREMENTS

CS-DMS CORE COURSES			CS-DMS ELECTIVES [select 1]		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
PHY 105	PHYSICS I	4	CS 313	INTRO TO DATA SCIENCE	3
PHY 205	PHYSICS II	4	CS 315	PARALLEL AND MULTICORE PROGRAMMING	3
MATH 113	CALCULUS II	3	CS 336	NETWORK OPERATIONS AND ADMINISTRATION	3
SCI 101	INTRO TO PHYS SCIENCES	3	CS 355	COMPUTER ARCHITECTURE	3
CS 223 or MATH 221	COMP LINEAR ALGEBRA OR NUMERICAL ANALYSIS	3	CS 381	SYSTEMS PROGRAMMING	3
SE 201	INTRO TO SOFTWARE ENGR	3	CS 387	MOBILE HUMAN COMPUTER INTERACTION	3
CS 311	DESIGN AND ANALYSIS OF ALGORITHMS	3	CS 412	THEORY OF COMPUTATION	3
CS 320	PROGRAM LANGUAGES: CONCEPTS & PARADIGMS	3	CS 415	INTERNET OF THINGS (IOT)	3
CS 340	INTRODUCTION TO DATABASE SYSTEMS	3	CS 417	BUSINESS INTELLIGENCE	3
CS 360	COMPUTER GRAPHICS	3	CS 421	COMPILER CONSTRUCTION	3
CS 435	DISTRIBUTED SYSTEMS	3	CS 425	ADVANCED SOFTWARE ENGINEERING	3
CS 498	SENIOR PROJECT I	1	CS 427	NETWORK DESIGN	3
CS 499	SENIOR PROJECT II	3	CS 439	SEARCH ENGINES AND INFORMATION RETRIEVAL	3
SE 371	WEB ENGINEERING	3	CS 440	DATABASE MANAGEMENT SYSTEMS: DESIGN AND IMP.	3
CYS 401	FUND OF CYBERSECURITY	3	CS 447	BUILDING E-COMMERCE SYSTEMS	3
DMS 310	INTRODUCTION TO VISUAL DESIGN	3	CS 455	COMPUTATIONAL BIOINFORMATICS	3
DMS 322	FOUNDATIONS OF INTERACTIVE MEDIA	3	CS 460	INTRODUCTION TO ROBOTICS	3
DMS 327	3D MODELING AND DESIGN	3	CS 462	TOPICS IN MULTIMEDIA	3
DMS 351	PRINCIPLES OF ANIMATION	3	CS 465	MACHINE LEARNING	3
DMS 426	GAME DEVELOPMENT	3	CS 469	DIGITAL IMAGE PROCESSING	3
	SUBTOTAL	**60**	CS 471	DATA MINING	3
FREE ELECTIVE			CS 478	CONTENT MANAGEMENT	3
--- ---	FREE ELECTIVE	**3**	CS 493	CYBERSECURITY CAPSTONE PROJECT	3
			CYS 402	SECURE SOFTWARE DEVELOPMENT	3
			CYS 403	SECURITY RISK MANAGEMENT, GOVERNANCE & CONTROL	3
			CYS 404	CYBER-PHYSICAL SYSTEMS SECURITY	3
			CYS 405	PENETRATION TESTING AND ETHICAL HACKING	3
			DMS 332	NETWORK BUILDING MULTIMEDIA	3
			DMS 401	MEDIA AUTHORING TOOLS AND TECHNOLOGIES	3
			DMS 471	BUILDING RICH WEB APPLICATIONS	3
			DMS 489	SELECTED TOPICS IN CS-DMS	3
			DMS 494	INDUSTRY LINK – DMS	3
			DMS 495	EMERGING TOPICS IN DIGITAL MEDIA	3

CS-DMS Track Requirements

CS-DMS Core Courses			CS-DMS Electives [select 1]		
Course #	Title	CRs	Course #	Title	CRs
Physical Education			SE 311	Software Requirements Engineering	3
PE ---	Physical Education	1	SE 322	Software Design And Architecture	3
			SE 365	Human Computer Interaction	3
Subtotal		1	SE 401	Software Quality Assurance And Testing	3
			SE 411	Software Construction	3
			SE 422	Software Maintenance And Evolution	3
			SE 423	Software Engineering Project Management	3
			SE 453	Software Security Architecture	3
			SE 477	Advanced Business Process Management	3
			IS 205	Business Process Management	3
			IS 251	Enterprise Architectures	3
			IS 351	Configuration Management	3
			SE/ IS 3|4---	Se/Dms/Is Elective	3
				Subtotal	**3**
Combined Subtotal		**64**		**Total**	**67**

CS-DMS Study Plan

Year 1	Semester 1			Semester 2	
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
CS 101	Computer Programming I	4	CS 102	Computer Programming II	3
SCI 101	Introduction to Physical Sciences	3	CS 175	Computer Organization & Digital Logic	3
MATH 111	Calculus I	3	MATH 113	Calculus II	3
ENG 101	Intensive English Writing	3	STAT 101	Introduction to Statistics and Probability	3
ISC 101	Islamic Ethics	2	ENG 103	Research Writing Techniques	3
ARAB 101	Arabic Writing I	2	ISC 103	Islamic Economic System	2
PE ---	Physical Education	1			
	Total	18		Total	17

Year 2	Semester 1			Semester 2	
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
CS 210	Data Structures and Algorithms	3	SE 201	INTRO TO Software Engineering	3
CS 285	Discrete Math for Computing	3	CS 320	Programming Languages	3
CS 223 / MATH 221	Comp. Linear Algebra | Numerical Analysis	3	CS 330	Introduction to Operating Systems	3
PHY 105	Physics I	4	PHY 205	Physics II	4
COM 201	Communications Skills	3	PSY 101	Introduction to Psychology	3
ISC 105	Holy Quran Sciences	2	ARAB 103	Arabic Writing II	2
	Total	18		Total	18

Co-Op Option

Year 3	Semester 1			Semester 2	
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
CS 311	Design And Analysis Of Algorithms	3	CS 435	Distributed Systems	3
CS 331	Data Communications | Com. Networks	3	SE 371	Web Engineering	3
CS 340	Introduction To Database Systems	3	DMS 351	Principles Of Animation	3
CS 360	Comp Graphics	3	DMS 322	Found In Inter Digital Media	3
DMS 310	Intro To Visual Design	3	CS 498	Senior Project I	1
CYS 401	Fund Of Cybersecurity	3	ETHC 303	Ethical And Social Aspects Of Computing	3
			ISC 203	New Financial Transac.	2
	Total	18		Total	18

Year 4	Semester 1			Semester 2	
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
DMS 327	3D Modeling And Design	3	CS 492	Co-Op in Computer Science (Continuation for next Summer)	10
DMS 426	Game Development	3			
DMS ---	Dms Elective	3			
CS 499	Senior Project Ii	3			
--- ---	Free Elective-I	3			
ARAB 203	Arabic Writing Iii	2			
	Total	17		Total	10

BS IN COMPUTER SCIENCE (CYBER SECURITY TRACK)
A Track of the CS Program (CS-CYS)

INTRODUCTION

Due to recent developments in the area of information technology and the fast evolution of technology, most of the organizations either local or international are now placing their valuable data on computer systems that are exposed to public. Without proper protection, this data can be easily accessed, compromised or even damaged. Cyber security is becoming a major concern for public and private organizations. The College of Computer and Information Sciences at Prince Sultan University has approved a cyber security track. This track will provide students with the abilities and skills to deal with emerging technologies and approaches in the area of Cyber security.

Students in any of the three undergraduate programs offered: Computer Science, Information Systems and/or Software Engineering are eligible to opt for this track. Students that have completed the junior year in the above programs would have to take the five courses defined in the track, substituting the elective courses in their existing plans in order to complete the cyber security track requirements.

TRACK OBJECTIVES | LEARNING OUTCOMES

In addition to CS six learning Outcomes, the Cyber Security track enables students after graduation to:
Apply security principles and practices to maintain operations in the presence of risks and threats.

CAREER OPPORTUNITIES

- Cybersecurity Consultant
- Network Security Specialist
- Information Assurance Specialist
- Computer Security System Analyst
- Web Security Engineer
- Information Security Officer
- Information Security Operations Manager
- Cybersecurity Administrator
- IT Security Manager

TRACK REQUIREMENTS:

Students taking the Cyber Security track are required to complete the following five courses:

- CYS 401 Fundamentals of Cybersecurity
- CYS 402 Secure Software Development
- CYS 403 Security Risk Management, Governance & Control
- CYS 404 Cyber-Physical Systems Security
- CYS 405 Penetration Testing and Ethical Hacking

COMPUTER SCIENCE CYBER SECURITY (CS-CYS) TRACK STUDY PLAN

YEAR 1	SEMESTER 1		SEMESTER 2		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS 101	COMPUTER PROGRAMMING I	4	CS 102	COMPUTER PROGRAMMING II	3
SCI 101	INTRODUCTION TO PHYSICAL SCIENCES	3	CS 175	COMPUTER ORGANIZATION & DIGITAL LOGIC	3
MATH 111	CALCULUS I	3	MATH 113	CALCULUS II	3
ENG 101	INTENSIVE ENGLISH WRITING	3	STAT 101	INTRODUCTION TO STATISTICS AND PROBABILITY	3
ISC 101	ISLAMIC ETHICS	2	ENG 103	RESEARCH WRITING TECHNIQUES	3
ARAB 101	ARABIC WRITING I	2	ISC 103	ISLAMIC ECONOMIC SYSTEM	2
PE ---	PHYSICAL EDUCATION	1			
	TOTAL	18		TOTAL	17

YEAR 2	SEMESTER 1		SEMESTER 2		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS 210	DATA STRUCTURES AND ALGORITHMS	3	SE 201	INTRO TO SOFTWARE ENGINEERING	3
CS 285	DISCRETE MATH FOR COMPUTING	3	CS 320	PROGRAMMING LANGUAGES	3
CS 223/ MATH 221	COMP. LINEAR ALGEBRA | NUMERICAL ANALYSIS	3	CS 330	INTRODUCTION TO OPERATING SYSTEMS	3
PHY 105	PHYSICS I	4	PHY 205	PHYSICS II	4
COM 201	COMMUNICATIONS SKILLS	3	PSY 101	INTRODUCTION TO PSYCHOLOGY	3
ISC 105	HOLY QURAN SCIENCES	2	ARAB 103	ARABIC WRITING II	2
	TOTAL	18		TOTAL	18

Co-Op OPTION

YEAR 3	SEMESTER 1		SEMESTER 2		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS 311	DESIGN AND ANALYSIS OF ALGORITHMS	3	CS 435	DISTRIBUTED SYSTEMS	3
CS 331	DATA COMMUNICATIONS | COM. NETWORKS	3	SE 371	WEB ENGINEERING	3
CS 340	INTRODUCTION TO DATABASE SYSTEMS	3	CYS 402	SECURE SOFTWARE DEVELOPMENT	3
CYS 401	FUND OF CYBERSECURITY	3	CYS 403	SECURITY RISK MANAGEMENT, GOVERNANCE & CONTROL	3
ETHC 303	ETHICAL AND SOCIAL ASPECTS OF COMPUTING	3	CS 498	SENIOR PROJECT I	1
--- ---	FREE ELECTIVE-I	3	BUS ---	BUSINESS ELECTIVE-I	3
			ISC 203	NEW FINANCIAL TRANSAC.	2
	TOTAL	18		TOTAL	18

YEAR 4	SEMESTER 1		SEMESTER 2		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CYS 404	CYBER-PHYSICAL SYSTEMS SECURITY	3	CS 492	CO-OP IN COMPUTER SCIENCE (CONTINUATION FOR NEXT SUMMER)	10
CYS 405	PEN TESTING& ETHICAL HACKING	3			
CS ---	CS ELECTIVES-I	3			
CS 499	SENIOR PROJECT II	3			
--- ---	FREE ELECTIVE-II	3			
ARAB 203	ARABIC WRITING III	2			
	TOTAL	17		TOTAL	10

- The Internship option is on hold.

BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING
BS IN SOFTWARE ENGINEERING

INTRODUCTION

The Software Industry is one of the most crucial industries to human lives and international economies. One can hardly think of a system or utility that does not depend on computer software at some level. It is estimated that the Software Industry attracts hundreds of billions of dollars every year. Building Software Systems is not an easy process. This is attributed to:

- Software products are among the most complex of man-made systems, and software by its very nature has intrinsic, essential properties (e.g., complexity, invisibility, and changeability) that are not easily addressed.
- Programming techniques and processes that worked effectively for an individual or a small team to develop modest-sized programs do not scale-up well to the development of large, complex systems (i.e., systems with millions of lines of code, requiring years of work, by hundreds of software developers).
- The pace of change in computer and software technology drives the demand for new and evolved software products. This situation has created customer expectations and competitive forces that strain our ability to produce quality of software within acceptable development schedules."

(ACM/IEEE Software Engineering Task Force SE2014)

The demand for professional Software Engineers is ever rising, making BS in Software Engineering a very common degree in many national and international universities.

SE PROGRAM MISSION

Prepare world-class software engineering graduates through an academic environment that promotes professional skills, ethical behavior, life-long learning, research, and service to the community.

SE PROGRAM OBJECTIVES

The offered program ensures that, at completion:

- Graduates are qualified to serve as software engineers, contributing to the planning design, development, and production of software systems.
- Graduates are capable of exhibiting their professional and ethical standards in software systems development using contemporary practices within industry, academia, and government
- Graduates are capable of corroborating their software engineering qualifications & expertise to advance their career through research and development and active participation of graduate studies, specialized certifications, or self-learning.
- Graduates are capable of demonstrating leadership skills taking initiatives and facilitating individuals and teams towards successful completion of professional duties.

SE Student Learning Outcomes

SE Graduates of the program must have:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

SE Career Opportunities

Students who successfully obtain this degree can work in Software Development Companies, Multimedia Companies, IT and non-IT firms who require web technologist to maintain and manage their business websites, Freelance Consultants, Network Administrators, Support staff, Communications Development as well as progressing into Graduate education and further specialized research.

- Software developers and designers
- Software Engineers
- Software testing
- Project managers
- Embedded software development
- System programmers
- System administrators
- Software Project Managers

The Structure Of The Program

The undergraduate Software Engineering program at PSU is structured into a number of modules, comprising the following types of courses:

- University requirements
- College requirements
- Program requirements.

The program requirements are further divided into:

- Software Engineering core courses
- Software Engineering elective courses

All courses are theoretically available at any time during the period of study, but to take a course students must complete its prerequisites and satisfy registration conditions. Actual offerings for elective courses depend on the level of demand and the actual resources.

All courses of the program requirements, except the "core" courses, must be selected according to a set of rules and according to individual desires and future career aspirations. Note that "core'' courses are compulsory for all students majoring in the field.

CCIS University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

Structure of the Program

The undergraduate Software Engineering program has three components:

University Requirements	23	Credits
College Requirements	44	Credits
Program Requirements	67	Credits
Total	134	Credits

CCIS College Required Courses

CCIS COLLEGE REQUIRED COURSES			REQUIRE OPTION: CO-OP		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS 101	COMPUTER PROGRAMMING I	4	SE 492	CO-OP IN SOFTWARE ENGINEERING	**10**
CS 102	COMPUTER PROGRAMMING II	3			
CS 175	DIGITAL LOGIC & COMPUTER ORGANIZATION	3			
CS 210	DATA STRUCTURES AND ALGORITHMS	3			
CS 285	DISCRETE MATH FOR COMPUTING	3			
CS 330	INTRODUCTION TO OPERATING SYSTEMS	3			
CS 331	DATA COMMUNICATIONS & COMPUTER NETWORKS	3			
ENG 103	RESEARCH WRITING TECHNIQUES	3			
STAT 101	INTRODUCTION TO STATISTICS AND PROBABILITY	3		Subtotal	**10**
MATH 111	CALCULUS I	3			
ETHC 303	ETHICAL AND SOCIAL ASPECTS OF COMPUTING	3			
	Subtotal	**34**		**TOTAL**	**44**

- **PROGRAM REQUIREMENTS (67 credits):**

PROGRAM REQUIREMENTS	CREDITS #
Core Courses	54
SE Specialization Electives	12
Physical Education	1
Total	**67**

SE Program Requirements

SE Core Courses			SE Elective Courses [Select 4]		
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
CHM 101	General Chemistry	4	SE 381	Embedded Software Engineering	3
PHY 105	Physics I	4	SE 403	Signal Processing Systems	3
PHY 205	Physics Ii	4	SE 407	Microprocessor Based Systems	3
MATH 113	Calculus Ii	3	SE 409	Cloud Computing	3
MATH 221	Numerical Analysis	3	SE 413	Software System Modelling	3
MATH 223 Or CS 223	Linear Algebra Or Linear Algebra Or Computational Linear Algebra*	3	SE 415	Group Dynamic And Professional Practice	3
SE 201	Introduction To Software Engineering	3	SE 417	Agent Based Software Engineering	3
SE 311	Software Requirements Engineering	3	SE 420	Agile Software Engineering	3
SE 322	Software Design And Architecture	3	SE 421	Software Metrics	3
CS 340	Introduction To Database Systems	3	SE 422	Software Maintenance & Evolution	
SE 365	Human Computer Interaction	3	SE 430	Software Processes & Process Improvements	3
SE 371	Web Engineering	3	SE 436	Service Oriented Architecture	3
CYS 401	Fundamentals Of Cybersecurity	3	SE 444	Formal Methods And Models In Software	3
SE 401	Software Quality Assurance And Testing	3	SE 445	Real-Time Software Systems	3
SE 411	Software Construction	3	SE 450	Design Patterns	3
SE 499	Sw Design & Dev Project	3	SE 453	Software Security Architecture	3
SE 423	Software Project Management	3	SE 465	Enterprise Architectures	3
	Subtotal	54	SE 480	Software Analytics	3
			SE 489	Selected Topics In Software Engineering	3
Physical Education			SE 495	Emerging Topics	3
PE ---	Physical Education	1			

Other College Electives		
CS 311	Design And Analysis Of Algorithms	3
CS 320	Program Languages: Concepts And Paradigms	3
CS 360	Computer Graphics	3
CS 370	Introduction To Artificial Intelligence	3
CS 387	Mobile Applications Development	3
CS 415	Internet Of Things (Iot)	3
CS 431	Emerging Topics In Network Security	3

		CS 435	Distributed Systems	3
		CS 451	Enterprise Resource Planning	3
		CS 493	Cybersecurity Capstone Project	3
		CYS 401	Fundamentals Of Cybersecurity	3
		CYS 402	Secure Software Development	3
		CYS 403	Security Risk Management, Governance & Control	3
		CYS 404	Cyber-Physical Systems Security	3
		CYS 405	Penetration Testing And Ethical Hacking	3
		DMS 310	Introduction To Visual Design	3
		DMS 322	Foundations Of Interactive Digital Media	3
		DMS 327	3D Modeling And Design	3
		DMS 351	Principles Of Animation	3
		DMS 426	Game Development	3
		IS 205	Business Process Management	3
		IS 251	Enterprise Architectures	3
		IS 351	Configuration Management	3
		CS/DMS / IS 3|4---	Cs/Dms/Is Elective	3
			Subtotal	12
Combined Subtotal	55		**Total**	**67**

- The Internship option is on hold.

Software Engineering Study Plan

Year 1 **Semester 1** **Semester 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS 101	Computer Programming I	4	CS 102	Computer Programming II	3
MATH 111	Calculus I	3	CS 175	Computer Org & Digital Logic	3
ENGL 101	English Writing I	3	ENGL 103	English Writing II	3
CHM 101	General Chemistry	4	STAT 101	Intro. To Statistics & Prob.	3
ISC 101	Islamic Ethics	2	MATH 113	Calculus II	3
ARAB 101	Arabic Writing I	2	ISC 103	Islamic Economic System	2
	TOTAL	18		TOTAL	17

YEAR 2 **Semester 1** **Semester 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS 210	Data Structures And Algorithms	3	SE 365	Human Computer Interaction	3
PHY 105	Physics I	4	SE 311	Software Requirements Analysis	3
COM 201	Communication Skills	3	CS 330	Intro. To Operating Systems	3
CS 285	Discrete Math For Computing	3	PHY205	Physics II	4
SE 201	Introduction To Software Engineering	3	Math 223 OR CS 223	Linear Algebra Or Computational Linear Algebra*	3
ISC 105	Holy Quran Sciences	2	PSY 101	Introduction To Psychology	3
	TOTAL	18		TOTAL	19

Co-Op OPTION

YEAR 3 **Semester 1** **Semester 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS 340	Intro To Database Systems	3	MATH 221	Numerical Analysis	3
CS 331	Data Com. & Comp. Networks	3	SE 371	Web Engineering	3
SE 322	Software Design & Architecture	3	ETH303	Soc. & Ethic. Aspects Of Computing	3
CYS 401	Fundamentals Of Cybersecurity	3	SE 401	Software Quality Assurance & Testing	3
ISC 203	New Financial Transactions	2	SE ---	Se Elective I	3
ARAB 103	Arabic Writing II	2	SE ---	Se Elective II	3
PE ---	Physical Education	1			
	TOTAL	17		TOTAL	18

Year 4 **Semester 1** **Semester 2**

Course #	TITLE	CRs	Course #	TITLE	CRs
SE 423	Software Engineering Project Management	3	SE 492	Co-Op IN SOFTWARE ENGINEERING (continuation with Summer after)	10
SE ---	Se Elective- III	3			
SE ---	Se Elective- IV	3			
SE 411	Software Construction	3			
SE 499	Sw Design & Dev Project	3			
ARAB203	Arabic Writing III	2			
	Total	17		Total	10

BS IN SOFTWARE ENGINEERING (CYBER SECURITY TRACK)
A Track of the SE Program (SE-CYS)

INTRODUCTION

Due to recent developments in the area of information technology and the fast evolution of technology, most of the organizations either local or international are now placing their valuable data on computer systems that are exposed to public. Without proper protection, this data can be easily accessed, compromised or even damaged. Cybersecurity is becoming a major concern for public and private organizations. The College of Computer and Information Sciences at Prince Sultan University has approved a cyber security track. This track will provide students with the abilities and skills to deal with emerging technologies and approaches in the area of Cybersecurity.

Students in any of the three undergraduate programs offered: Computer Science, Information Systems and/or Software Engineering are eligible to opt for this track. Students that have completed the junior year in the above programs would have to take the five courses defined in the track, substituting the elective courses in their existing plans in order to complete the cyber security track requirements.

TRAK OBJECTIVES | LEARNING OUTCOMES

In addition to SE seven learning Outcomes, the Cyber Security track enables students after graduation to:
Apply security principles and practices to maintain operations in the presence of risks and threats

CAREER OPPORTUNITIES

- Cybersecurity Consultant
- Network Security Specialist
- Information Assurance Specialist
- Computer Security System Analyst
- Web Security Engineer
- Information Security Officer
- Information Security Operations Manager
- Cybersecurity Administrator
- IT Security Manager

TRACK REQUIREMENTS:

Students taking the Cyber Security track are required to complete the following five courses:

- CYS 401 Fundamentals of Cybersecurity
- CYS 402 Secure Software Development
- CYS 403 Security Risk Management, Governance & Control
- CYS 404 Cyber-Physical Systems Security

- CYS 405 Penetration Testing and Ethical Hacking

Software Engineering Cyber Security Track (SE-CYS) Study Plan

Year 1	Semester 1			Semester 2	
Course #	**Title**	**CRs**	**Course #**	**Title**	**CRs**
CS 101	Computer Programming I	4	CS 102	Computer Programming Ii	3
MATH 111	Calculus I	3	CS 175	Computer Organization & Digital Logic	3
ENG 101	Intensive English Writing	3	MATH 113	Calculus Ii	3
CHM 101	General Chemistry	4	STAT 101	Introduction To Statistics & Probability	3
ISC 101	Islamic Ethics	2	ENG 103	Research Writing Techniques	3
ARAB 101	Arabic Writing I	2	ISC 103	Islamic Economic System	2
	Total	18		Total	17

Year 2	Semester 1			Semester 2	
Course #	**Title**	**CRs**	**Course #**	**Title**	**CRs**
CS 210	Data Structures And Algorithms	3	SE 365	Human Computer Interaction	3
PHY 105	Physics I	4	SE 311	Software Requirements Analysis	3
COM 201	Communications Skills	3	CS 330	Intro. To Operating Systems	3
CS 285	Discrete Math For Computing	3	PHY205	Physics Ii	4
SE 201	Introduction To Software Engineering	3	Math 223 Or CS 223	Linear Algebra Or Computational Linear Algebra*	3
ISC 105	Holy Quran Sciences	2	PSY 101	Introduction To Psychology	3
	Total	18		Total	19

Co-Op Option

Year 3	Semester 1			Semester 2	
Course #	**Title**	**CRs**	**Course #**	**Title**	**CRs**
CS 340	Intro. To Database Systems	3	MATH 221	Numerical Analysis	3
CS 331	Data Com. & Comp. Networks	3	SE 371	Web Engineering	3
SE 322	Software Design & Architecture	3	ETHC 303	Ethical And Social Aspects Of Computing	3
CYS 401	Fundamentals Of Cybersecurity	3	SE 401	Software Quality Assurance & Testing	3
ISC 203	New Financial Transactions	2	CYS 402	Secure Software Development	3
ARAB 103	Arabic Writing Ii	2	CYS 403	Security Risk Management, Governance And Control	3
PE ---	Physical Education	1			
	Total	17		Total	18

Year 4	Semester 1			Semester 2	
Course #	**Title**	**CRs**	**Course #**	**Title**	**CRs**
CYS 404	Cyber-Physical Systems Security	3	SE 492	Co-Op in (Continuation for next Summer)	10
CYS 405	Penetration Testing And Ethical Hacking	3			
SE 411	Software Construction	3			
SE 423	Software Engineering Project Management	3			
SE 499	Sw Design & Dev Project	3			
ARAB 203	Arabic Writing Iii	2			
	Total	17		Total	10

BACHELOR OF SCIENCE IN INFORMATION SYSTEMS
BS IN INFORMATION SYSTEMS

The Information Systems (IS) program is one of the programs offered by the College of Computer and Information Sciences at Prince Sultan University (PSU). The program leads to a Bachelor of Science degree in Information Systems. The main goal of the IS program is to produce university graduates who are capable of developing highly efficient information systems that can significantly improve the processes and performance of business organizations and public institutions. Graduates are equipped with the knowledge and skills that are necessary for achieving this goal, including technical, business and communication skills. Program concentration is on the development of theoretical and technical knowledge which will provide the student with the capabilities to conduct information systems analysis, design and development through the use of modern development tools and to provide technology-based solutions for business and other areas of IS application.

The basic business knowledge provided by the program enables students to understand IS environment, including the daily operations of business organizations, their infrastructure and their needs for information systems. Communication skills develop the student's ability to effectively communicate and negotiate with the different entities of the business organization and the community. The Business Computing and E-Commerce (BCE) concentration will provide you with the skills to use computer-based to solve E-Commerce business problems and support E-Commerce business processes. The Cybersecurity (CYS) track provides the students with a solid understanding of security technology and organizational management principles and practices and equips the students with necessary technologies and techniques to detect and eliminate vulnerabilities and the safe operation of the Internet of Things, cloud computing, healthcare, computer networks, and wireless communications.

PROGRAM VISION

To be one of the most successful Information Systems programs in Saudi Arabia and the Middle East region.

PROGRAM MISSION

The Information Systems program aims, through its commitment to excellence and innovation, to meet community needs, expand the horizons of its fields of study, and set its graduates on course to fulfilling careers guided by ethics and enriched by the desire to synthesize knowledge and practice.

PROGRAM OBJECTIVES

- Achieve professional excellence in information systems through higher positions in the job market, entrepreneurial accomplishments or successful graduate studies.
- Adhere to a lifelong learning process toward a successful career as professional or researcher in the field.
- Promotes professionalism, ethical values and responsibility toward the society.

PROGRAM LEARNING OUTCOMES | THE ABILITY TO:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
6. Support the delivery, use, and management of information systems within an information systems environment

CAREER OPPORTUNITIES

- ERP Specialist
- Database Administrator
- Web Developer
- SW Quality Tester/Assurance
- Web Programmer
- Risk Operation Manager
- IT Entrepreneur
- Enterprise Architect
- Data Scientist
- E-Commerce Application Developer
- Information System Auditor
- Systems Analyst
- Cybersecurity Analyst
- Security Risk Manager
- Project Manager
- System Designer

Structure of the Program

The Information Systems undergraduate program has three components:

University Requirements	23	Credits
College Requirements	49	Credits
Program Requirements	62	Credits
Total	134	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

CCIS College Required Courses

CCIS College Required Courses			Require Option: Co-Op		
Course #	Title	CRs	Co-Op Option		
			Course #	Title	CRs
CS 101	Computer Programming I	4	IS 492	Co-Op in IS or IS-BCE OR IS-CYS	10
CS 102	Computer Programming II	3			
CS 175	Digital Logic AND Computer Organization	3			
CS 210	Data Structures and Algorithms	3			
CS 285	Discrete Math for Computing	3			
CS 330	Introduction to Operating Systems	3			
CS 331	Data Communications AND Computer Networks	3			
ENG 103	Research Writing Techniques	3			
STAT 101	Introduction to Statistics and Probability	3			
MATH 111	Calculus I	3			
SCI 101	Introduction to Physical Sciences	3			
ETHC 303	Ethical and Social Aspects of Computing	3			
PE 1--	Physical Education	1			
PE 1--	Physical Education	1			
	Subtotal	39		**Total**	**49**

- The Internship option is on hold.

IS Program Requirements

62 Credits: Core 27 | ISElectives 12 | Business 15 | Communication 2 |Free Electives 6					
IS Core Courses			**IS Elective Courses [select 4]**		
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
IS 201	Introduction to Information Systems	3	IS 336	User Interface Design And Implementation	3
IS 205	Business Process Management	3	IS 344	Data Warehousing	3
IS 311	Web Development	3	IS 351	Configuration Management And Quality Assurance	3
IS 231	Systems Analysis and Design	3	IS 353	Social And Collaborative Computing	3
IS 241	Database Management and Applications	3	IS 362	Integrated Information Systems	3
IS 321	Enterprise Architecture	3	IS 372	Health-Care Information Systems	3
IS 371	Quantitative Analysis	3	IS 374	Technology And Application Of The Internet Of Things	3
IS 361	IS Project Management	3	IS 433	Information Systems Engineering	3
IS 478	Information Systems Security	3	IS 434	System Testing And Quality Assurance	3
	Subtotal	**27**	IS 435	Dynamic Website Development With Graphics	3
Business Background Courses *select 1			IS 442	Information Retrieval Systems	3
ACC 111	Foundations in Financial Accounting	3	IS 446	Knowledge Discovery And Data Mining	3
BUS 101	Introduction to Business	3	IS 448	Cloud Computing And Big Data Analytics	3
FIN 301	Principles of Finance	3	IS 461	Innovation And Technologies	3
MKT 301	Principles of Marketing	3	IS 463	Applied Data Science	3
ECON 101	Micro economicAnalysis*	3	IS 464	Computational Finance	3
BUS 201	Organizational Behavior*		IS 469	Cybersecurity Emerging Challenges	3
	Subtotal	**15**	IS 470	Information Systems And Sustainability	3
COMMUNICATION SKILLS			IS 472	Decision-Support And Intelligent Systems	3
COM 301	Professional and Technical Presentations	**2**	IS 474	Business Process Modelling	3
			IS 487	Emerging Topics In Information Systems	3
			IS 489	Selected Topics In Information Systems	3
			IS 490	Internship In Information Systems	3
			IS 494	Industry Link	3
			IS498	Senior Project I	3
			IS 499	Senior Project Ii	3
				Subtotal	**12**
			Free Electives [select 2]		
			--- ---	Free Elective 1	**3**
			--- ---	Free Elective 2	**3**
	Subtotal	**2**		Combined Subtotal	**18**
	Combined Subtotal	**44**		**Total**	**62**

INFORMATION SYSTEM MAJOR STUDY PLAN

YEAR 1	SEMESTER 1		SEMESTER 2		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS101	COMPUTER PROGRAMMING I	4	CS102	COMPUTER PROGRAMMING II	3
SCI 101	INTRODUCTION TO PHYSICAL SCIENCES	3	CS175	COMPUTER ORGANIZATION AND DIGITAL LOGIC	3
ENG 101	INTENSIVE ENGLISH WRITING	3	STAT 101	INTRODUCTION TO STATISTICS AND PROBABILITY	3
MATH 111	CALCULUS 1	3	BUS 101	INTRODUCTION TO BUSINESS ADMINISTRATION	3
ARAB 101	ARABIC WRITING I	2	ENG 103	RESEARCH WRITING TECHNIQUES	3
ISC101	ISLAMIC ETHICS	2	ISC 103	ISLAMIC ECONOMIC SYSTEM	2
PE ---	PHYSICAL EDUCATION	1			
	TOTAL	18		TOTAL	17

YEAR 2	SEMESTER 1		SEMESTER 2		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
IS 201	INTRODUCTION TO INFORMATION SYSTEMS	3	IS 205	BUSINESS PROCESS MANAGEMENT	3
CS 210	DATA STRUCTURES &ALGORITHMS	3	IS 231	SYSTEM ANALYSIS AND DESIGN	3
CS 285	DISCRETE MATH FOR COMPUTING	3	IS 241	DATABASE MANAGEMENT AND APPLICATIONS	3
ACC 111	FOUNDATION IN FINANCIAL ACCOUNTING	3	MKT 301	PRINCIPLES OF MARKETING	3
COM 201	COMMUNICATION SKILLS	3	PSY 101	INTRODUCTION TO PSYCHOLOGY	3
ARAB 103	ARABIC WRITING II	2	ISC 105	HOLY QURAN SCIENCES	2
			PE ---	PHYSICAL EDUCATION	1
	TOTAL	17		TOTAL	18

YEAR 3	SEMESTER 1		SEMESTER 2		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
IS 321	ENTERPRISE ARCHITECTURE	3	IS311	WEB DEVELOPMENT	3
CS 330	INTRODUCTION TO OPERATING SYSTEMS	3	IS 361	PROJECT MANAGEMENT	3
CS 331	DATA COMMUNICATIONS AND COMPUTER NETWORKS	3	IS 371	QUANTITATIVE ANALYSIS	3
IS ---	IS ELECTIVE-1	3	IS ---	IS ELECTIVE-2	3
FIN 301	PRINCIPLES OF FINANCE	3	IS ---	IS ELECTIVE-3	3
COM301	PROFESSIONAL AND TECHNICAL PRESENTATIONS	2	ETHC303	ETHICAL AND SOCIAL ASPECTS OF COMPUTING	3
ISC 203	NEW FINANCIAL TRANSACTIONS	2			
	TOTAL	19		TOTAL	18

CO-OP OPTION

YEAR 4	SEMESTER 1		SEMESTER 2		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
IS 478	INFORMATION SYSTEMS SECURITY	3	IS 492	CO-OP IN INFORMATION SYSTEMS	10
BUS/ECON	BUS 201 OR ECON 101	3			
IS ---	IS ELECTIVE-4	3			
--- ---	FREE ELECTIVE-1	3			
--- ---	FREE ELECTIVE-2	3			
ARAB203	ARABIC WRITING III	2			
	TOTAL	17		TOTAL	10

BS IN INFORMATION SYSTEMS (BUSINESS COMPUTING & E-COMMERCE)

A CONCENTRATION OF THE IS PROGRAM

INTRODUCTION

The track goal is on the development of theoretical and technical knowledge which will provide the student with the capabilities to conduct information systems analysis, design and development through the use of modern development tools and to provide technology-based solutions for business and other areas of IS application. The basic business knowledge provided by the program enables students to understand IS environment, including the daily operations of business organizations, their infrastructure and their needs for information systems. Communication skills develop the student's ability to effectively communicate and negotiate with the different entities of the business organization and the community.

This track is designed to cater to the needs for to-be professionals who would like to focus on business aspects of computing and would like to extend their enthusiasm business using internet and emerging technologies. The course combines computing, business, marketing, management, and software development. Furthermore, students will learn about virtual storefronts, online catalogues, exchange of business data and online market research ensuring the security of business transactions.

Students can further their level of expertise by going for certifications related to this field of study such as Certified Internet Web Professional (CIW), Certified E Commerce Consultant (CEC), Oracle Database Administrator and Cisco Certified Professional. Moreover, the holders of this degree can also opt for related graduate studies.

CONCENTRATION OBJECTIVES | LEARNING OUTCOMES

In addition to IS six learning Outcomes, the BCE Concentration enables students after graduation to: Develop and evaluate E-commerce systems on different platforms using a variety of technologies.

CAREER OPPORTUNITIES

- Business software developer
- E Commerce Consultant
- E-Commerce system developer
- Business process manager
- Higher studies and academics
- IT manager in businesses
- Network and Web administrator
- Online marketer

  IT Entrepreneurs
- E-government specialist

STRUCTURE OF THE PROGRAM

The **Business Computing & E-Commerce - BCE** undergraduate Track has four components:

University Requirements	23	Credits
College Requirements	49	Credits
IS Core Courses	27	Credits
BCE Courses (15 credits) + Free Elective Course (3 credits)	18	Credits
Business Courses	15	Credits
Communication Skills Courses	2	Credits
TOTAL	134	Credits

UNIVERSITY REQUIREMENTS

REQUIRED COURSES IN ENGLISH			REQUIRED COURSES IN ARABIC		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ENG 101	INTENSIVE ENGLISH WRITING	3	ARAB 101	ARABIC WRITING I	2
COM 201	COMMUNICATIONS SKILLS	3	ARAB 103	ARABIC WRITING II	2
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	ARAB 203	ARABIC WRITING III	2
			ISC 101	ISLAMIC ETHICS	2
			ISC 103	ISLAMIC ECONOMIC SYSTEM	2
			ISC 105	HOLY QURAN SCIENCES	2
			ISC 203	NEW FINANCIAL TRANSACTIONS	2
	SUBTOTAL	9		SUBTOTAL	14
				TOTAL	**23**

CCIS College Required Courses

CCIS College Required Courses			Require Option: Co-Op		
Course #	TITLE	CRs	Co-Op Option		
			Course #	TITLE	CRs
CS 101	Computer Programming I	4	IS 492	Co-Op in IS	10
CS 102	Computer Programming II	3			
CS 175	Digital Logic &Computer Organization	3			
CS 210	Data Structures and Algorithms	3			
CS 285	Discrete Math for Computing	3			
CS 330	Introduction to Operating Systems	3			
CS 331	Data Communications and omputer Networks	3			
ENG 103	Research Writing Techniques	3			
STAT 101	Introduction to Statistics and Probability	3			
MATH 111	Calculus I	3			
SCI 101	Introduction to Physical Sciences	3			
ETHC 303	Ethical and Social Aspects of Computing	3			
PE 1--	Physical Education	1			
PE 1--	Physical Education	1			
Subtotal		39	Total		49

- The Internship option is on hold.

IS-BCE Concentration Requirements

Is Core Courses		
Course #	TITLE	CRs
IS201	Introduction to information systems	3
IS 205	Business Process Management	3
IS231	System Analysis And design	3
IS241	Database Management And Application	3
IS311	Web Development	3
IS 321	Enterprise Architecture	3
IS361	Project Management	3
IS371	Quantitative Analysis	3
IS478	Information Systems Security	3
	Subtotal	27
Business Courses		
ACC 111	Foundation In Financial Accounting	3
BUS 101	Introduction To Business Administration	3
FIN 301	Principles Of Finance	3
MKT301	Principles Of Marketing	3
ECON 101 **OR** BUS 201	Microeconomic Analysis **OR** Organizational Behavior	3
	Subtotal	15
Communication Skills		
COM 301	Professional And Technical Presentations	2
	Subtotal	2
	Combined subtotal	44
Business Computing & E-Commerce(Bce) Courses		

BCE409	E-Business System Implementation	3
BCE437	Business And Marketing Aspects Of E-Commerce Systems	3
BCE 447	Visual Merchandising	3
BCE473	Entrepreneurial Strategy	3
BCE 483	Business Intelligence And Analytics	3
	Subtotal	**15**
	Free Electives	
--- ---	FREE ELECTIVE 1	3
	Combined subtotal	**18**
	Total	**62**

IS-BCE Study Plan

Year 1 **Semester 1** **Semester 2**

COURSE #	TITLE	CRs	COURSE #	TITLE	CRs
CS101	Computer Programming I	4	CS102	Computer Programming Ii	3
SCI 101	Introduction To Physical Sciences	3	CS175	Computer Organization And Digital Logic	3
ENG 101	Intensive English Writing	3	STAT 101	Introduction To Statistics And Probability	3
MATH 111	Calculus 1	3	BUS 101	Introduction To Business Administration	3
ARAB 101	Arabic Writing I	2	ENG 103	Research Writing Techniques	3
ISC 101	Islamic Ethics	2	ISC 103	Islamic Economic System	2
PE ---	Physical Education	1			
	Total	18		Total	17

Year 2 **Semester 1** **Semester 2**

COURSE #	TITLE	CRs	COURSE #	TITLE	CRs
IS 201	Introduction To Information Systems	3	IS 205	Business Process Management	3
CS 210	Data Structures And Algorithms	3	IS 231	System Analysis And Design	3
CS 285	Discrete Math For Computing	3	IS 241	Database Management And Applications	3
ACC 111	Foundation In Financial Accounting	3	MKT 301	Principles Of Marketing	3
COM 201	Communication Skills	3	PSY 101	Introduction To Psychology	3
ARAB 103	Arabic Writing Ii	2	ISC 105	Holy Quran Sciences	2
			PE ---	Physical Education	1
	Total	17		Total	18

Year 3 **Semester 1** **Semester 2**

COURSE #	TITLE	CRs	COURSE #	TITLE	CRs
IS 321	Enterprise Architecture	3	IS 311	Web Development	3
CS 330	Introduction To Operating Systems	3	IS 361	Project Management	3
CS 331	Data Communications And Computer Networks	3	IS 371	Quantitative Analysis	3
BCE 409	E-Business System Implementation	3	BCE 437	Business And Marketing Aspects Of E-Commerce Systems	3
FIN 301	Principles Of Finance	3	BCE 447	Visual Merchandising	3
COM301	Professional And Technical Presentations	2	ETHC303	Ethical And Social Aspects Of Computing	3
ISC 203	New Financial Transactions	2			
	Total	19		Total	18

Co-Op Option

YEAR 4	SEMESTER 1		SEMESTER 2		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
IS 478	INFORMATION SYSTEMS SECURITY	3	IS 492	CO-OP IN INFORMATION SYSTEMS	10
BCE 473	ENTREPRENEURIAL STRATEGY	3			
BCE483	BUSINESS INTELLIGENCE AND ANALYTICS	3			
--- ---	FREE ELECTIVE	3			
BUS/ECON	BUS 201 OR ECON 101	3			
ARAB203	ARABIC WRITING III	2			
	TOTAL	17		TOTAL	10

BS IN INFORMATION SYSTEMS (CYBER SECURITY TRACK)
A Track of the IS Program (IS-CYS)

INTRODUCTION

Enlightened by the importance of cybersecurity domain and the high demand for professionals equipped with security expertise now and in the future, the College of Computer and Information Sciences at Prince Sultan University has launched the Cybersecurity track. The track provides the students with a solid understanding of security technology and organizational management principles and practices, preparing them to make knowledgeable and responsible decisions. The students are prepared for a career that involves design and application of secure and resilient computer hardware and software systems. The track equips the students with necessary technologies and techniques to detect and eliminate vulnerabilities and the safe operation of the Internet of Things, cloud computing, healthcare, computer networks, and wireless communications. The Cybersecurity track is designed to prepare graduates to take relevant certification exams, specifically Certified Information Systems Security Professional (CISSP). Students in any of the three undergraduate programs offered at CCIS: Computer Science, Information Systems and Software Engineering are eligible to opt for this track.

TRAK OBJECTIVES | LEARNINGOUTCOMES

In addition to the IS six learning Outcomes, the Cyber Security track enables students after graduation to apply security principles and practices to maintain operations in the presence of risks and threats.

CAREER OPPORTUNITIES

Security Consultant
Information Security Analyst
Ethical Hackers
Computer Forensics Analysts
Chief Information Security Officer
Penetration Tester
IT Security Consultant
Security Systems Administrator
Surveillance system specialist
Network designers and analysts
Advanced study, research and teaching
Surveillance system specialist

STRUCTURE OF THE PROGRAM

The **Information Systems- CYS** undergraduate Track has three components:

University Requirements	23	Credits
College Requirements	49	Credits
Program Requirements	62	Credits
TOTAL	134	Credits

UNIVERSITY REQUIREMENTS

Required Courses in English			Required Courses in Arabic		
Course #	TITLE	CRs	Course #	TITLE	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

CCIS College Required Courses

CCIS College Required Courses			Require Option: Co-Op		
Course #	TITLE	CRs	Co-Op Option		
			Course #	TITLE	CRs
CS 101	Computer Programming I	4	IS 492	Co-Op in IS	10
CS 102	Computer Programming II	3			
CS 175	Digital Logic &Computer Organization	3			
CS 210	Data Structures and Algorithms	3			
CS 285	Discrete Math for Computing	3			
CS 330	Introduction to Operating Systems	3			
CS 331	Data Communications and omputer Networks	3			
ENG 103	Research Writing Techniques	3			
STAT 101	Introduction to Statistics and Probability	3			
MATH 111	Calculus I	3			
SCI 101	Introduction to Physical Sciences	3			
ETHC 303	Ethical and Social Aspects of Computing	3			
PE 1--	Physical Education	1			
PE 1--	Physical Education	1			
	Subtotal	39		**Total**	**49**

- The Internship option is on hold.

IS-CYS Track Program Requirements

62 Credits: IS Core 27 | CYS 15 | Business 15 | Free Elective 3 | Communications 2					
IS Core Courses			Free Elective [select 1]		
Course #	TITLE	CRs	Course #	TITLE	CRs
IS201	Introduction To Information Systems	3	--- ---	Free Elective	3
IS 205	Business Process Management	3		Subtotal	3
IS231	System Analysis And Design	3			
IS241	Database Management And Application	3			
IS311	Web Development	3			
IS 321	Enterprise Architecture	3			
IS361	Project Management	3			
IS371	Quantitative Analysis	3			
IS478	Information Systems Security	3			
	Subtotal	27			
Business Background Courses					
ACC 111	Foundation In Financial Accounting	3			
BUS 101	Introduction To Business Administration	3			
FIN 301	Principles Of Finance	3			
MKT 301	Principles Of Marketing	3			
ECON 101 **OR** BUS 201	Microeconomic Analysis. **Or** Organizational Behavior	3			
	Subtotal	15			
Cybersecurity (CYS) Courses					
CYS401	Fundamentals Of Cybersecurity	3			
CYS402	Secure Software Development	3			
CYS403	Security Risk Management, Governance And Control	3			
CYS404	Cyber-Physical Systems Security	3			
CYS405	Penetration Testing And Ethical Hacking	3			
	Subtotal	**15**			
Communication Skills					
COM 301	Professional And Technical Presentations	2			
	Combined Subtotal	**59**		**Total**	**62**

IS-CYS TRACK STUDY PLAN

YEAR 1 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS 101	COMPUTER PROGRAMMING I	4	CS 102	COMPUTER PROGRAMMING II	3
SCI 101	INTRODUCTION TO PHYSICAL SCIENCES	3	CS175	COMPUTER ORGANIZATION AND DIGITAL LOGIC	3
ENG 101	INTENSIVE ENGLISH WRITING	3	STAT 101	INTRODUCTION TO STATISTICS AND PROBABILITY	3
MATH 111	CALCULUS 1	3	BUS 101	INTRODUCTION TO BUSINESS ADMINISTRATION	3
ARAB 101	ARABIC WRITING I	2	ENG 103	RESEARCH WRITING TECHNIQUES	3
ISC 101	ISLAMIC ETHICS	2	ISC 103	ISLAMIC ECONOMIC SYSTEM	2
PE ---	PHYSICAL EDUCATION	1			
	TOTAL	18		**TOTAL**	17

YEAR 2 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
IS 201	INTRODUCTION TO INFORMATION SYSTEMS	3	IS 205	BUSINESS PROCESS MANAGEMENT	3
CS 210	DATA STRUCTURES AND ALGORITHMS	3	IS 231	SYSTEM ANALYSIS AND DESIGN	3
CS 285	DISCRETE MATH FOR COMPUTING	3	IS 241	DATABASE MANAGEMENT AND APPLICATIONS	3
ACC 111	FOUNDATION IN FINANCIAL ACCOUNTING	3	MKT 301	PRINCIPLES OF MARKETING	3
COM 201	COMMUNICATION SKILLS	3	PSY 101	INTRODUCTION TO PSYCHOLOGY	3
ARAB 103	ARABIC WRITING II	2	ISC 105	HOLY QURAN SCIENCES	2
			PE ---	PHYSICAL EDUCATION	1
	TOTAL	17		**TOTAL**	18

YEAR 3 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
IS 321	ENTERPRISE ARCHITECTURE	3	IS311	WEB DEVELOPMENT	3
CS 330	INTRODUCTION TO OPERATING SYSTEMS	3	IS 361	PROJECT MANAGEMENT	3
CS 331	DATA COMMUNICATIONS AND COMPUTER NETWORKS	3	IS 371	QUANTITATIVE ANALYSIS	3
CYS 401	FUNDAMENTALS OF CYBERSECURITY	3	CYS 402	SECURE SOFTWARE DEVELOPMENT	3
FIN 301	PRINCIPLES OF FINANCE	3	CYS 403	SECURITY RISK MANAGEMENT, GOVERNANCE AND CONTROL	3
COM 301	PROFESSIONAL AND TECHNICAL PRESENTATIONS	2	ETHC 303	ETHICAL AND SOCIAL ASPECTS OF COMPUTING	3
ISC 203	NEW FINANCIAL TRANSACTIONS	2			
	TOTAL	19		**TOTAL**	18

Co-Op OPTION

YEAR 4 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
IS 478	INFORMATION SYSTEMS SECURITY	3	IS 492	CO-OP IN INFORMATION SYSTEMS	10
CYS 404	CYBER PHYSICAL SYSTEMS SECURITY	3			
CYS 405	PENETRATION TESTING AND ETHICAL HACKING	3			
--- ---	FREE ELECTIVE	3			
BUS / ECON	BUS 201 OR ECON 101	3			
ARAB 203	ARABIC WRITING III	2			
	TOTAL	17		**TOTAL**	10

CCIS COURSES
COMPUTER SCIENCE

CS 101 COMPUTER PROGRAMMING I

Credits: 4 (4,0,2) Prerequisite: None

This course is an introduction to the craft of programming, techniques, practices and applications. By the end of the semester, students should have a basic understanding of programming concepts and constructs such as variables, numbers, strings, assignments, sequential versus selective execution, nesting loops, functions, arrays, reference parameters, etc. Furthermore, the student should have understood the importance of a structured approach to software development. The course includes lab sessions that take place once a week. Lab projects involve programming exercises that could be typically completed during the lab session. Additionally, students are required to work in team to develop and demonstrate an interactive program as a class project.

CS 102 COMPUTER PROGRAMMING II

Credits: 3 (3,1,0) Prerequisite: CS 101

The purpose of this course is to develop an intermediate understanding of object-oriented programming concepts. Some sophisticated uses of object-oriented concepts (inheritance, polymorphism, encapsulation, multiple inheritance using interfaces, and Java Collection Frameworks, Generic classes and Recursion) and techniques for building systems of multiple interacting components. This course teaches students how to develop Java applications. Students will develop and test Java applications (typically) using Netbeans IDE.

CS 175 COMPUTER ORGANIZATION AND DIGITAL LOGIC

Credits: 3 (3,1,0) Prerequisite: None

This course explores computer organization and digital logic. It covers an introduction to information representation and number systems. It introduces students to Boolean algebra and its usage in manipulation and minimization of Boolean functions. It covers combinational circuit analysis and design, multiplexers, decoders, comparators, and adder, in addition to, basic topics in computer organization such as CPU, Memory, Cache Memory, and Bus systems.

CS 202 COMPUTER APPLICATIONS FOR BUSINESS (For non-IS and CS majors)

Credits: 3 (2,0,2). Prerequisite: at least 60 credit hours.

CS 202 introduces computer concepts within the framework of business applications. We will use integrated software packages “Microsoft Office 2010” (Excel, Project, and Visio) to build a solid foundation in the use of spreadsheets (decision making), Project Management and Visio for graphical modeling. The main purpose of this course is to provide students with computer application skills especially in the areas of accounting, finance and marketing. Applications covered include electronic spreadsheet and its macros, statistical analysis, graphics and presentation tools and Project Management. In addition, students must be proficient in using drawing tool Microsoft Visio.

CS 210 DATA STRUCTURE AND ALGORITHMS

Credits: 3(3,1,0) Prerequisite: CS 102

This course introduces classical data structures and algorithms with emphasis on performance using asymptotic analysis of algorithms and complexity classes. Fundamental data structure includes lists, stacks, queues, heaps, trees, and graphs. The student will learn a variety of algorithms for searching, sorting, traversing and hashing. In addition, the course covers the application of these data structures and algorithms in real-life problems and implementing them in modern programming languages.

CS 223 COMPUTATIONAL LINEAR ALGEBRA

Credits: 3(3,1,0) Prerequisite: MATH 113

The course introduces the fundamentals of linear algebra in the context of computer science applications. Includes matrices, determinants, systems of linear equations, Euclidean vector spaces, real vector spaces, inner product spaces of linear equations, eigenvalues and eigenvectors, linear transformation, applications. The course represents basic concepts and techniques from linear algebra that will be required in later courses in areas such as machine learning, computer graphics, and quantum computing.

CS 225 SOFTWARE ENGINEERING: DESIGN AND DEVELOPMENT

Credits: 3(3,1,0) Prerequisite: CS 210

This course serves as an introduction to software engineering design and development. Students learn various aspects of software development stages. The following aspects of software are reviewed as well: process models, life cycles, requirement analysis, documentation, design methodologies, development strategies and project management. The course emphasizes the development of high-quality software using software engineering best principles.

CS 285 DISCRETE MATHEMATICS FOR COMPUTING

Credits: 3(3,1,0) Prerequisite: CS 101

The course introduces the students to mathematical logic, fundamental discrete structures, such as: sets, functions, relations and graphs. Mathematical reasoning and various counting techniques are also covered in the course. Throughout the course students apply the techniques they learn to simplified practical problems. This course prepares the students for higher level computing courses where these concepts are of fundamental importance

CS 311 DESIGN AND ANALYSIS OF ALGORITHMS

Credits: 3(3,1,0) Prerequisite: CS 285,CS210

Introduction to fundamental techniques for designing and analyzing algorithms, including asymptotic analysis; divide-and-conquer algorithms and recurrences; greedy algorithms; data structures; dynamic programming; graph algorithms; and randomized algorithms. Finally, the course will introduce the different classes of complexity theory, which explain the intractability of some problems and a classification of problems by their complexity.

CS 313 INTRODUCTION TO DATA SCIENCE

Credits: 3(3,1,0) Prerequisite: CS 210, STAT101

The Introduction to Data Science course will survey the foundational topics in Data science, Data Manipulation, Data Analysis with Statistics and Machine Learning. Students will learn Python, Python data structures including Numpy, Pandas and visualization techniques using Matplotlib and seaborn. Students will learn how to apply basic machine learning concepts for classifications and regression. Student will work on a group project to apply learned concepts on one of the many Data Science applications.

CS 315: PARALLEL AND MULTICORE PROGRAMMING

Credits: 3(3,1,0) Prerequisites: CS175, CS 210

This course is an introduction to parallel programming with a special emphasis on the techniques appropriate to multicore systems. The topics covered include performance analysis and tuning, data and task parallelism, synchronization techniques, shared data structures, and load balancing. The course features many hands-on practice sheets plus a term project.

CS 320 PROGRAMMING LANGUAGES: CONCEPTS AND PARADIGMS

Credits: 3(3,1,0) Prerequisite: CS210

CS 320 provides undergraduate students with an overview of the theoretical foundations of programming languages. Topics covered in this course include: introduction to different language paradigms (functional, logic and object-oriented), the history of programming languages and language design principles, syntax specification (using BNF, EBNF, and syntax diagrams), central semantic issues of programming languages (declaration, allocation, evaluation). Major languages covered include C, C++, Smalltalk, Java, Ada, ML, Haskell, Scheme, and Prolog; many other languages are discussed more briefly.

CS 330 INTRODUCTION TO OPERATING SYSTEMS

Credits: 3(3,1,0) Prerequisites: CS 210, CS175

This course explores the evolution, services, and structures of operating systems. It covers the basic concepts of operating system design and implementation and management of system resources such as Central Processing Unit (CPU), Input/output (I/O) devices, memory, and software. Examples given from modern operating systems such as Unix and Windows-driven operating systems are scrutinized.

CS 331 DATA COMMUNICATIONS AND COMPUTER NETWORKS

Credits: 3(3,1,0) Prerequisite: CS 175, CS 210

This course introduces the basic concepts in data communication and computer networks. Topics covered include the nature of data communication, characteristics of computer networks, the ISO-OSI network protocol layers, topologies and models, error detection and correction codes, and network performance considerations.

CS 336 NETWORK OPERATIONS AND ADMINISTRATION

Credits: 3(3,0,1) Prerequisite: CS 331

This course surveys network operations and provides an overview of TCP/IP network

management; network planning, configuring, installing and diagnosing; network monitoring, analysis and performance tuning; network security; users accounts; and managing system resources.

CS 340 INTRODUCTION TO DATABASE SYSTEMS

Credits: 3(3,1,0) Prerequisite: CS 210

This course provides a solid background in database systems and modeling. Following an overview of database systems (definitions, evolution, architecture and applications), data models are examined. Topics discussed include entity-relationship and relational data models; database query languages and standards; and database design: theory and methodology.

CS 355 COMPUTER ARCHITECTURE

Credits: 3(3,1,0) Prerequisite: CS 175

This course broadly surveys the design of computer systems and components. Topics covered: basic processor organization, data and control paths of the simple processor, hardwired and micro-programmed control unit, RISC vs. CISC organization. Abstract views of the computer at various levels are examined in terms of high-level language, OS, assembly language and internal register-transfer level (RTL), I/O organization, memory hierarchy, and virtual memory.

CS 360 COMPUTER GRAPHICS

Credits: 3(3,1,0) Prerequisite: CS 210

This course introduces the basic elements and algorithms of computer graphics including design, creation and manipulation of two and three dimensional graphics. Students will learn about the different application domains of graphics. Students will produce computer graphics applications, which represent, manipulate and display geometric information.

CS 370 INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Credits: 3(3,1,0) Prerequisite: CS 210

This course provides an overview of Artificial Intelligence (AI) – definitions, evolutions and applications. Subject areas looked at include: problem solving; knowledge representation methods and techniques; structures and strategies for state space search; and heuristic search techniques.

CS 375 WEB DESIGN

Credits: 3(3,0,1) Prerequisite: SE 371

This course introduces intermediate to advanced web page design techniques. Topics include effective use of graphics, fonts, colors, navigation tools, advanced markup language elements, as well as a study of bad design techniques. Upon completion, students are able to employ advanced design techniques to create functional and high impact web pages.

CS 381 SYSTEMS PROGRAMMING

Credits: 3(2,0,2) Prerequisite: CS 330

The course covers the following topics: systems programming at hardware or OS levels; software for systems programming (e.g., C++ builder); Shell/ Windows Interface programming; design and implementation of applications/ system's functions; and debugging tools.

CS 387 MOBILE APPLICATIONS DEVELOPMENT

Credits: 3(3,0,1) Prerequisite: SE 371

This course examines the principles of mobile application design and development. Students will learn application development on the Android platform. Topics will include characteristics of Mobile Applications; Designing user interfaces; Displaying multimedia contents such as pictures, menus, audio and video; data handling; network techniques and location based services. Students are expected to work on a project that produces a professional-quality mobile application. Projects will be deployed in real-world applications.

CS 391 COMPUTER AND NETWORK SECURITY

Credits: 3 (3,0,1) Prerequisite: CS 331

This course covers major aspects of computer and network security. It starts with standardized definition of security, including security services, security attacks, then proceeds to cover many cryptographic techniques such as ciphers, hash functions, MAC techniques, key management approaches, digital certificates and digital signatures. The course also covers Network security domain, where network vulnerabilities are addressed through email security, Secure Socket Layer (SSL), IP Security (IPsec) and wireless network security topics. Operational security and policies are introduced by presenting ethical hacking, intrusion detection/prevention systems and firewalls.

CS 412 THEORY OF COMPUTATION

Credits: 3(3,1,0) Prerequisite: CS 285

This course probes the theory of computation. Topics covered include: foundations – sets, relations and languages; finite automata, Turing machines; decidability and computability, computational complexity and NP-completeness.

CS 415 INTERNET OF THINGS (IoT)

Credits: 3(3,0,1) Prerequisites: Senior Level

The course on Internet-of-Things (IoT) aims at preparing students to the IoT market in Saudi Arabia, given the increasing demand for engineers on this hot emerging area. The course presents the latest technologies, architecture, communication protocols and trends that are contributing to the evolution of the Internet-of-Things (IoT). It will provide an overview of IoT applications and its impact on the world economy. The course will also cover the technologies and cyber-physical platforms that transform the physical world into digital data thus allowing to connect physical things to the Internet. We will also cover networking and communication protocols (LoRa, SigFox, NarrowBand IoT, 5G, IEEE 802.15.4) that represent the major actors in the IoT ecosystem. IoT streaming applications used in IoT will be reviewed such as Apache Kafka and MQTT protocol. A major part of the course will deal with developing real-world applications prototypes for the Internet-of-Things from the sensor design to the end-user applications to solve existing problems in

the society. At the end of this course, the student will be ready to enter the IoT market or making his own startup.

CS 417 BUSINESS INTELLIGENCE

Credits: 3(3,0,1) Prerequisites: CS 340

This course looks at the theory and practice of data mining applied for business. The course focuses on practical applications of data mining for business decision making. Generally available tools (e.g., EXCEL) are used to illustrate the development of decision support applications for the modern data-centric enterprise. Lessons are given on general theoretical and implementation principles; specific methods and techniques; and critical reviews of case-studies. Other topics include: data analysis methods, data mining processes, descriptive modeling, and predictive modeling for business decision-making.

CS 421 COMPILER CONSTRUCTION

Credits: 3(3,0,1) Prerequisite: CS 320

The course is designed to cover the basic techniques that underlie the practice of Compiler Construction. Examination of the theory and tools involved includes: lexical analysis and parsing; syntax-directed translation; intermediate and machine code generation; optimization; and run- time organization.

CS 425 ADVANCED SOFTWARE ENGINEERING

Credits: 3(3,0,1) Prerequisite: CS 225

This course goes deeper into the ever-expanding realm of Software Engineering (SE). Following a brief review of SE fundamentals, these software areas are probed: qualities and principles; verification and validation processes; tools and environments; testing and maintenance; interactive technology; and project management.

CS 427 NETWORK DESIGN

Credits: 3(3,0,1) Prerequisite: CS 331

The course surveys an extensive range of topics relating to Network Design (ND). Items covered include: ND basic concepts, terminology and methodology; ND evaluation – characterizing the existing network, network traffic, and identifying customer needs; logical ND – designing network topology, models for naming addressing, selecting bridging, switching and routing protocols, developing network security and network management strategies; physical ND – selecting technologies and devices for campus networks, selecting technologies and devices for enterprise networks, testing optimizing and documenting the network design.

CS 430 ADVANCED OPERATING SYSTEMS

Credits: 3(3,0,1) Prerequisite: CS 330

This course takes in-depth looks at advanced concepts in operating systems. Items under inspection include: management of concurrent processes; security and protection of computer systems; distributed file systems; and virtual memory. Ample opportunity is provided for hands- on experiments in programming concurrent applications.

CS 431 EMERGING TOPICS IN NETWORK SECURITY

Credits: 3(3,0,1) Prerequisite: CS 391

This course gives opportunities to cover emerging security topics in different types of networks. Such networks include the Internet and its related network services such as Interne of Things (IoTs) and cloud services. Also, the security of Mobile networks (4G & beyond) and Wireless networks could be studied. Wireless networks whether infrastructure-based such as WLAN (IEEE802.11), WiMax (IEEE802.16) or infrastructure less networks such as Mobile Ad hoc Networks (MANET) could be also considered. Moreover, security protocols of Wireless Sensor Network (WSN) could be investigated, threats and hacking methodologies, recent security challenges and solutions will be discussed and critically analyzed. Students are expected to gain practical experience and skills through the use of several security tools/simulators.

CS 435 DISTRIBUTED SYSTEMS

Credits: 3(3,0,1) Prerequisites: CS 330, CS 331

This course introduces students to distributed and parallel systems. It covers process distribution and communication, data distribution, scheduling, concurrency, resource sharing, synchronization, naming, abstraction and modularity, failure handling, distributed programming models, distributed file systems, virtualization, and the use of instrumentation, monitoring and debugging tools in problem solving. Students will learn the design and implementation of today's popular distributed system paradigms, such as Google File System and MapReduce.

CS 437 INTRODUCTION TO PARALLEL COMPUTING

Credits: 3(3,0,1) Prerequisite: CS 311

This is an introductory course on Parallel Computing – definitions, evolutions, applications, and issues. Items of interest are: models of parallel computers – parallel architectures, idealized parallel computer, and interconnection networks; basic Communications operations; performance and scalability of parallel systems; MPI/PVM standard; and parallel applications and programming.

CS 439 SEARCH ENGINES AND INFORMATION RETRIEVAL

Credits: 3(3,0,1) Prerequisite: CS 340

The course explores the basic and advanced techniques for extraction of information from search engines. Items of interest relating to information retrieval examined in the course include: web search engines; dictionaries and tolerant retrieval; indexing and invert indexing algorithms; index construction and compressions; handling imprecise matching, ranking and relevance; and machine learning and numerical methods in information retrieval, classification, clustering, web search and challenges.

CS 440 DATABASE MANAGEMENT SYSTEMS: DESIGN AND IMPLEMENTATION

Credits: 3(3,0,1) Prerequisite: CS 340

The course presents an overview of database management systems. Subject areas discussed feature: logical data models - relational, hierarchical, network and object-oriented; architectures and components of relational database management systems.

CS 447 BUILDING E-COMMERCE SYSTEM

Credits: 3(3,0,1) Prerequisite: SE 371

This course looks at building E-Commerce (EC) systems. After defining the nature of e-commerce systems, the following topics are investigated: EC systems architecture – technical and logistic requirements; user interactions – shopping cart model, handling orders and payments; deploying, marketing and managing e-shops; and security issues.

CS 451 ENTERPRISE RESOURCE PLANNING

Credits: 3(3,0,1) Prerequisites: CS 340,

This course introduces the major techniques relating to Enterprise Resource Planning (ERP) systems. ERP software systems provide comprehensive management of financial, manufacturing, sales, distribution and human resources across the enterprise. The course starts by showing how ERP systems provide the foundation for a wide range of e-commerce based processes including web-based ordering and order tracing, inventory management, and built-to-order goods. It explains how ERP systems work, and highlights their role. CS 451 is a useful course for business students interested in information systems management.

CS 455 COMPUTATIONAL BIOINFORMATICS

Credits: 3(3,0,1) Prerequisite: CS 311

This course presents an overview of important applications of computers to solve problems in biology. The aim of the course is to introduce CS students to modern computational practices in bioinformatics. Major topics covered are computational molecular biology (analysis of protein and nucleic acid sequences), biological modeling and simulation (including computer models of population dynamics, Bioinformatics databases, BLAST). The course concentrates on the algorithmic details of bioinformatics.

CS 460 INTRODUCTION TO ROBOTICS

Credits: 3(3,0,1) Prerequisites: CS 210, Instructor consent

The objective of this course is to present the fundamental concepts to develop autonomous mobile robots. The course covers the basics of mobile robots control, kinematic theory, navigation, localization and perception. The course will consolidate the understanding of theoretical concepts through practical hands-on activities pertaining to robot programming and deployment. The aim of this course is to give PSU students, in computer science and engineering colleges, an opportunity to discover the world of robotics, and design and develop real robotic applications.

CS 462 TOPICS IN MULTIMEDIA

Credits: 3(3,0,1) Prerequisite: SE 371

The course introduces techniques and applications relating to multimedia. The two major subject areas of focus are: 1) a study of the principles and practice in computer-enhanced multimedia, and 2) skills development for making multimedia products by incorporating graphics, animation, video, sound and text.

CS 465 MACHINE LEARNING

Credits: 3(3,0,1) Prerequisite: CS311, , Instructor consent

This course covers the theory and practice of machine learning from a variety of perspectives. It explores topics such as learning decision trees, neural network learning, statistical learning methods, genetic algorithms, Bayesian learning methods, explanation-based learning, and reinforcement learning. Typical assignments include neural network learning for face recognition and decision tree learning from databases of credit records.

CS 469 DIGITAL IMAGE PROCESSING

Credits: 3(3,0,1) Prerequisites: CS 210, Instructor consent

The course deals with image processing and its applications. Students learn the fundamental concepts of visual perception and image acquisition, together with the basic techniques of image manipulation, segmentation and coding, and a preliminary understanding of pattern recognition and computer vision.

CS 470 ADVANCED ARTIFICIAL INTELLIGENCE

Credits: 3(3,0,1) Prerequisite: CS 370

The course delves deeper into Artificial Intelligence with the focus on knowledge-based systems and natural language processing.

CS 471 DATA MINING

Credits: 3(3,0,1) Prerequisites: STAT 101, CS 340

This course introduces Data Mining (DM). DM topics range from statistics to machine learning to database, with a focus on analysis of large data sets. The course requires students to apply data mining techniques in order to complete a project involving real data.

CS 476 NATURAL LANGUAGE PROCESSING

Credits: 3(3,0,1) Prerequisites: CS 320, Instructor consent

The course is about natural language processing – representation, parsing, natural language generation, and the interaction between long-term knowledge and understanding with a focus on Arabic language processing.

CS 478 CONTENT MANAGEMENT

Credits: 3(3,0,1) Prerequisites: CS 340, SE 371

This course examines the application of the principles of information retrieval and information architecture to the design of websites and intranets. Topics discussed include: emerging role of the web content manager; organizing information for retrieval; usability design in websites; project management; conceptual design in web site development; and accessibility issues.

CS 483 COMPUTER ARABIZATION

Credits: 3(3,0,1) Prerequisite: Instructor consent

The course explores the use of Arabic in Computer Science in the areas of layout, characters shapes and processing, Arabic code pages, Arabic language structure and features.

CS 489 SELECTED TOPICS IN COMPUTER SCIENCE
Credits: 3(3,0,1) Prerequisite: Instructor consent

This course covers topics in the computer science discipline not covered by other CS courses. Students are encouraged to propose topics for this course.

CS 492 CO-OP [COOPERATIVE EDUCATION]
Credits: 10 Prerequisite: Department consent

The Co-Op is a career related professional program available to all Computer Science students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to CCIS students who have accumulated the requisite number or more credits. The Co-Op option counts for 10 credit hours (CRs) for practical onsite experience over a 7 month period, i.e. spanning one semester and a summer.

CS 493 CYBERSECURITY CAPSTONE PROJECT
Credits: 3(1,0,3). Prerequisite: Department approval

This course allows the student to practice on what they have learned during previous security courses. Student will be able to design and build a security , to tackle a cybersecurity problem in an existing system. The course gives the student an opportunity to work with an organization to assess possible risks and study its security needs based on its organizational objectives and business requirements. Alternatively, a student can cooperate with sponsors or be part of a research group.

CS 494 INDUSTRY LINK
Credits: 3 Prerequisite: Department consent

This is an elective course that follows a pre-planned program administered by the university/ department. It involves spending a specified period of time in several local – and possibly outside – computing institutions and companies and/or enrolling in their orientation programs.

CS 495 EMERGING TOPICS IN COMPUTER SCIENCE
Credits: 3(3,0,1) Prerequisite: Instructor consent

This course covers topics in the computer science discipline that recently gained innovative attention in Computer Science. Students are encouraged to propose topics for this course.

ETHC 303 ETHICAL AND SOCIAL ASPECTS OF COMPUTING
Credits: 3(3,0,0) Prerequisite: Junior level

The course concentrates on the theory and practice of computer and information ethics. It covers the basics of ethical decision-making and emphasizes group work and presentations. Topics studied in the course include risk and reliability, privacy, info-war, crime, access, business ethics, copyright, patents, and more.

CS 498 SENIOR PROJECT I
Credits: 1(1,0,0) Prerequisite: Completion of 88 credit hours + Department Consent

This course provides students with an opportunity to integrate their academic work into

the design and development of a significant computing product that showcases the students' skills. Students are expected to work in teams addressing problems and challenges from the real world and develop appropriate computing-based solutions. The senior project would be taken in two parts. The problem description and theoretical foundations of possible solutions would be documented in the first part.

CS 499 SENIOR PROJECT II

Credits: 3(3,0,0) Prerequisite: CS 498

Senior Project II is the continuation of the Senior Project I course. In this part, students would complete the senior project addressing the development, implementation, testing, experimental evaluation, and deployment phases of their work. The final project would be demonstrated to an audience.

CYS 401 FUNDAMENTALS OF CYBERSECURITY

Credits: 3(3,0,1) Prerequisite: Junior Level

Fundamentals of Cybersecurity was designed to help students develop a deeper understanding of modern information and system protection technology and methods. This course is designed to provide an overview and understanding of established cyber security strategy as well as provide students with the opportunity to engage in strategic decision making in the context of cyber security.

CYS 402 SECURE SOFTWARE DEVELOPMENT

Credits: 3(3,0,1) Prerequisite: CYS401

This course covers the concepts of software assurance and the fundamentals of the secure software lifecycle as it relates to software development. The course will discuss the secure software development lifecycle phase by phase establishing and discussing best practices in these phases. Students will experience the secure software lifecycle process by developing concrete artifacts and practicing in a lab environment.

CYS 403 SECURITY RISK MANAGEMENT, GOVERNANCE & CONTROL

Credits: 3(3,0,1) Prerequisite: CYS401

This course will focus on establishing the balance between business use and safeguard policies. It will concentrate on preparation of Security policies as well as implementing and assessing them based on business process. This course extends to focus on auditing, governance, internal controls, and standards contained within policy frameworks. It will look at processes to evaluate risks (Risk Assessment) based on current legislation, practices, and techniques.

CYS 404 CYBER-PHYSICAL SYSTEMS SECURITY

Credits: 3(3,0,1) Prerequisite: CS331 and CYS401

This course provides an introduction to security issues relating to various cyber-physical. The goal is to expose students to fundamental security primitives specific to cyber-physical systems and to apply them to a broad range of current and future security challenges. Students will work with various tools and techniques used by hackers to compromise computer systems, smart technologies, IoT devices, embedded systems or otherwise interfere with normal operations. This course will offer insights from cutting edge applied research about the strategies and techniques that can be implemented to protect against

cyber-attacks.

CYS 405 PENETRATION TESTING AND ETHICAL HACKING

Credits: 3(3,0,1) Prerequisite: CS331 and CYS401

This course covers the study of techniques used by hackers to break into an organization. It gives students the necessary tools to have a hacker mind-set in order to protect network against future attacks. It gives an introduction to the principles and techniques associated with cybersecurity practice known as penetration testing or ethical hacking. This course illustrates the differences between ethical and unethical penetration testing, describes and explains the phases of a penetration test including planning, reconnaissance, scanning, exploitation, post-exploitation, and result reporting. Students will be able to apply different tools and methods to conduct penetration tests for the purpose of discovering how system vulnerabilities can be exploited and learn to avoid such problems.

DMS 310 INTRODUCTION TO VISUAL DESIGN

Credits: 3(3,0,1) Prerequisite: Junior Level

This course introduces visual design through formal studies. This course covers understanding of elements and principles of design, typography, composition and branding. Students are able to produce designs such as posters, brochures, branding and package design.

DMS 322 FOUNDATIONS OF INTERACTIVE DIGITAL MEDIA

Credits: 3(3,0,1) Prerequisite: Junior Level

The course covers fundamental of digital media elements such as text, graphics, sound, video and animation. Students will be involved in planning, designing and producing interactive digital media projects in this course. Students will learn various types of digital media authoring tools that can be used in the development of digital media application. This course offers the opportunity for students to develop their design and development skills in digital media areas.

DMS 327 3D MODELING AND DESIGN

Credits: 3(3,0,1) Prerequisite: Senior Level

This course offers students an introduction to the 3D design and modeling. The course covers related techniques needed to create 3D objects and scenes from modeling to rendering, including modeling with primitives and polygons, texturing, lighting and animation. Students will produce contents related to basic 3D objects and animation.

DMS 332 NETWORK-BASED MULTIMEDIA

Credits: 3(3,0,1) Prerequisite: CS 331

This course introduces the principles of designing multimedia applications then explores recent technology advances to support multimedia application over networks. Major topics include multimedia compression, protocols and standards for audio/video streaming, VoIP, and the quality of service techniques. It discusses the real time protocols such RTP and addresses the challenges of media streaming over wireless network and security issues.

DMS 351 PRINCIPLES OF ANIMATION

Credits: 3 (3,0,1) Prerequisite: Junior Level

This course covers the basic concepts of animation, principles of animation and animation production process. This course also exposes students to a variety of animation techniques. Students will create short animation productions both in traditional (cel animation, rotoscoping, clay and stop-motion animation) and 2D computer generated animation with correct sketching, storyboarding, key framing, character design, background layouts, timing and sound effects.

DMS 401 MEDIA AUTHORING TOOLS AND TECHNOLOGIES

Credits: 3 (3,0,1) Prerequisite: DMS 322

This course introduces the principles, concepts and terminology of digital media authoring systems. The underlying development engines are described and how these systems work are explained. The most current digital media authoring tools and technologies are surveyed and critically assessed. With the above background in place, students are given the opportunity to use these tools and technologies to author complex multimedia content related to real life applications with an emphasis on creativity, design and team work.

DMS 426 GAME DEVELOPMENT

Credits: 3(3,0,1) Prerequisite: Senior Level

This course emphasis on the theoretical and practical foundations of game development. Students will learn the art of designing a game concept and documentation, developing the game prototype and testing the game ideas. Upon completion of this course, students will be able to apply game design and development techniques to bring a game from design through production to playable experience. Topics covered include: history of digital games, game design and development methodologies, game engines and tools.

DMS 471 BUILDING RICH WEB APPLICATIONS

Credits: 3(3,0,1) Prerequisite: SE 371

This course makes a transition from traditional GUI IDEs to entirely programmatic environment using a framework such as FLEX/MXML and an ECMA script-compliant scripting language. The course makes use of Communications protocols to transfer serialized data and objects to enhance the speed of Communications between Rich Internet Applications (RIAs) and server. The course helps students learn how to use programming methodologies such as interfaces to create layers of abstraction and design patterns – e.g. MVC, Observer or Singleton to deal with common requirements for web-based, interactive media applications. The end point of the course is for students to design sophisticated RIAs.

DMS 495 EMERGING TOPICS IN DIGITAL MEDIA

Credits: 3(3,0,1) Prerequisite: Senior Level

The course provides a platform for students to develop a portfolio of work based on the current demand from the industry. Students will work collaboratively to develop a project in digital media areas throughout the course. Students are exposed to the cycle of digital

media application developments with real users. Appropriate tools and techniques will be covered upon execution of the project.

SE 201 INTRODUCTION TO SOFTWARE ENGINEERING

Credits: 3 (3,0,1) Prerequisite: CS 102+ ENG 103

This course introduces software engineering as a discipline. It starts by a general introduction on the evolution of the discipline, then introduces the software life-cycle, software processes, requirement analysis, design, implementation, testing. This course covers the various Software Development Processes and requires students to appreciate and apply various aspects of software engineering principles. Classical Software Development Life-cycles from waterfall, spiral, incremental, evolutional to recent lean, agile methods and component based systems are covered. Special emphasis is put on quality and process improvement models such as CMM, PSP and TSP. This introduction is complimented by practical training to develop some of the basic software engineering skills. The skills covered include planning, estimation, scheduling, testing, debugging, quality management …etc

SE 311 SOFTWARE REQUIREMENTS ENGINEERING

Credits: 3 (3,0,1) Prerequisite: SE 201 for SE students, CS 225 for CS students

This course covers software requirements, applied to a variety of types of software. It also covers techniques for discovering and eliciting requirements, requirements documentation standards, languages and models for representing requirements, analysis and validation techniques, including need, goal, and use case analysis, requirements in the context of system engineering, specifying and measuring external qualities: performance, reliability, availability, safety, security, etc., and requirements management: handling requirements changes, traceability, resolving feature interactions.

SE 322 SOFTWARE DESIGN AND ARCHITECTURE

Credits: 3 (3,0,1) Prerequisite: SE 311

This course covers software design in-depth. Study of fundamental design concepts, design notations, and architectural design methods for large-scale software systems; several design methods are presented and compared, with examples of their use; Concepts such as information hiding, data abstraction, concurrency, and object-oriented software construction are discussed in depth; Students participate in a group project on software design.

SE 353 BUILDING SECURE SOFTWARE SYSTEMS

Credits: 3 (3,1,0) Prerequisite: CS331

This course studies approaches, mechanisms, and tools used to make software systems more secure. The course will motivate the study by discussing common software security dangers (e.g., buffer overflow attacks, cross-site scripting). The majority of the course will be divided into four main modules: architectural approaches to building secure software (e.g., confinement, virtual machines, trusted computing); software analysis (e.g., static analysis and testing, model checking); language-based approaches to building secure software (e.g., type systems, proof-carrying code); and run-time enforcement of security policies (e.g., dynamic taint analysis).

SE 365 HUMAN COMPUTER INTERACTION

Credits: 3 (3,1,0) Prerequisite: CS 210

This course covers the introduction to the concepts underlying the design of human-computer interaction: usability, direct manipulation, systematic design methods, user conceptual models and interface metaphors, design languages and genres, human cognitive and physical ergonomics, information and interactivity structures, design tools and environments. This course teaches how HCI affects the overall design of interfaces. The course covers four major parts: the foundation, the design process, models and theories, and think outside the box.

SE 371 WEB ENGINEERING

Credits: 3(3,0,1) Prerequisite: CS 210

This course covers the major aspects of full-stack web applications development. Full-stack web development involves the design and development of front-end and back-end applications in web framework. The course starts with a short introduction on the web applications architecture and underlying technologies, including HTML (focus on HTML 5), Cascading Style Sheets (CSS) and JavaScript for client-side scripting. The course then proceeds to cover server side Web application development in depth, including the multi-tier development model (data tier, business tier, presentation tier), web database development, authentication, navigation, working with XML, state management, caching, ...etc.

SE 381 EMBEDDED SOFTWARE ENGINEERING

Credits: 3 (3,0,1) Prerequisite: SE 322, CS 355

This course discusses software practice and methods for embedded systems, focused around state machines as a unifying formalism for understanding software, hardware, and systems. It also discusses embedded software requirements, specification, analysis, principles of embedded software architecture and design, design of concurrent systems, and testing and analysis techniques for embedded systems.

SE 401 SOFTWARE QUALITY ASSURANCE AND TESTING

Credits: 3 (3,1,0) Prerequisite: SE 322

This course is designed to give an understanding of the key concepts and principles in creating and managing successful software testing to meet specific requirements using best practices of software quality assurance. Topics covered include software quality assurance, testing process, test design & coverage techniques and testing strategy. Best practice strategies in object-oriented software testing and web application are also discussed. An overview of test automation methods and tools is also covered.

SE 403 SIGNAL PROCESSING SYSTEMS

Credits: 3 (3, 0, 1). Prerequisite: CS 210

Digital signal processing (DSP) systems have been enabled by the advances in very-large scale-integrated (VLSI) technologies. New DSP applications constantly impose new challenges on VLSI implementations. These implementations must satisfy real-time constraints imposed by the applications and must fit increasingly stringent area and power envelope. This course will survey methodologies needed to design efficient and high-performance custom or semi-custom VLSI systems for DSP applications. The primary focus

of the course is on design of architectures, algorithms, and circuits, which can be operated with small area and low power consumption to deliver a high speed and functional performance.

SE 407 MICROPROCESSOR BASED SYSTEMS

Credits: 3(3, 0, 1) Prerequisite: CS 355

This course is focused on the principles and practices of modern embedded systems design. It will focus on computer architecture beyond the CPU, fundamentals of the hardware/software interface, techniques for sensing and controlling the physical world, and a few other topics. Introduction to microprocessors as embedded devices. Emphasizes Input/Output techniques, interrupts, real-time operation, high-level code debugging and interfacing to various types of sensors and actuators.

SE 409 CLOUD COMPUTING

Credits: 3 (3,0,1) Prerequisite: CS 331, SE 322

This course will give students a theoretical foundation and hands-on experience with the various technologies of the cloud computing paradigm. The course will cover topics related to cloud infrastructure and software stack, programming models, underlying distributed storage layers, as well as Virtualization. Students will also be exposed to various cloud frameworks and libraries.

SE 411 SOFTWARE CONSTRUCTION

Credits: 3 (3,0,1) Prerequisite: SE 401

This course will provide students with an in-depth study of software construction. Topics include basic theory of grammars and parsing, use of parser generators, software construction fundamentals (minimizing complexity, anticipating change, constructing for verification and standards in construction), managing construction (construction models, construction planning and construction measurement), practical considerations (construction design, construction languages, coding, construction testing, reuse, construction quality, configuration management, security, automation, and integration), and techniques for handling concurrency and inter-process communication.

SE 413 SOFTWARE SYSTEM MODELLING

Credits: 3 (3,0,1) Prerequisite: SE 322

This course examines the underlying concepts and latest topics in software models. This course considers many of the standard models for representing sequential and concurrent systems, such as state machines, algebras, and traces. It shows how different logics can be used to specify properties of software systems, such as functional correctness, deadlock freedom, and internal consistency. Concepts such as composition mechanisms, abstraction relations, invariants, non-determinism, inductive definitions and de-notational descriptions are recurrent themes throughout the course. This course provides the formal foundations for the other core courses. Notations are not emphasized, although some are introduced for concreteness. Examples are drawn from software applications.

SE 415 GROUP DYNAMICS AND PROFESSIONAL PRACTICE

Credits: 3 (3,0,1) Prerequisite: SE 322

This course contributes to the domain of Group Dynamics (GD) in Software Engineering (SE). Student will learn how to identify the Group Dynamics (GDs) within a traditional and global software development environment. It also introduces the SE Professional Practice as one of the fifteen knowledge areas of Software Engineering Body of Knowledge (SWEBOK) which states that SE professional practice is concerned with the knowledge, skills, and attitudes that software engineers must possess to practice SE in a professional, responsible, and ethical manner. This course covers issues related with professionalism, GDs, psychology and communication skills.

SE 417 AGENT BASED SOFTWARE ENGINEERING

Credits: 3 (3,0,1) Prerequisite: SE 322

This course begins with an overview of the agent systems and software agents. Then it focuses on agent system architecture and infrastructure from a software engineering viewpoint, including: requirements for agent-based systems, modeling and design of agent-based systems, development process for agent-based systems. Topics such as agent architecture, communication, knowledge sharing, computing and uncertainty management are discussed. Studying society of agents and models of agency follows. Finally, a perspective on a methodology for agent-oriented software engineering and standards are presented.

SE 420 AGILE SOFTWARE ENGINEERING

Credits: 3 (3,0,1) Prerequisite: Senior level

This course is an introductory course to agile software development methodologies. It explores theory, tools, and techniques for the practices of the agile approach. Students will gain hands-on experiences in agile software development through projects dealing with various aspects of agile development.

SE 421 SOFTWARE METRICS

Credits: 3 (3,0,1) Prerequisite: Senior Level

This course covers concepts of the pervasive system attributes: reliability, efficiency, maintainability, reusability, etc., software quality management processes, software complexity and measures, software process measures, product measures and resource measure, validation of software measures, software measures and measurement theory, measuring, monitoring and controlling reliability, and software quality tools.

SE 422 SOFTWARE MAINTENANCE AND EVOLUTION

Credits: 3 (3,0,1) Prerequisite: SE 401

This course provides students with a common understanding of software maintenance principles and software evolution. Key issues in software maintenance, maintenance process, techniques for maintenance, software maintenance tools, maintenance and Reengineering, reverse engineering, and refactoring.

SE 423 SOFTWARE ENGINEERING PROJECT MANAGEMENT

Credits: 3 (3,0,1) Prerequisite: Junior Level

This course covers the main knowledge areas of project management (time, cost, quality, scope, risk, human resources, communications, etc.) by focusing on software projects. It also covers project planning, cost estimation, earned-value analysis techniques and scheduling, project management tools, factors influencing productivity and success, productivity metrics, analysis of options, risk management and dynamic adjusting of project plans, planning for change, management of expectations, software contracts and intellectual property, approaches to maintenance and long-term software development, standards in project management, such as ISO10006, ISO12207, along with CMM model will be also discussed. Case studies of real industrial projects will be discussed.

SE 430 SOFTWARE PROCESSES & PROCESS IMPROVEMENTS

Credits: 3 (3,0,1) Prerequisite: SE 401

Developing reliable software on time and budget is a challenging issue for many organizations. A software process improvement focus offers the organization a better chance for success. In this course, software process improvement methods, models and techniques will be studied with a focus on software development practice. Topics that are covered in the course range from how to assess software development organizations capability to how an organization can take advantage of change artistry.

SE 436 SERVICE ORIENTED ARCHITECTURES

Credits: 3 (3,0,1) Prerequisite: SE 322

This courses covers service oriented architectures. The main purpose of this course is to introduce the major concepts and technologies relating to service oriented architectures. This includes the core architecture, main principles of service orientation, service oriented analysis, service oriented design, and business process design.

SE 444 FORMAL METHODS AND MODELS IN SOFTWARE

Credits: 3 (3,0,1) Prerequisite: Senior Level

This course is an introduction to the use of formal methods for the specification, design, and automatic analysis of software systems. A variety of specification notations such as propositional and predicate logic, UML/OCL, temporal logic are presented. In addition, the course covers the application of analysis techniques including theorem proving, constraint checking, model checking using existing commercial and research tools.

SE 445 REAL-TIME SOFTWARE SYSTEMS

Credits: 3 (3,0,1) Prerequisite: CS 330

This course focuses on practical development and engineering approach issues of real-time software. It assumes a reasonable proficiency in at least one programming language (C, C++, Java, or others) and a basic understanding of the fundamental concept of object orientation. The course emphasizes architectural analysis rather than programming. Topics include: architectural aspects, scheduling and synchronization, design patterns for real-time software, and aspects of software verification and model checking.

SE 450 DESIGN PATTERNS

Credits: 3 (3,0,1) Prerequisite: SE 322

This course provides an in-depth view of design patterns. The course is suitable for software architects and developers who are already well-versed in software design. In addition, this course will offer continuous opportunities for learning the most advanced features of the object oriented languages and understanding some principles behind the design of its fundamental libraries.

SE 453 Software Security Architecture

Credits: 3 (2,0,2) Prerequisites: SE 353

This course will study architectural patterns for integrating security into software such as web applications. The course will cover several topics include: an overview of software security; integration of authentication, access control, and auditing into software; programming with symmetric-key and asymmetric-key cryptography, including key distribution and key management, use of certificates, and SSL/TLS; security mechanisms in modern runtime environments, e.g., code signing, code verification, access control, and security policies. Students will get hands-on experience designing and implementing secure software.

SE 465 ENTERPRISE ARCHITECTURES

Credits: 3 (3,0,1) Prerequisite: SE 322

This course focuses on the analysis and design of an enterprise in its current and future states from a strategy, business and technology perspective. This course provides an exposure to the foundational concepts of enterprise architecture. The course will provide students with the foundational knowledge needed to understand how EA serves to integrate strategic, business, and technology planning methods, which support enterprise-wide information technology resource development and governance in the context of business requirements.

SE 477 ADVANCED BUSINESS PROCESS MANAGEMENT

Credits: 3 (3,0,1) Prerequisite: SE 322 for SE students, Junior Level for CS students

Business Process Management (BPM) is a research field that focuses on improving performance by managing and optimizing its processes. This course addresses techniques and concepts required to map, implement, automate, and evaluate business processes. Components of BPM lifecycle will be discussed with emphasis on modeling, analysis and optimization of processes in a data-driven fashion. The course comprises concepts of Business Process Management such as Process modeling using BPMN, qualitative and quantitative analysis of processes models, Process Redesign and Automation. Additionally, the course focuses on introducing the importance of process mining into the discovery and improvements of processes. Students learn the three basic steps of Process Mining: discovery of models from data, conformance analysis of the resulting models with data, and performance analytics.

SE 480 SOFTWARE ANALYTICS

Credits: 3 (3,0,1) Prerequisite: Instructor consent

This course covers the application of selected statistical analysis, data mining, and machine

learning techniques to the area of Software Engineering. These methods and techniques are used to conduct stakeholder analysis, mining software repositories, trace retrieval, bug prediction, recommender systems in Software Engineering domains, and software process improvement techniques. The course demonstrates how these techniques can be used to enhance project management and other software engineering activities in software intensive systems and provides students with hands-on experience using them on real project data.

SE 489 SELECTED TOPICS IN SOFTWARE ENGINEERING

Credits: 3 (3,0,1) Prerequisite: Instructor consent

This course covers topics in the software engineering discipline not covered by other SE courses. Students are encouraged to propose topics for this course.

SE 492 Co-Op [COOPERATIVE EDUCATION]

Credits: 10 Prerequisite: Department consent

The Co-Op is a career related professional program available to all Software Engineering students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to CCIS students who have accumulated the requisite number or more credits. The Co-Op option counts for 10 credit hours (CRs) for practical onsite experience over a 7 month period, i.e. spanning one semester and a summer.

SE 495 EMERGING TOPICS IN SOFTWARE ENGINEERING

Credits: 3 (3,0,1) Prerequisite: Instructor consent

This course covers topics in the computer science discipline that recently gained innovative attention in Computer Science. Students are encouraged to propose topics for this course.

SE 499 SOFTWARE ENGINEERING CAPSTONE PROJECT

Credits: 10 Prerequisite: Instructor consent

Provides students, working in groups, with a significant project experience in which they can integrate much of the material they have learned in their program, including matters relating to requirements, design, human factors, professionalism, and project management. Students will develop a significant software system, employing knowledge gained from courses throughout the program. Includes development of requirements, design, implementation, and quality assurance. Students may follow any suitable process model, must pay attention to quality issues, and must manage the project themselves, following all appropriate project management techniques. Success of the project is determined in large part by whether students have adequately solved their customer’s problem.

INFORMATION SYSTEMS COURSES

IS 101 INTRODUCTION TO INFORMATION TECHNOLOGY (for Business Majors)*

Credits: 2 (2,1,0) * For non-IS and CS majors

This course examines computers and information technology and their applications in society. Topics covered include database applications and implications, telecommunications and networking, artificial intelligence, graphics, hypermedia, and multimedia. An outlook on computers current and future impacts on individuals, business, and society as a whole are discussed and students are introduced to simple Web page design and development tools.

IS 201 INTRODUCTION TO INFORMATION SYSTEMS

Credits: 3 (3,0,1) Prerequisites: BUS 101,CS101

This course presents an overview of information systems including the introduction to systems, development concepts, information technology, and application software. The major role of information systems (IS) is to support organizational personnel, regardless of their functional area or level in the organization. The main focus of this course is not merely learning the concepts of IS but the learning of the competitive advantage, timelines, and improvement in quality which information technology provides. The theory is complemented by practical work aimed at gaining basic proficiency with different types of widely used application software.

IS 205 BUSINESS PROCESS MANAGEMENT

Credits: 3(3,0,1) Prerequisite: IS201

This course introduces the key concepts and approaches to business process management and improvement. The focus is on understanding and designing business processes. Students learn how to identify, document, model, assess, and improve core business processes. Process design principles are introduced and the ways information technology can be used to manage, transform, and improve business processes are discussed. Students are exposed to challenges and approaches to organizational change, domestic and offshore outsourcing, and inter- organizational processes.

IS 231 SYSTEMS ANALYSIS AND DESIGN

Credits: 3 (3,0,1) Prerequisites: IS 201, CS 210

This course provides an overview of requirements engineering and system analysis using the object-oriented paradigm with an emphasis on the models provided by the Unified Modeling Language (UML). Topics include the structured approach to systems analysis and design; foundations and elements of the object-oriented approach; approaches to identifying classes and objects, requirements and system modeling using UML diagrams relevant for the analysis phase; system design concepts, introducing various architectural design approaches, and object- oriented design methodology. Students work on a team project that requires designing a system and making use of the available CASE tools such as Rational Software.

IS 241 DATABASE MANAGEMENT AND APPLICATIONS

Credits: 3(3,0,1) Prerequisites: IS 201, CS 210

The goal of this course is to understand the basic concepts of modern database systems

and to be able to apply these concepts effectively in planning, designing and querying a database. It also provides a further understanding of entity relationship (ER) diagrams and normalization. The Structured Query Language (SQL) command, used to maintain or query the database, is also covered. This course uses Oracle as an example of database management system (DBMS).

IS 311 WEB DEVELOPMENT

Credits: 3 (3,0,1) Prerequisite: IS241

This course covers the major aspects of web programming and development. It starts with a short introduction on the web architecture and underlying technologies, HTML, Cascading Style Sheets and JavaScript (Client Side Dynamic Content). The course then proceeds to cover Server Side Web Application Development in depth, including the multi-tier development model (data tier, business tier, presentation tier), web database development, authentication, and navigation.

IS 321 ENTERPRISE ARCHITECTURE

Credits: 3(3,0,1) Prerequisites: IS 205

This course explores the design, selection, implementation, and management of enterprise IT solutions. The focus is on applications and infrastructure and their fit with the business, specifically Services and Service Oriented Architectures. Students learn frameworks and strategies for infrastructure management, system administration, data/information architecture, content management, services computing, middleware, legacy system integration, system consolidation, software selection, the total cost of ownership calculation, IT investment analysis, and emerging technologies such as services and agents.

IS 336 USER INTERFACE DESIGN AND DEVELOPMENT

Credits: 3(3,0,1) Prerequisites: IS 231

The course introduces the principles, theories, methods, techniques, patterns, and processes behind a professional user interface design, prototyping, implementation, and evaluation. The topics covered in the course include: cognitive and perceptual constraints that affect user interface design, technologies used in user interface development, software architecture of graphical user interfaces (GUI), interface design methods, user-centered design, mobile and tablet design, interaction and navigation techniques, evaluation and testing, and interface usability evaluation. The practical part of the course is supported by lab sessions and uses GUI Tools for rapid prototyping of new style interfaces such as the “Metro Style”.

IS 344 DATA WAREHOUSING

Credits: 3(3,0,1) Prerequisite: IS 241

This course presents an overview of data warehousing. Topics include: data warehouse concept – definitions, evolutions, trends, and applications; developing a data warehouse – planning, designing, developing, implementing, Online Analytical Processing (OLAP); data warehouse – architectures, data access methods and data mining techniques; administering a data warehouse, and the role of data warehouses in organizations.

IS 351 CONFIGURATION MANAGEMENT AND QUALITY ASSURANCE

Credits: 3(3,1,0) Prerequisite: IS 321

This course covers main aspects of process and product quality assurance. Process quality assurance is covered under software configuration management (SCM) and product quality assurance is covered under dynamic and static testing. The course presents testing strategy, software reviews, and testing methods. In addition, it covers SCM as a related process and SCM functional areas of source code management, builds engineering, environment configuration, changes control, releases engineering and deployment are explained. After completion of this course, students will be able to prescribe testing and configuration management techniques for any kind of IT.

IS353 SOCIAL AND COLLABORATIVE COMPUTING

Credits: 3(3,1,0) Prerequisite: IS 311

This course focuses on the design of collaborative and social computing systems. The course introduces theories for analyzing collaboration both on-line and face-to-face. Student apply a theoretical perspective through the design of a social or collaborative application. Application domains include blogging, tagging, on-line communities, social recommending, ubiquitous computing, and collaboration in domestic settings. A significant portion of this course is comprised of a course project. The project could either be the design and implementation of a novel social computing system or an in-depth study of some existing social computing system.

IS 361 PROJECT MANAGEMENT

Credits: 3 (3,0,1) Prerequisites: IS 241

This course provides students with the knowledge and skills they need for planning, scheduling, monitoring, and controlling the process of developing information systems. Topics covered include project management concepts, project planning, risk analysis, WBS and task analysis, time scheduling, PERT and GANTT charts, project effort and cost estimation techniques, resources allocation, project tracking and monitoring, and process management methodologies.

IS 362 INTEGRATED INFORMATION SYSTEMS

Credits: 3 (3,0,1) Prerequisite: IS 241

This course introduces students to the enterprise resource planning (ERP) approach and how various business processes are integrated and how information systems can support this integration. Topics covered include business processes, functional information systems (financial, marketing, production, resources, inventory, and decision-making), models, frames, the technology used for integration, business integration, business processes, systems integration, enterprise resource planning systems and the role of real-time information in business management. Hands- on experience with enterprise systems, such as SAP R/3 is the integral part of this course.

IS 371 QUANTITATIVE ANALYSIS

Credit: 3 (3,0,1) **Prerequisite:** CS285, IS241

This course introduces fundamental quantitative methods used to analyze and solve various models of business problems. The course presents a set of fundamental theories and concepts including probability theory, time series, mathematical programming, and Markov processes. Such tools are then used model and solve a variety of business problems in finance, transportation, inventory management, etc. The course aims to equip the student with the necessary knowledge and skills allowing them to perform quantitative analysis to solve some business models including forecasting, distribution, transportation, and inventory models. After completing this course, students are expected to use software tools to solve these common management problems as well as constrained optimization problems. Students will gain some experience in applying these quantitative tools to real-world problems.

IS 372 HEALTH-CARE INFORMATION SYSTEMS

Credits: 3 (3,1,0) Prerequisite: IS 241

The course surveys the health-care information systems and applications. Items and topics examined include definitions, evolutions, trends, applications, computerized patient records, medical decision support systems, clinical information systems, Internet-based medical decision support systems, and computer-based training for health professionals.

IS374 TECHNOLOGY AND APPLICATION OF THE INTERNET OF THINGS

Credits: 3(3,0,1) Prerequisite: CS210

This course aims at a top-down as well as a bottom-up approach, thereby providing students with a comprehensive understanding of the IoT: from a technical viewpoint as well as considering the societal and economic impact of the IoT. This allows students to understand what IoT technologies are used for today, and what is required in certain scenarios. By looking at a variety of existing and developing technologies and architectural principles, students gain a better understanding of the types of technologies that are available and in use today and can be utilized to implement IoT solutions. Finally, students will be given the opportunity to apply these technologies to tackle scenarios of their choice in teams, using an experimental platform for implementing prototypes and testing them as running applications.

IS 433 INFORMATION SYSTEMS DEVELOPMENT

Credits: 3(3,0,1) Prerequisite: IS 231

This course is essentially practical in nature. Students are given opportunities to design and construct an operational information system for a real-life application using a unified development process (e.g. RUP: Rational Unified Process), using an object-oriented programming environment, and using the necessary development CASE tools. Guided by the instructor, students work in teams to complete a major development project applying previously learned knowledge in other courses. The projects are presented in class using demonstration and presentation tools.

IS 434 SYSTEM TESTING AND QUALITY ASSURANCE

Credits: 3(3,0,1) Prerequisites: IS 231

This course is designed to give an understanding of the key concepts and principles in creating and managing successful software testing to meet specific requirements using best practices of software quality assurance. Topics covered include software quality assurance, testing process, test design & coverage techniques and testing strategy. Best practice strategies in object- oriented software testing and web application are also discussed. An overview of test automation methods and tools is also covered.

IS 435 DYNAMIC WEBSITE DEVELOPMENT WITH GRAPHICS

Credits: 3 (3,0,1) Prerequisite: IS 311

This course has two main objectives. The first objective is to introduce visual principles as the basis for graphic design in order to develop a sound foundation that enables students to cater to stakeholder's requirements of communication using business logos, website graphics, and colors. The second objective is to enable the students to develop and combine the expertise of visual communication with dynamic website development. The course contents are specially designed to produce experts for graphics and website design industry with skills in constructing interactive Graphical User Interfaces, design, and development of creating graphics for websites and dynamic website development.

IS 442 INFORMATION RETRIEVAL SYSTEMS

Credits: 3(3,0,1) Prerequisites: IS 241, STAT 101

This course looks at traditional and web-based information retrieval (IR) techniques. Items covered include IR concepts, basic IR models, vector-space retrieval, textual document tokenization, indexing, organization, and classification, stemming, statistical text representation, text categorization and clustering, query languages, and web search techniques.

IS 446 KNOWLEDGE DISCOVERY AND DATA MINING

Credits: 3(3,0,1) Prerequisites: IS 241, STAT 101

This course introduces students to the fundamental techniques and practical tools used for transforming corporate data into business intelligence. Topics covered include: terminology, importance, techniques, such as: Online Analytical Processing (OLAP) systems, artificial neural networks (ANN), rule-based systems (RBS), fuzzy logic (FL), machine learning (ML), classification trees, classification and regression trees (CART Algorithm), and applications.

IS 448 CLOUD COMPUTING AND BIG DATA ANALYTICS

Credits: 3(3,0,1) Prerequisites: IS 371

This course has a mainly practical approach dealing with the related technologies to the creation of Big Data Analytics applications on the Cloud. The students will learn the principles and the state of the art of large-scale distributed computing in a service-based model. Students will study how scale affects system properties, models, architecture, and requirements. Regarding principles, this course looks at how scale affects systems properties, issues (such as virtualization, availability, locality, performance, and adaptation), system models, architectural models, environment and application

requirements (such as fault tolerance, content distribution). In the laboratory sessions of this course, the students will gain a practical view of the latest in Cloud technology to implement a prototype that meets a business idea created by a student. The students will begin by building an essential toolbox to get started in the Cloud. They will later have to practice with APIs, the doors in the Cloud.

IS 461 INNOVATIONS AND TECHNOLOGIES

Credits: 3(3,1,0) Prerequisites: IS 241

This course discusses innovative technologies and examines how some of them have fundamentally reshaped modern organizations and societies. To better appreciate this, the technologies, methods, and practices of developing new innovations are investigated and critiqued. The objective of the course is to showcase how innovative ways to communicate and collaborate lead to new efficiencies and business opportunities.

IS463 APPLIED DATA SCIENCE

Credits: 3(3,0,1) Prerequisites: IS 241, STAT101

Modern organizations deal with huge amount of complex multisource data that may contain useful evidence. The decision makers may face real problems to analyze such data to come out with accurate decisions. Therefore, applied data sciences are there to help leaders analyze the data and extract valuable indicators for decision-making purposes. This course provides the students with the essential knowledge, as well as, the practical skills of applied data sciences to be used in various business domains; and it will incorporate the statistical skills, programming skills such as Python, and machine-learning algorithms, to enhance the hands-on skills of students.

IS 464 COMPUTATIONAL FINANCE

Credits: 3 (3,1,0) Prerequisites: ACC101, FIN301

This is an applied course where students apply their computational knowledge and skills to build and solve non-trivial financial models and systems. The course is project-based and addresses real-life problems in finance. Models and problems are covered case by case. After covering the theoretical components, students proceed to analyze, design and implement the solutions.

IS 469 CYBERSECURITY EMERGING CHALLENGES

Credits: 3(3,0,1) Prerequisite: CS331

This course focus the emerging challenges in a computing-based discipline that involve technology, people, information, and processes to enable assured operations and to support the growing need for forensic activities in a contest, adversarial environment. Security considerations of cloud computing. Digital forensics including the recovery and investigation of material found in digital devices, often in relation to computer crime. Security implications for information technologies enabled and controlled by software and influenced by the supply chain.

IS 470 INFORMATION SYSTEMS SUSTAINABILITY

Credits: 3(3,1,0) Prerequisites: IS 361

Environmental, economic, and societal challenges are affecting the sustainability of many communities around the globe. Information systems are also affected with these factors. Thus, one of the organizations' concerns is considering the sustainability. This course introduces students to the sustainability fundamentals in information systems. It includes

topics on Green IS, Smart Cities, and the Information Economy. The course helps the students to explore and evaluate different issues related to green IS solutions through case-based scenarios and to propose proper solutions for these issues.

IS 472 DECISION-SUPPORT AND INTELLIGENT SYSTEMS

Credits: 3(3,0,1) Prerequisites: IS 231, BUS 101

This course surveys knowledge-based and expert systems and their uses as organizational decision-making tools. Topics covered include: decision theory, organizational systems, unstructured problem solving, modeling techniques such as linear programming, forecasting, and, simulation, system construction, fundamental techniques for developing knowledge-based or expert decision support systems, inference engines, knowledge engineering, knowledge acquisition, rule-based systems, group decision support systems, executive information systems.

IS 474 BUSINESS PROCESS MODELING

Credits: 3(3,0,1) Prerequisite: IS 231

The course explores both the theory and practice of business process modeling (BPM). It begins by providing an initial foundation of knowledge on the elements of the business process. This is followed by discussions of the elements and aspects of building BPM models: notation, context diagrams, data flow, verification, and validation. Extensive examples of business process models from real-life situations - complemented by tips and techniques - are integrated into the course to stimulate and provoke thought about the functionality and improvements of BPMs.

IS 478 INFORMATION SYSTEMS SECURITY

Credits: 3(3,0,1) Prerequisite: CS330,CS331

The course aims to provide the knowledge of the basic principles of computer security, focusing on system elements. This course provides students with the necessary level of skills and knowledge in the areas of information security that they will need to function within an organization. The focus is to review concepts, theory, methodologies and techniques incorporating industry standards and practices with a focus on confidentiality, availability, and integrity aspects of information systems discussed in the IS security literature and current practice. Students will undertake case studies exercises using the University's computing facilities and laboratories to provide them with a better understanding of computerized security techniques used in practice. The course covers fundamentals of authentication, and encryption technologies in a networked environment, in particular in the wide-area internet environment. The main emphasis of the course is the management of information systems security efforts.

IS 487 EMERGING TOPICS IN INFORMATION SYSTEMS

Credits: 3 (3,0,1) Prerequisite: Consent of Instructor

This course covers topics that recently gained attention in information systems. All computing fields are very dynamic and from time to time, some new technologies and even disciplines pop up.

IS 489 SELECTED TOPICS IN INFORMATION SYSTEMS

Credits: 3(3,0,1) Prerequisite: Consent of Instructor

This course covers topics in the information systems discipline, which are not covered by other information systems courses. The students are encouraged to propose topics for this course.

IS 490 INTERNSHIP IN INFORMATION SYSTEMS

Credits: 3 Prerequisite: Advisor consent

Students spend 2 months (around 300 working hours) in an approved company or institute. Students, with assistance from the Co-Op Office and CS Departmental approval, find internships.

IS 492 CO-OP [COOPERATIVE EDUCATION]

Credits: 10 Prerequisite: Department consent

The Co-Op is a career related professional program available to all Computer Science students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to CCIS students who have accumulated the requisite number or more credits. The Co-Op counts for 10 credit hours (CRs) for practical onsite experience over a 7 month period, i.e. spanning one semester and a summer.

IS 494 INDUSTRY LINK

Credits: 3 Prerequisite: Department Consent

This elective course follows a pre-planned program administered by the university / department. It involves spending a specified period of time in several local – and possibly outside – computing institutions and companies and/or enrolling in their orientation programs.

IS 498 SENIOR PROJECT I

Credits: 1 Prerequisite: Instructor consent + completion of 90 credit hours

This is an information system application development project applying previously learned concepts and methods, substantial and suitable in nature under the supervision of a faculty member. The senior project consists of a sequence of two courses: IS 498 and IS 499. In IS 498, the student is typically expected to study a problem, analyze and determine the requirements, and design the solution for a system to be developed in an information system environment or a business programming environment.

IS 499 SENIOR PROJECT II

Credits: 3 Prerequisite: IS 498

This course is a continuation of IS 498. The student is expected to carry the management information system application construction, integration, testing, evaluation and tuning, delivery, and user training.

COURSE DESCRIPTIONS BUSINESS COMPUTING AND E-COMMERCE (IS-BCE) TRACK

BCE 409 E-BUSINESS SYSTEMS IMPLEMENTATION

Credits: 3 (3,0,1) Prerequisites: IS 241

The primary objective of this course is to introduce concepts, tools and approaches to electronic business. Further, the subject will help the students to develop skills to manage businesses in the digital world. The course will cover the foundations of E-Business systems and infrastructure required to set up an E-business. In addition, the course will focus on the functional areas enabled by E-Business such as Value Chain, ERP and SCM highlighting the significance of CRM and business intelligence in E-Business Systems. The course provides a balanced approach including concepts from technology and management. Hands-on experience with enterprise systems, such as SAP S/4 Hana, is an integral element of the course.

BCE 437 BUSINESS AND MARKETING ASPECTS OF E-COMMERCE SYSTEMS

Credits: 3 (3,1,0) Prerequisites: BCE409, MKT301

The focus of this course is on the business and marketing aspects of e-Commerce systems. The course starts with an overview of the business strategies, planning, and logistics for setting up an e-Commerce system. After that, the course discusses strategic marketing analysis, marketing planning, and the complexities of marketing decisions. An important component of the course considers the utilization of Search Engines and Internet Marketing.

BCE 447 VISUAL MERCHANDISING

Credits: 3 (3,0,1) Prerequisites: BCE 409 , MKT 301

The course will teach students to use Mockshop and a virtual 3D store modeling software package, to conceptualize and design store interior, layout, fixtures, lighting, signs, merchandising planograms. Students will learn in deep on understanding of visual merchandising concepts, theories, planning, strategies, techniques, store image, and target market. At the end of the course, students will be implementing the Virtual retail store.

BCE 473 ENTREPRENEURIAL STRATEGY

Credits: 3 (3,1,0) Prerequisite: BCE 409

This course examines entrepreneurial strategies for emerging ventures, growing ventures, sustainable growth in established ventures. The object of this progression is to acquaint students with the concepts and contexts of building new businesses, their relevance and application to organizations in today's economy; the formulation and application of new business strategies for both Independent startups and new ventures within existing organizations; and achieving innovation in existing established organizations through entrepreneurial strategies.

BCE 483 Business Intelligence and Analytics

Credits: 3 (3,0,1) Prerequisites: BCE409, IS371

An organization must constantly monitor, recognize and understand every aspect and every issue of its operations, its industry and the overall business environment, to

successfully compete in today's global business environment. This course focuses on business intelligence – an information technology approach to data collection and data analysis to support a wide variety of management tasks, from performance evaluation to trend spotting and policy making. Students learn analytical components and technologies used to create dashboards and scorecards, data/text/Web mining methods for trend and sentiment analysis, and artificial intelligence techniques used to develop intelligent systems for decision support. Students will learn participate in this course through class discussions, project preparation and presentation, and visual tool utilization.

COURSE DESCRIPTIONS CYBERSECURITY (IS-CYS) Track

CYS 401 FUNDAMENTALS OF CYBERSECURITY

Credits: 3(3,0,1) Prerequisite: Junior Level

This course is designed to provide the deeper understanding of modern information and system protection technology and methods to students. The course provides an overview and understanding of established cybersecurity strategies and offers students the opportunity to engage in strategic decision making in the context of cybersecurity.

CYS 402 SECURE SOFTWARE DEVELOPMENT

Credits: 3(3,0,1) Prerequisite: CYS401

This course covers the concepts of software assurance and the fundamentals of the secure software lifecycle as it relates to software development. The course will discuss the secure software development lifecycle phase by phase establishing and discussing best practices in these phases. Students will experience the secure software lifecycle process by developing concrete artifacts and practicing in a lab environment.

CYS 403 SECURITY RISK MANAGEMENT, GOVERNANCE & CONTROL

Credits: 3(3,0,1) Prerequisite: CYS 401

This course will focus on establishing the balance between business use and safeguard policies. It will concentrate on preparation of Security policies as well as implementing and assessing them based on business process. This course extends to focus on auditing, governance, internal controls, and standards contained within policy frameworks. It will look at processes to evaluate risks (Risk Assessment) based on current legislation, practices, and techniques.

CYS 404 CYBER-PHYSICAL SYSTEMS SECURITY

Credits: 3(3,0,1) Prerequisite: CS 331 and CYS 401

This course provides an introduction to security issues relating to various cyber-physical. The goal is to expose students to fundamental security primitives specific to cyber-physical systems and to apply them to a broad range of current and future security challenges. Students will work with various tools and techniques used by attacker to compromise computer systems, smart technologies, IoT devices, and embedded systems or otherwise interfere with normal operations. This course will offer insights from cutting edge applied research about the strategies and techniques that can be implemented to protect against cyber-attacks.

CYS 405 PENETRATION TESTING AND ETHICAL HACKING

Credits: 3(3,0,1) Prerequisite: CS331 and CYS401

This course covers the study of techniques used by hackers to break into an organization. It gives students the necessary tools to have a hacker mind-set in order to protect network against future attacks. It gives an introduction to the principles and techniques associated with cybersecurity practice known as penetration testing or ethical hacking. This course illustrates the differences between ethical and unethical penetration testing, describes

and explains the phases of a penetration test including planning, reconnaissance, scanning, exploitation, post- exploitation, and result reporting. Students will be able to apply different tools and methods to conduct penetration tests for the purpose of discovering how system vulnerabilities can be exploited and learn to avoid such problems.

COLLEGE OF ENGINEERING [CE]

INTRODUCTION

The College of Engineering (CE) programs are designed to prepare qualified and competent engineers for the local, regional and international job markets. The College has crafted a dynamic strategic plan designed to deliver quality programs that reflect excellence and leadership in higher education in Saudi Arabia and the region.

The contents and structures of the programs are comparable to those offered by leading universities in the region and worldwide. In addition, the programs are designed in accordance to the recommendations of the leading professional association (IIE - Institute of Industrial Engineers) and in compliance with the requirements of international accreditation agencies including ABET (Accreditation Board for Engineering and Technology).

All programs lead to an Engineering Bachelor of Science degree after the successful completion of the respective curricula requirements of 138 credit hours. The duration of study is four years in addition to the preparatory year program. Lastly, these programs are guided by the following vision and mission of the College of Engineering.

VISION

The College of Engineering aspires to be a college at the forefront of quality engineering education and applied research.

MISSION

The College of Engineering aims to provide its students with a stimulating, sound education and training in all of its degree programs.

CE DEGREE PROGRAMS

- Bachelor of Science in Communications and Networks Engineering [CME]
- Bachelor of Science in Construction Engineering Management [EM]
- Bachelor of Science in Production and Manufacturing Engineering Management [PME]
- Bachelor of Science in Civil and Environmental Engineering [CEE]
- Bachelor of Science in Electrical Engineering [EE]

GRADUATION REQUIREMENTS

To obtain a bachelor's degree, students must satisfy the requirements related to credits, grade point average, program of study, experiential/community link, and other courses within the maximum period that is specified in the PSU Undergraduate Rules and Regulations. The requirements are as follow:

- Pass the Preparatory Year program
- Complete the credits required by the respective major
- Earn an overall cumulative grade point average (GPA) of at least 2.0 (out of 4.0)
- Earn a major grade point average (GPA) of at least 2.0 (out of 4.0)
- Satisfy PSU university requirements
- Satisfy CE college requirements
- Satisfy Program requirements
- Satisfy Experiential Learning /Community Link requirements (e.g., Co-Op, internship, senior project, etc)

Structure of Undergraduate Academic Programs

The structure of undergraduate academic programs consists of the following elements:

- **University Requirements:** set of core academic subjects that all PSU students in a college must take.
- **College Requirements:** set of courses designed to meet the specific needs of individual colleges
- **Program Requirements:** set of courses designed to meet the specific needs of individual degree programs
- **Major or Field of Specialization Requirements:** set of core subjects that constitute the main areas of knowledge in a particular field of specialization of each academic degree
- **Electives:** a discrete number of courses allotted in each academic degree that can expand the students' knowledge in their fields of specialization or to broaden the range of their intellectual pursuits
- **Experiential Learning or Community Link:** set of programs or activities targeted to enrich the students' knowledge through practical experience, observations of real work behaviors, and hands-on application of knowledge gained from classroom lectures and discussions to actual situations such as solving real organization problems and concerns
- **Language of Instruction:** except for those subjects that are devoted to the study of the Arabic Language and Islamic Studies, the medium of instruction at PSU is English.

CE Degree Programs

Students seeking a degree in the CE must take a minimum of 138 credits according to the framework illustrated in the CE program table below.

Number of Credits	CME	EM
University Requirements	23	23
College Requirements	29	29
Program Requirements	77	80
Approved Electives	9	6
Total	138	138

The CE curricular design is composed of four types of courses as described above: University, College|Department, Program, and Elective. All CE degree programs share the same list of university requirements, but differ in the composition of college|department and program requirements. Below are the College of Engineering University Required Courses.

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

DEPARTMENT OF COMMUNICATIONS AND NETWORKS ENGINEERING
BS IN COMMUNICATIONS AND NETWORKS ENGINEERING

[BS IN COMMUNICATIONS AND NETWORKS ENGINEERING (Communications)]
[BS IN COMMUNICATIONS AND NETWORKS ENGINEERING (Networks)]

INTRODUCTION

The Communications and Networks revolution has enhanced the quality of life of all over the globe the past two decades. Advances in the Communications and Networks are not only developing rapidly, but they have become part of the fabric of life throughout the world. The demand for well-qualified engineers in Communications and networks is tremendous and growth in that job market is expected to continue in the foreseeable future as societies and governments become more dependent on technology in general and on Communications and networks in particular.

The Department of Communications and Networks [CME] at PSU offers students the opportunity to develop their knowledge and technical skills in this field. With emphases on creativity and innovation, the program prepares students to become self-learners and encourages them to pursue higher education in this rapidly advancing discipline. The department strives to work closely with the local community and to establish cooperative, and research links with Communications and networks industries in the country.

The Communications and Networks Engineering Department offers students the choice of two tracks to follow based their interests and personal objectives. These specialization tracks are:

- Communications Engineering
- Networks Engineering

A Bachelor of Science (BS) in Communications and Networks Engineering is awarded upon successful completion of 138 credit hours. There are 129 credits of common course work on both tracks.
Students are required to take 9 credits of technical electives in their respective tracks.

PROGRAM VISION

The Communications and Networks program aspires to graduate outstanding engineers capable of serving the local societies professionally by providing them with high quality and up-to-date engineering education.

PROGRAM MISSION

The Communications and Networks program aims to provide its students with the proper knowledge and expertise to produce graduates who will be successful professionals, be committed to lifelong learning, and to make positive contributions to their societies.

PROGRAM OBJECTIVES

- Prepare program graduates for advanced studies and successful professional careers in Communications engineering and networking
- Cultivate interest in life-long learning and professional growth in diverse career paths
- Impart a nuanced awareness and appreciation of the ethical, social, economic, and global aspects of the engineering practice

Program Learning Outcomes:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and conduct experiments, as well as to analyze 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 multi-disciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- possession of a 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

Career Opportunities

- Communications Engineer
- Networks Engineer
- Network Security
- Systems Design Engineer

Structure of the Program

The Communications and Networks Engineering undergraduate program has three components:

University Requirements	23	Credits
College Requirements	29	Credits
Program Requirements	77	Credits
Program Electives	9	Credits
Total	138	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

CME College Requirements

Course #	**TITLE**	**CRs**
CS 101	Computer Programming I	4
STAT 101	Intro to Probability and Statistics Theory	3
MATH 111	Calculus I	3
MATH 113	Calculus II	3
MATH 225	Differential Equations	3
PHY 105	Physics I	4
PHY 205	Physics II	4
ENG 301	English Technical Writing	3
ETHC 305	Ethical and Social Aspects of Engineering	2
	Total	29

COMMUNICATIONS | NETWORK ENGINEERING CORE & TRACK REQUIREMENTS

CME DEPARTMENT TRACKS AND CORE REQUIREMENTS

86 CREDITS: COMMUNICATIONSOR NETWORK TRACK ELECTIVES 9 | CME CORE 77 | CONSTRUCTIVE ELECTIVES 6					
COMMUNICATIONS | NETWORK TRACK ELECTIVE COURSES			CME CORE COURSES		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
COMMUNICATIONS ELECTIVES – choose 3			CME 111	LOGIC DESIGN FUNDAMENTALS	4
CME 451	WIRELESS COMMUNICATIONS	3	CME 112	ELECTRIC CIRCUIT AND ELECTRONICS	4
CME 452	MOBILE COMMUNICATIONS	3	CME 211	COMMUNICATIONS EMBEDDED SYSTEMS	3
CME 453	MICROWAVE COMMUNICATIONS	3	CME 241	SIGNALS AND SYSTEMS	3
CME 454	SATELLITE COMMUNICATIONS	3	CME 242	COMMUNICATIONS ENGINEERING FUNDAMENTALS	4
CME 455	CELLULAR NETWORKS	3	CME 243	ELECTROMAGNETICS I	3
CME 458	UNDERGRADUATE RESEARCH IN COMMUNICATIONS	3	CME 321	NETWORKING PRINCIPLES, PROTOCOLS & ARCH.	4
CME 459	SPECIAL TOPICS IN COMMUNICATIONS	3	CME 322	NETWORK ANALYSIS AND DESIGN	3
--- ---	APPROVED ELECTIVE FROM OTHER DEPARTMENTS	3	CME 341	ELECTROMAGNETICS II	3
	SUBTOTAL	9	CME 342	COMMUNICATIONS THEORY	3
or NETWORK ELECTIVES – choose 3			CME 343	COMMUNICATIONS SYSTEMS I	3
CME 431	WIRELESS SENSOR NETWORKS	3	CME 344	ANTENNA AND PROPAGATION	3
CME 432	INTERNET SECURITY	3	CME 421	INTERNET ENGINEERING AND WEB PROGRAMMING	3
CME 433	MOBILE AD-HOC AND SENSOR NETWORKS	3	CME 441	COMMUNICATIONS SYSTEMS II	3
CME 434	CRYPTOGRAPHY AND NETWORK SECURITY	3	CME 442	INFORMATION AND CODING THEORY	3
CME 438	UNDERGRADUATE RESEARCH IN NETWORKING	3	CME 492	CO-OP IN COMMUNICATIONS | NETWORK ENGR	10
CME 439	SPECIAL TOPICS IN NETWORKING	3	BUS 101	INTRODUCTION TO BUSINESS	3
--- ---	APPROVED ELECTIVE FROM OTHER DEPARTMENTS	3	CS 102	COMPUTER PROGRAMMING II	3
	SUBTOTAL	9	CS 210	DATA STRUCTURE AND ALGORITHMS	3
			EM 326	PROJECT MANAGEMENT	3
			MATH 215	ENGINEERING MATHEMATICS	3
			MATH 221	NUMERICAL ANALYSIS	3
				SUBTOTAL	77
	CME ELECTIVES SUBTOTAL	9		**TOTAL**	**86**

CME Communications | Networking Tracks Study Plan

Year 1 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
CS 101	Computer Programming I	4	CS 102	Computer Programming II	3
MATH 111	Calculus I	3	MATH 113	Calculus II	3
PHY 105	Physics I	4	PHY 205	Physics II	4
ENG 101	Intensive English Writing	3	BUS 101	Introduction to Business	3
ISC 101	Islamic Ethics	2	COM 201	Communications Skills	3
ARAB 101	Arabic Writing I	2	ARAB 103	Arabic Writing II	2
	Total	18		Total	18

Year 2 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
CME 111	Logic Design Fundamentals	4	CME 211	Communications Embedded Systems	3
CME 112	Electric Circuit and Electronics	4	CME 242	Communications Engineering Fundamentals	4
CME 241	Signals and Systems	3	CME 243	Electromagnetics I	3
MATH 215	Engineering Mathematics	3	MATH 225	Differential Equations	3
ENG 301	English Technical Writing	3	STAT 101	Introduction to Statistics and Probability	3
ARAB 203	Arabic Writing III	2	ISC 103	Islamic Economic System	2
	Total	19		Total	18

Co-Op Option

Year 3 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
CME 321	Networking Principles, Protocols & Arch.	4	CME 322	Network Analysis and Design	3
CME 341	Electromagnetics II	3	CME 344	Antenna and Propagation	3
CME 342	Communications Theory	3	CME ---	Elective I	3
CME 343	Communications Systems I	3	EM 326	Project Management	3
CS 210	Data Structures and Algorithms	3	ETHC 305	Ethical and Social Aspects of Engineering	2
ISC 105	Holy Quran Sciences	2	MATH 221	Numerical Analysis	3
			ISC 203	New Financial Transactions	2
	Total	18		Total	19

Year 4 **Semester 1** **Semester 2**

Course #	Title	CRs	Course #	Title	CRs
CME 421	Internet Engineering and Web Programming	3	CME 492	Co-Op in Communications Engineering (Continuation from Summer before)	10
CME 441	Communications Systems II	3			
CME 442	Information and Coding Theory	3			
CME ---	Elective II	3			
CME ---	Elective III	3			
PSY 101	Introduction to Psychology	3			
	Total	18		Total	10

- The Internship option is on hold.

DEPARTMENT OF ENGINEERING MANAGEMENT

(BS IN CONSTRUCTION ENGINEERING MANAGEMENT)
(BS IN PRODUCTION AND MANUFACTURING ENGINEERING MANAGEMENT)

Recent studies show that most engineers ultimately assume managerial positions, and that most spend a considerable part of their professional careers in a management or supervisory capacity. In a recent survey, conducted by the American Association of Engineering Societies, it was found that within ten years of the start of their careers, more than 50 percent of engineers find themselves in technical management positions, often without the benefit of formal training in management.

The Engineering Management (EM) is an interdisciplinary program that combines a set of strong science and engineering core courses along with specialized courses in engineering and project management skills. The Engineering Management Department offers students a choice of two different degree programs to follow based on their interests and personal objectives. The specialization programs are:

- Construction Engineering Management
- Production and Manufacturing Engineering Management

A Bachelor of Science (BS) in Engineering Management is awarded upon successful completion of 138 credit hours in each program. There are 79 credit hours of coursework common to both programs. Students take additional 30 credits of required courses and 6 credits of electives in their respective specializations.

BS IN CONSTRUCTION ENGINEERING MANAGEMENT

PROGRAM VISION

The Construction Management Program aspires to be among the leading programs in the Engineering Management field and prepare the next generation of leaders in the Construction Management discipline and related construction industries.

PROGRAM MISSION

The Construction Management Program aims to respond to the high demand in the construction industry of the Middle East for engineers equipped with managerial skills, techniques, and tools.

PROGRAM LEARNING OUTCOMES | THE ABILITY TO:

(a) apply knowledge of mathematics, science, and engineering
(b) design and conduct experiments, as well as to analyze and interpret data
(c) 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
(d) function on multidisciplinary teams
(e) identify, formulate, and solve engineering problems
(f) understand of professional and ethical responsibility
(g) communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and an ability to engage in life-long learning
(j) knowledge of contemporary issues
(k) use the techniques, skills, and modern engineering tools necessary for engineering practice

CAREER OPPORTUNITIES

- Construction Engineers/ Managers
- Project and Engineering Managers
- Facilities Engineers/ Managers
- Quality Control and Assurance Engineers/Managers
- Planning Engineers/ Managers

Structure of the Program

The Construction Engineering Management undergraduate program has three components:

University Requirements	23	Credits
College Requirements	29	Credits
Program Requirements	80	Credits
Program Electives	6	Credits
Total	138	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

EM College Requirements

Course #	Title	CRs
CS 101	Computer Programming I	4
STAT 101	Intro to Probability and Statistics Theory	3
MATH 111	Calculus I	3
MATH 113	Calculus II	3
MATH 225	Differential Equations	3
PHY 105	Physics I	4
PHY 205	Physics II	4
ENG 301	English Technical Writing	3
ETHC 305	Ethical and Social Aspects of Engineering	2
	Total	29

Engineering Management Core and Construction Requirements

86 Credits: EM Core 50 | Construction Program30 | Constructive Electives 6					
Engineering Management [EM] Core Courses			**Construction Program Requirements**		
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
EM 101	Engineering Drawing	2	**Construction Program**		
EM 203	Statics	3	EM 301	Surveying	3
EM 204	Strength of Materials	3	EM 303	Structures I	3
EM 205	Thermodynamics	3	EM 304	Reinforced Concrete	3
EM 206	Materials Science	3	EM 306	Soil Mechanics and Foundation	3
EM 208	Fluid Mechanics	3	EM 381	Construction Materials	3
EM 315	Management of Organizations and HR	3	EM 383	Building Construction	3
EM 317	Principles of Accounting and Finance	3	EM 384	Contracts, Specs and Quality Surveying	3
EM 327	Engineering Economy	3	EM 482	Construction Equipment and Methods	3
EM 347	Quality Management	3	EM 486	Cost management	3
EM 492	Co-Op in Engineering management	10	EM 488	Project Planning Management, Scheduling & Control	3
CHM 101	General Chemistry	4		Subtotal	30
CME 112	Electric Circuits and Electronics	4	**Construction Electives – choose 2**		
STAT 272	Applied Statistics for Engineers	3	EM 335	Operations Research	3
			EM 428	Special Topics in Engineering Management	3
			EM 448	Inventory Planning and Control	3
			EM 468	Industry Safety	3
			EM 471	Technology and Innovation Management	3
			EM 472	Knowledge Management	3
			EM 473	Energy Resources Management	3
			EM 474	Environmental Management	3
			EM 484	Construction Management	3
			BUS 373	Management Information Systems	3
				Subtotal	6
	Subtotal	50		**Total**	**86**

Construction Engineering Management Study Plan

Year 1

Semester 1			Semester 2		
Course #	**Title**	**CRs**	**Course #**	**Title**	**CRs**
CS 101	Computer Programming I	4	EM 101	Engineering Drawing	2
MATH 111	Calculus I	3	CHM 101	General Chemistry	4
PHY 105	Physics I	4	PHY 205	Physics II	4
ENG 101	Intensive English Writing	3	MATH 113	Calculus II	3
ISC 101	Islamic Ethics	2	COM 201	Communications Skills	3
ARAB 101	Arabic Writing I	2	ISC 103	Islamic Economic System	2
	Total	18		Total	18

Year 2

Semester 1			Semester 2		
Course #	**Title**	**CRs**	**Course #**	**Title**	**CRs**
EM 203	Statics	3	EM 204	Strength of Materials	3
EM 205	Thermodynamics	3	EM 208	Fluid Mechanics	3
EM 206	Materials Science	3	MATH 225	Differential Equations	3
CME 112	Electric Circuits and Electronics	4	STAT 272	Applied Statistics for Engineers	3
STAT 101	Introduction to Probability and Stats Theory	3	ISC 105	Holy Quran Sciences	2
ENG 301	English Technical Writing	3	ISC 203	New Financial Transactions	2
			ARAB 103	Arabic Writing II	2
	Total	19		Total	18

Year 3

Semester 1			Semester 2		
Course #	**Title**	**CRs**	**Course #**	**Title**	**CRs**
EM 301	Surveying	3	EM 304	Reinforced Concrete	3
EM 303	Structures	3	EM 306	Soil Mechanics and Foundation	3
EM 315	Management of Organizations and HR	3	EM 317	Principles of Accounting and Finance	3
EM 327	Engineering Economy	3	EM 384	Contracts, Specs and Quantity Surveying	3
EM 381	Construction Materials	3	ETHC 305	Ethical and Social Aspects of Engineering	2
EM 383	Building Construction	3	PSY 101	Introduction to Psychology	3
			ARAB 203	Arabic Writing III	2
	Total	18		Total	19

Co-Op Option

Year 4

Semester 1			Semester 2		
Course #	**Title**	**CRs**	**Course #**	**Title**	**CRs**
EM 347	Quality Management	3	EM 492	Co-Op in Engineering Management (Continuation from Summer before)	10
EM 482	Construction Equipment and Methods	3			
EM 486	Cost Management	3			
EM 488	Project Planning, Scheduling and Control	3			
EM 4--	Program Elective I	3			
EM 4--	Program Elective II	3			
	Total	18		Total	10

- The Internship option is on hold.

BS In Production and Manufacturing Engineering Management

Program Vision

The Production and Manufacturing Management Program aspires to be among the leading institutions in the Engineering Management discipline which prepares the next generation of industry leaders.

Program Mission

The Production and Manufacturing Management Program aims to respond to the current high demand in the industry of the Middle East for engineers equipped with managerial skills, techniques, and tools.

Program Learning Outcomes | The Ability to:

(a) apply knowledge of mathematics, science, and engineering
(b) design and conduct experiments, as well as to analyze and interpret data
(c) 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
(d) function on multidisciplinary teams
(e) identify, formulate, and solve engineering problems
(f) understanding of professional and ethical responsibility
(g) communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) recognition of the need for, and an ability to engage in life-long learning
(j) knowledge of contemporary issues
(k) use the techniques, skills, and modern engineering tools necessary for engineering practice

Career Opportunities

- Technology Engineers/Managers
- Knowledge Engineers/Managers
- Project and Engineering Managers
- Manufacturing Engineers/Managers
- Industrial Engineers/Managers
- Facilities Engineers/ Managers
- Quality Control and Assurance Engineers/Managers
- Planning Engineers/ Managers

STRUCTURE OF THE PROGRAM

The Production and Manufacturing Engineering Management undergraduate program has three components:

University Requirements	23	Credits
College Requirements	29	Credits
Program Requirements	80	Credits
Program Electives	6	Credits
TOTAL	138	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

EM College Requirements

Course #	TITLE	CRs
CS 101	Computer Programming I	4
STAT 101	Intro to Probability and Statistics Theory	3
MATH 111	Calculus I	3
MATH 113	Calculus II	3
MATH 225	Differential Equations	3
PHY 105	Physics I	4
PHY 205	Physics II	4
ENG 301	English Technical Writing	3
ETHC 305	Ethical and Social Aspects of Engineering	2
	Total	29

ENGINEERING MANAGEMENT CORE AND PRODUCTION REQUIREMENTS

86 CREDITS: EM CORE 50 | PRODUCTION Program 30 | PRODUCTION ELECTIVES 6					
ENGINEERING MANAGEMENT [EM] CORE COURSES			PRODUCTION PROGRAM REQUIREMENTS		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
EM 101	ENGINEERING DRAWING	2	**Production PROGRAM**		
EM 203	STATICS	3	EM 326	PROJECT MANAGEMENT	3
EM 204	STRENGTH OF MATERIALS	3	EM 335	OPERATIONS RESEARCH	3
EM 205	THERMODYNAMICS	3	EM 345	PRODUCTION PLANNING AND CONTROL	3
EM 206	MATERIALS SCIENCE	3	EM 346	LOGISTICS MANAGEMENT	3
EM 208	FLUID MECHANICS	3	EM 348	FACILITIES MANAGEMENT	3
EM 315	MANAGEMENT OF ORGANIZATIONS AND HR	3	EM 408	GENERAL ENGINEERING DESIGN	3
EM 317	PRINCIPLES OF ACCOUNTING AND FINANCE	3	EM 438	MODELING AND SIMULATION	3
EM 327	ENGINEERING ECONOMY	3	EM 458	PRODUCT DESIGN AND DEVELOPMENT	3
EM 347	QUALITY MANAGEMENT	3	EM 459	MANUFACTURING PROCESSES	3
EM 492	CO-OP IN ENGINEERING MANAGEMENT	10	BUS 373	MANAGEMENT INFORMATION SYSTEMS	3
CHM 101	GENERAL CHEMISTRY	4		SUBTOTAL	30
CME 112	ELECTRIC CIRCUITS AND ELECTRONICS	4	**PRODUCTION ELECTIVES – choose 2**		
STAT 272	APPLIED STATISTICS FOR ENGINEERS	3	EM 428	SPECIAL TOPICS IN ENGINEERING MANAGEMENT	3
			EM 448	INVENTORY PLANNING AND CONTROL	3
			EM 468	INDUSTRY SAFETY	3
			EM 469	HUMAN FACTORS AND WORK METHODS	3
			EM 471	TECHNOLOGY AND INNOVATION MANAGEMENT	3
			EM 472	KNOWLEDGE MANAGEMENT	3
			EM 473	ENERGY RESOURCES MANAGEMENT	3
			EM 474	ENVIRONMENTAL MANAGEMENT	3
				SUBTOTAL	6
	SUBTOTAL	50		**TOTAL**	**86**

PRODUCTION & MANUFACTURING ENGINEERING MANAGEMENT STUDY PLAN

YEAR 1 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CS 101	COMPUTER PROGRAMMING I	4	EM 101	ENGINEERING DRAWING	2
MATH 111	CALCULUS I	3	CHM 101	GENERAL CHEMISTRY	4
PHY 105	PHYSICS I	4	PHY 205	PHYSICS II	4
ENG 101	INTENSIVE ENGLISH WRITING	3	MATH 113	CALCULUS II	3
ISC 101	ISLAMIC ETHICS	2	COM 201	COMMUNICATIONS SKILLS	3
ARAB 101	ARABIC WRITING I	2	ISC 103	ISLAMIC ECONOMIC SYSTEM	2
	TOTAL	18		TOTAL	18

YEAR 2 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
EM 203	STATICS	3	EM 204	STRENGTH OF MATERIALS	3
EM 205	THERMODYNAMICS	3	EM 208	FLUID MECHANICS	3
EM 206	MATERIALS SCIENCE	3	MATH 225	DIFFERENTIAL EQUATIONS	3
CME 112	ELECTRIC CIRCUITS AND ELECTRONICS	4	STAT 272	APPLIED STATISTICS FOR ENGINEERS	3
STAT 101	INTRODUCTION TO PROBABILITY AND STATS THEORY	3	ISC 105	HOLY QURAN SCIENCES	2
ENG 301	ENGLISH TECHNICAL WRITING	3	ISC 203	NEW FINANCIAL TRANSACTIONS	2
			ARAB 103	ARABIC WRITING II	2
	TOTAL	19		TOTAL	18

YEAR 3 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
EM 315	MANAGEMENT OF ORGANIZATIONS AND HR	3	EM 326	PROJECT MANAGEMENT	3
EM 317	PRINCIPLES OF ACCOUNTING AND FINANCE	3	EM 346	LOGISTICS MANAGEMENT	3
EM 327	ENGINEERING ECONOMY	3	EM 347	QUALITY MANAGEMENT	3
EM 335	OPERATIONS RESEARCH	3	EM 348	FACILITIES MANAGEMENT	3
EM 345	PRODUCTION PLANNING AND CONTROL	3	BUS 373	MANAGEMENT INFORMATION SYSTEMS	3
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	ETHC 305	ETHICAL AND SOCIAL ASPECTS OF ENGINEERING	2
			ARAB 203	ARABIC WRITING III	2
	TOTAL	18		TOTAL	19

Co-Op OPTION

YEAR 4 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
EM 408	GENERAL ENGINEERING DESIGN	3	EM492	CO-OP IN ENGINEERING MANAGEMENT (CONTINUATION FROM SUMMER BEFORE)	10
EM 438	MODELING AND SIMULATION	3			
EM 458	PRODUCT DESIGN AND DEVELOPMENT	3			
EM 459	MANUFACTURING PROCESSES	3			
EM 4--	Program ELECTIVE I	3			
EM 4--	Program ELECTIVE II	3			
	TOTAL	18		TOTAL	10

- The Internship option is on hold.

BS IN CIVIL AND ENVIRONMENTAL ENGINEERING PROGRAM

PROGRAM VISION

The Civil and Environmental Engineering Program aspires to be among the leading programs in the Civil and Environmental Engineering field and prepare the next generation of leaders in the discipline and related industries.

PROGRAM MISSION

The Civil and Environmental Engineering Program aims to respond to the high demand in the Civil and Environmental industry of the Middle East for engineers capable of developing innovative approaches to solve civil and environmental engineering problems and enhance the quality of life.

PROGRAM LEARNING OUTCOMES:

Upon completion of the undergraduate program in Civil Engineering, our graduates are expected to have developed:

1. Ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

CAREER OPPORTUNITIES

- Civil Engineers.
- Environmental Engineer.
- Geotechnical Engineer.
- Planning Engineers/ Cost Estimators.
- Site Engineers.
- Structural Engineer
- Highway Engineer.
- Quality Control and Assurance Engineers.

STRUCTURE OF THE PROGRAM

The Communications and Networks Engineering undergraduate program has three components:

University Requirements	23	Credits
College Requirements	42	Credits
CAPSTONE COURSE/PROJECT (College requirement)	3	Credits
Program Requirements (Including 2 Technical Electives)	60	Credits
COOP/ INTERNSHIP (Program requirement)	10	Credits
TOTAL	138	Credits

- The Internship option is on hold.

UNIVERSITY REQUIREMENTS

REQUIRED COURSES IN ENGLISH			REQUIRED COURSES IN ARABIC		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ENG 101	INTENSIVE ENGLISH WRITING	3	ARAB 101	ARABIC WRITING I	2
COM 201	COMMUNICATIONS SKILLS	3	ARAB 103	ARABIC WRITING II	2
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	ARAB 203	ARABIC WRITING III	2
			ISC 101	ISLAMIC ETHICS	2
			ISC 103	ISLAMIC ECONOMIC SYSTEM	2
			ISC 105	HOLY QURAN SCIENCES	2
			ISC 203	NEW FINANCIAL TRANSACTIONS	2
	SUBTOTAL	9		SUBTOTAL	14
				TOTAL	**23**

COLLEGE REQUIREMENTS-(45 Credits):

A. Core Courses: (42 Credits)

Course		Credit
EE 101	COMPUTER PROGRAMMING FOR ENGINEERS	4
CEE 101	ENGINEERING DRAWING	3
CEE 205	INTRODUCTION TO ENGINEERING DESIGN	3
ENG 301	TECHNICAL WRITING AND TRANSLATION	3
EM 327	ENGINEERING ECONOMY	3
ETHC 305	ETHICAL AND SOCIAL ASPECTS OF ENGINEERING	2
PHY 105	PHYSICS I	4
CHM 101	GENERAL CHEMISTRY	4
MATH 111	CALCULUS I	3
MATH 113	CALCULUS II	3
PHY 205	PHYSICS II	4
MATH 225	DIFFERENTIAL EQUATION	3
STAT 101	INTRODUCTION TO PROBABILITY AND STATISTICS THEORY	3
	TOTAL	42

B. Capstone Course/Project: (3 Credits)

Course		Credit
CEE 490	SENIOR DESIGN PROJECT	3

CIVIL AND ENVIRONMENTAL ENGINEERING PROGRAM REQUIREMENTS

CIVIL AND ENVIRONMENTAL ENGINEERING PROGRAM REQUIREMENTS

CEE Core Courses			CEE Electives		
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
EM 203	STATICS	3	CEE 422	CONTRACTS, SPECIFICATIONS AND QUANTITY SURVEYING	3
CEE 202	DYNAMICS	3	CEE 423	CONSTRUCTION SAFETY	3
BIO 101	BIOLOGY	3	CEE 424	BIM CONSTRUCTION MANAGEMENT	3
Geo 201	GEOLOGY	3	CEE 425	HIGHWAY AND AIRPORT ENGINEERING	3
EM 301	SURVEYING	3	CEE 426	TRAFFIC ENGINEERING	3
CEE 322	HIGHWAYS AND TRANSPORTATION ENGINEERING	3	CEE 427	TRANSPORTATION SYSTEMS MANAGEMENT	3
CEE 323	CONSTRUCTION PROJECT MANAGEMENT	3	CEE 428	COST ENGINEERING: ESTIMATING, BUDGETING AND CONTROL	3
CEE 421	LEGAL ASPECTS OF ENGINEERING	3	CEE 429	PROJECT PLANNING, SCHEDULING AND CONTROL	3
CEE 241	INTRODUCTION TO ENVIRONMENTAL ENGINEERING	3	CEE 430	CONSTRUCTION EQUIPMENT AND METHODS	3
CEE 242	FLUID MECHANICS	3	CEE 441	ENERGY RESOURCES MANAGEMENT	3
CEE 341	ENGINEERING HYDROLOGY	3	CEE 442	ENVIRONMENTAL MANAGEMENT	3
CEE 261	STRUCTURAL ANALYSIS I	3	CEE 443	LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)	3
CEE 262	MECHANICS OF MATERIALS	3	CEE 444	SOLID WASTE MANAGEMENT	3
CEE 361	REINFORCED CONCRETE DESIGN I	3	CEE 446	AIR POLLUTION MANAGEMENT	3
CEE 362	SOIL MECHANICS & FOUNDATION	3	CEE 447	GROUNDWATER ENGINEERING	3
CEE 363	STEEL DESIGN I	3	CEE 463	DEEP FOUNDATIONS	3
CEE 461	STRUCTURAL ANALYSIS II	3	CEE 464	CONCRETE TECHNOLOGY	3

CEE 342	Environmental Engineering Processes	3	CEE 465	Assessment and Repair of Reinforced Concrete Structures	3
			CEE 466	Steel Design II	3
			CEE 467	Prestressed Concrete and Bridge Design	3
			CEE 468	Wind and Seismic Resistant Structures	3
			CEE 469	Soil Stabilization and Improvement	3
			CEE 470	Soil Mechanics II	3
	Total	**54**		**Total**	**69**

Civil and Environmental Engineering Study Plan

Year 1 **Semester 1** **Semester 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ENG 101	Intensive English Writing	3	ISC 101	Islamic Ethics	2
EE 101	Computer Programming For Engineers	4	COM 201	Communication Skills	3
PHY 105	Physics I	4	CEE 101	Engineering Drawing	3
CHM 101	General Chemistry	4	MATH 113	Calculus II	3
MATH 111	Calculus I	3	PHY 205	Physics II	4
			BIO 101	Biology	3
	Total	**18**		**Total**	**18**

Year 2 **Semester 1** **Semester 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ISC 103	Islamic Economic System	2	ISC 105	Holy Quran Sciences	2
ARAB 101	Arabic Writing I	2	Geo 201	Geology	3
CEE 205	Introduction To Engineering Design	3	CEE 242	Fluid Mechanics	3
CEE 241	Introduction To Environmental Engineering	3	CEE 261	Structural Analysis I	3
MATH 225	Differential Equation	3	CEE 202	Dynamics	3
STAT 101	Introduction To Probability And Statistics Theory	3	ARAB 103	Arabic Writing Ii	2
EM 203	Statics	3	CEE 262	Mechanics Of Materials	3
	Total	**19**		**Total**	**19**

Year 3 **Semester 1** **Semester 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ISC 203	New Financial Transactions	2	ETHC 305	Ethical And Social Aspects Of Engineering	2
ENG 301	English Technical Writing	3	CEE 322	Highways And Transportation Engineering	3
EM 327	Engineering Economy	3	CEE 323	Construction Project Management	3
EM 301	Surveying	3	CEE 342	Environmental Engineering Processes	3
CEE 341	Engineering Hydrology	3	CEE 362	Soil Mechanics & Foundation	3
ARAB 203	Arabic Writing Iii	2	CEE 363	Steel Design I	3
CEE 361	Reinforced Concrete Design I	3			
	Total	**19**		**Total**	**17**

YEAR 4	SEMESTER 1		SEMESTER 2		
COURSE #	**TITLE**	**CRS**	**COURSE #**	**TITLE**	**CRS**
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	**CO-OP OPTION**		
CEE 490	SENIOR DESIGN PROJECT	3	CEE 492	COOP	10
CEE 4--	CIVIL ELECTIVE	3			
CEE 4--	ENVIRONMENTAL ELECTIVE	3			
CEE 421	LEGAL ASPECTS IN ENGINEERING	3			
CEE 461	STRUCTURAL ANALYSIS II	3			
	TOTAL	**18**		**TOTAL**	**10**

- The Internship option is on hold.

BS IN ELECTRICAL ENGINEERING

PROGRAM VISION

The Electrical Engineering Program aspires to graduate outstanding electrical engineers capable of serving the local societies professionally by providing them with high-quality and up-to-date electrical engineering education.

PROGRAM MISSION

To provide students with the needed knowledge and skills in electrical engineering, to conduct scientific research, and to contribute to the sustainability of the society.

PROGRAM LEARNING OUTCOMES | THE ABILITY TO:

1) Ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2) An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3) An ability to communicate effectively with a range of audiences.
4) An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5) An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6) An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

CAREER OPPORTUNITIES

- Electrical Engineers/Managers
- Renewable energy companies.
- Automation companies.
- Telecommunication companies.
- Electrical and electronics industries.
- Power generation, distribution, and transmission.
- Manufacturers of navigation controls, medical equipment, and measurement devices.
- Military industry (defense systems, land systems, etc.)

Structure of the Program

The Electrical Engineering undergraduate program has three components:

University Requirements	23	Credits
College Requirements	54	Credits
Program (Core) Requirements	55	Credits
Program Electives	6	Credits
TOTAL	138	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	TITLE	CRs	Course #	TITLE	CRs
ENG 101	Intensive Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communication Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Studies of The Holy Quran	2
			ISC 203	New Financial Transactions	2
Subtotal		9	Subtotal		14
TOTAL					**23**

College of Engineering Requirements

Course #	TITLE	CRs
EE 101	Computer Programming For Engineering	4
CHM 101	General Chemistry	4
STAT 101	Introduction to Statistics and Probability Theory	3
MATH 111	Calculus I	3
MATH 113	Calculus II	3
MATH 225	Differential Equations	3
MATH 215	Engineering Mathematics	3
PHYS 105	Physics I	4
PHYS 205	Physics II	4
ENGL 301	Technical Writing and Translation	3
ETHC 305	Ethical & Social Aspects of Engineering	2
MATH 223	Linear Algebra	3
CEE 101	Engineering Drawing	3
CEE 205	Introduction to Engineering Design	3
EM 326	Project Management	3
EM 327	Engineering Economy	3
EE 490	Senior Design Project	3
TOTAL		**54**

EE PROGRAM AND ELECTIVE REQUIREMENTS

64 Credits: EE Program 58 | Electives 6					
Electrical Engineering [EE] Core Courses			Elective - Choose 2 Requirements		
Course #	TITLE	CRs	Course #	TITLE	CRs
EE 201	Introduction to Circuits	4	EE 414	Electrical and Electronic Measurements	3
EE 202	Circuit Analysis	3	EE 415	Opto-Electronics	3
EE 211	Electronic Fundamentals	4	EE 416	VLSI Circuits Design	3
EE 221	Logic Design	4	EE 417	Communications Electronics	3
EE 231	Signals and Systems	3	EE 423	Data Communication Networks	3
EE 304	Electrical Machines	3	EE 424	Digital Communications	3
EE 305	Power Electronics	4	EE 425	Wireless Communications Systems	3
EE 312	Electronic Engineering	3	EE 426	Antenna and Wave Propagation	3
EE 322	Microprocessors Design	4	EE 433	Mechatronics	3
EE 332	Control Systems	3	EE 434	PLC Microcontrollers	3
EE 341	Electromagnetics Fundamental	3	EE 435	Robotics and Automation	3
EE 351	Communication Systems	4	EE 436	Artificial Intelligence	3
EE 403	Power Systems	3	EE 442	Digital Signal Processing	3
EE 492	Co-Op or Internship *	10	EE 454	Power System Planning	3
			EE 456	Renewable Energy Engineering	3
* The Internship option is on hold.			EE 499	Special Topics in Electrical and Electronic Engineering	3
			Subtotal		6
	Subtotal	55		Total	61

ELECTRICAL ENGINEERING STUDY PLAN

YEAR 1 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ENGL 101	INTENSIVE ENGLISH	3	ISC 101	ISLAMIC ETHICS	2
EE 101	COMPUTER PROGRAM. FOR ENGINEERING	4	COM 201	COMMUNICATION SKILLS	3
MATH 111	CALCULUS I	3	CEE101	ENGINEERING DRAWING	3
PHYS 105	PHYSICS I	4	MATH 113	CALCULUS II	3
CHM 101	CHEMISTRY	4	PHYS 205	PHYSICS II	4
			STAT 101	INTRODUCTION TO STATISTICS AND PROBABILITY THEORY	3
	TOTAL	18		TOTAL	18

YEAR 2 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ARAB 101	ARABIC WRITING I	2	ARAB 103	ARABIC WRITING II	2
EE 221	LOGIC DESIGN	4	MATH 223	LINEAR ALGEBRA	3
MATH 225	DIFFERENTIAL EQUATIONS	3	EM 327	ENGINEERING ECONOMY	3
MATH 215	ENGINEERING MATHEMATICS	3	EE 202	CIRCUIT ANALYSIS	3
CEE 205	INTRODUCTION TO DESIGN	3	EE 231	SIGNALS AND SYSTEMS	3
EE 201	INTRODUCTION TO CIRCUITS	4	EE 211	ELECTRONIC FUNDAMENTALS	4
	TOTAL	19		TOTAL	18

YEAR 3 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ISC 103	ISI ECONOMIC	2	ISC 203	NEW FINANCIAL TRANSACTIONS	2
EE 312	ELECTRONIC ENGINEERING	3	ARAB 203	ARABIC WRITING III	2
EE 322	MICROPROCESSORS DESIGN	4	ISC 105	HOLY QURAN SCIENCES	2
ENGL 301	ENGLISH TECHNICAL WRITING	3	EM 326	PROJECT MANAGEMENT	3
EE 341	ELECTROMAGNETICS FUNDAMENTALS	3	EE 304	ELECTRICAL MACHINES	3
EE 351	COMMUNICATION SYSTEMS	4	EE 305	POWER ELECTRONICS	4
			EE 332	CONTROL SYSTEM	3
	TOTAL	19		TOTAL	19

Co-Op OPTION

YEAR 4 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
PSY 101	PSYCHOLOGY	3	EM 492	CO-OP IN ENGINEERING MANAGEMENT (CONTINUATION FROM SUMMER BEFORE)	10
ETHC 305	PROFESSIONAL ETHICS	2			
EE 490	SENIOR DESIGN PROJECT	3			
EE 403	POWER SYSTEMS	3			
EE ---	ELECTIVE I	3			
EE ---	ELECTIVE II	3			
	TOTAL	17		TOTAL	10

- The Internship option is on hold.

ENGINEERING COURSES

CME COURSES

COMMUNICATIONS AND NETWORKS ENGINEERING

CME 111 Logic Design Fundamentals
Credits: 4(3,1,2) Prerequisite: None

This course introduces digital systems design concepts. Topics include basic combinational building blocks and design methods to construct synchronous digital systems; alternative representations for digital systems; standard logic (SSI, MSI) vs. programmable logic (PLD, FPGA); finite state machine design; digital computer building blocks as case studies; introduction to computer-aided design software in VHDL. The course also includes a design project.

CME 112 Electric Circuit and Electronics
Credits: 4 (3,1,2) Prerequisite: PHYS 205

This course is an introduction to Electric Circuit and Electronics. It enables the student to understand the basic components and operations of DC and AC electrical circuits, as well as the design and the analysis of basic circuits. Also, it would introduce the students to the concept of circuit transformation and steady state analysis of electrical circuits. In addition, the course covers the basic characteristics and applications of semiconductor devices and circuits.

CME 211 Communication Embedded Systems
Credits: 3 (3,1,0) Prerequisite: CME 111

The course will focus primarily on basic embedded system concepts and the student will learn the basics of designing, interfacing, configuring, and programming embedded systems. One of popular microcontroller is selected to implement the techniques learned in class. By the end of the course, the student will have mastered the basics of embedded system design and programming.

CME 241 Signals and Systems
Credits: 3 (3,1,0) Prerequisite: MATH 113

This course covers basic concepts and methods related to continuous and discrete-time signals and systems. The course includes: signals and systems and their properties, linear time-invariant systems, stability analysis, sampling of continuous-time signals, z-transform, discrete Fourier transform, time and frequency domain representations of discrete-time signals and systems, and introductory concepts in communications.

CME 242 Communication Engineering Fundamentals
Credits: 4 (3,1,2) Corequisite: CME 241

This course provides an introduction to electronic devices and circuits used in communication systems. Examples include different types of transistors, amplifiers, oscillators, mixer, filters, and phase locked loop with exploring their applications in communication systems.

CME 243 Electromagnetics I
Credits: 3 (3,1,0) Prerequisite: PHYS 205, MATH 215

This course covers the fundamentals of applied electromagnetic by emphasizing physical understanding and practical applications in Electrical and Computer Engineering systems. It deals with the study of static electric fields in vacuum and dielectrics, conductors, capacitance, electrostatic energy and forces.

CME 321 Networking: Principles, Protocols, and Architecture
Credits: 4 (3, 1, 2) Prerequisite: CME 111, CME 241

An Introduction course that outlines network architecture and protocols, layering, OSI and TCP/IP models. Physical layer: transmission media, data encoding, asynchronous and synchronous transmission. Data link layer: error detection, flow control, error control. Packet Switching: data-grams, virtual circuits, routing, congestion control, internetworking. Local area networks, network layer and transport layer.

CME 322 Network Analysis and Design
Credits: 3 (3,1,0) Prerequisite: CME 321

A course that outlines LAN standards & Devices: Ethernet and IEEE standards for LANs; LAN devices: Bridges, HUBs, and Ethernet Switches. Network Layer Services: Datagram and Virtual Circuits, Introduction to ATM. Network Layer Protocols: Optimality Principle, Routing Algorithms: Flow based, Distance Vector, Shortest Path, Broadcast Congestion Control Algorithms: Leaky Bucket, Traffic Shaping, Congestion Control in ATM.

CME 341 Electromagnetics II
Credits: 3 (3,1,0) Prerequisite: MATH 225, CME 243

This course covers the Poisson's equation, static magnetic fields, Biot-Savart law, Ampere's law, vector magnetic potential, inductance, Maxwell's equations for time varying fields, Faraday's law, plane wave propagation, time-harmonic fields, propagation in lossless media, and wave reflection and transmission at normal incidence. The bridge between electric circuits and electromagnetic is done through the study of transmission lines and their lumped-element model, transmission line input impedance, and power flow on lossless transmission line.

CME 342 Communication Theory
Credits: 3 (3,1,0) Prerequisite: STAT 101, CME 241

This course covers the fundamental principles underlying the analysis and design of digital communication systems. We introduce the fundamental probability concepts that are used during the course. We discuss the processes of sampling, quantization, and digital pulse modulation including pulse code modulation, pulse differential modulation, and delta modulation. We also cover the digital base-band transmission by focusing on the effects of channel noise and band-limited channel bandwidth on the performance of a system. In addition, we deal with the data detection problem of digital signals through the concept of matched and correlation filters.

CME 343 Communication Systems I
Credits: 3 (3,1,0) Prerequisite: CME 242

This course focuses on continuous-wave modulation, which is the basic operation of analog communication systems. It gives the student an insight and understanding of signals classifications, noise, Fourier series, Fourier transform, spectrum analysis, and explores their

applications in the context of analog communication systems. We cover thoroughly the generation and reception of double-side band, single side-band, vestigial side-band, angle modulation signals.

CME 344 Antennas and Propagation
Credits: 3 (3,1,0) Prerequisite: CME 341

This course provide the students with an understanding of the basic principles of Antenna Analysis and Design, an overview of the fundamental characteristics and parameters of antennas, an overview of analytical and numerical methods used to analyze and design antennas with application to some basic antenna structures such as linear antennas, loop antennas, and antenna arrays.

CME 421 Internet Engineering and Web Programming
Credits: 2 (2, 1, 2) Prerequisite: CS 210, CME 321

This course covers the fundamentals of major protocols on the internet, new technologies introduced on the internet and quality of service, routing on the internet, network security and firewall design as well as application protocols. Major techniques used in Web servers also will be covered and programming and maintenance of Web, firewalls and proxy servers.

CME 441 Communication Systems II
Credits: 3 (3,1,0) Prerequisite: CME 342

The course provides a solid grounding in the details of telecommunications technology. Different wire and wireless communication systems are covered such as telephony, analog and digital television (TV), satellite, optical fiber, and radar communication systems.

CME 442 Information and Coding Theory
Credits: 3 (3,1,0) Prerequisite: CME 342

This course addresses the problem of design efficient and reliable communication systems through introducing the field of information theory. Source and channel coding which are important elements of information theory are essential for any communication systems. We cover the mathematical preliminaries related to these elements, such as entropy, relative entropy, and mutual information and show how they arise as natural answers to questions of data compression, channel capacity, and error correction. We also study different source and channel codes, such as Huffman, arithmetic, block, cyclic, and convolution codes.

CME 451 Wireless Communication
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

A course that covers the fundamentals of wireless communications with emphasis on wireless channel modeling; digital modulation in wireless channels; diversity techniques; multiple access techniques; multicarrier transmission, multiple antenna systems, the cellular concept; overview of current wireless communications systems.

CME 452 Mobile Communication
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

A course on the evolution of cellular technologies; GSM network architecture is explored in details. Multiple access techniques, CDMA, and WCDMA are provided. 2G, 3G, and 4G mobile cellular systems are highlighted and explored and UMTS 3G is emphasized in the course. New

technology: Long Term Evolution (LTE) which is a required technology in cellular systems today is comprehensively explored.

CME 453 Microwave Communication
Credits: 3 (3,0,0) Prerequisites: Senior Level Standing

The course focuses on the analysis and design of high-frequency electronic circuits, with emphasis on RF and microwave circuits and components for communication systems. The course covers the basic principles of radio-frequency (RF) and microwave circuits design, as applied to the design of micro strip and coplanar lines, impedance transformers, low-pass and band-pass filters, directional couplers, power dividers, amplifiers, mixers, and diode detectors. It provides understanding of S-parameters and signal-flow graph analysis techniques. The course enables the student to get hands-on experience in RF and microwave circuit design through the use of computer-aided design tools to simulate and analyze high frequency circuits, build them as part of a course project, and perform measurements in the lab using network and spectrum analyzers.

CME 454 Satellite Communication
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course is designed to provide students with global view of satellite systems, its missions, launch systems, frequency allocation and orbits specification, the link budget calculation for both the uplink, and the downlink, the communication system of the satellite and earth stations, satellite access, and satellite services. Satellite cross links, VSAT and mobile satellite systems.

CME 455 Cellular Networks
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course features a comprehensive study of system performance. Covers all the major features such as basic QoS of voice, data and multimedia applications in GSM, GPRS, EDGE, CDMA, W-CDMA/UMTS and AMR and the full capability of the GERAN radio interface for 3G service support is envisaged. Different 3G technologies and the position of GERAN, CDMA, and W-CDMA/UMTS within such technologies will be discussed.

CME 459 Special Topics in Communications Engineering
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course is a 3 credit hour course that is meant to introduce new emerging subjects or issues in Communications Engineering. Such a course can be offered a few times under the same theme and same number, and if approved by the department it can be given a fixed number with a name that reflects the theme.

CME 458 Undergraduate Research in Communication
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing Cumulative average of 3.0 or above, Approval of faculty member supervising the research, and Approval of the CME Undergraduate Committee.

Undergraduate Research is an opportunity for an undergraduate student to obtain research experience, and is recommended for those students wishing to do research or otherwise go beyond what is required in normal classes. Often these experiences lead to further research, to graduate school projects, and theses.

Students may participate, under the supervision of a faculty member, in a research project. Before registering in CME 458, the student must submit a proposal for approval by the

supervising faculty member and the CME Undergraduate Committee, regarding the nature of the research, specific goals, and final report. Students taking CME 458 are expected to:

Attend a weekly individual research meeting with the faculty member supervising the research.

Work the equivalent of twelve hours per week in a laboratory. For theoretical research, no laboratory work might be necessary; however, an equivalent amount of work is expected.

Present a project report to receive a numerical course grade.

The University Libraries and laboratories are available to obtain research materials. If the subject matter of the Undergraduate Research course is relevant to the final year project of the student, the committee evaluating the Senior Project will take the work done into consideration in its evaluation of the Senior Project of the student.

CME 431 Wireless Sensor Networks
Credits: 3(3,0,0) Prerequisite: Senior Level Standing

This course will introduce students to the state of the art in wireless sensor networks. We will have a significant reading list from recent literature to accompany the lectures. Each lecture itself will present one realization of each sensor network concept, which will be followed by a broader class discussion on the topic based on its reading list. In several cases, lectures will emphasize aspects of fault-tolerance, reliability, and security. Case studies from existing applications will be used. Each student will have to complete a project. Students will be expected to prepare and present a poster to describe their findings.

CME 432 Internet Security
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course provides students with a comprehensive overview of the field of network security, security risks and countermeasures associated with network connectivity. Students will gain knowledge and skills to understand, apply and manage network security. Students will be aware of the various activities designed to protect network data that include protecting the usability, reliability, integrity, and safety of network and data.

CME 433 Mobile Ad-Hoc and Sensor Networks
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course covers all aspects of ad hoc and sensor networking, from design through performance issues to application requirements. The course starts with the design issues and challenges that are associated with implementations of ad hoc and sensor network applications. This includes dealing with mobility, disconnections, and awareness of battery power consumption. The course then provides a detailed treatment of proactive, reactive, and hybrid routing protocols, in addition to the various clustering approaches. Next, it covers the IEEE 802.11 Wireless LAN and Bluetooth standards and discusses their characteristics and operations. The course also discusses research topics that involve collaboration among mobile devices, service discovery, and data caching. Through a project, the course gives students hands-on experience in designing a mobile ad hoc network using available Pocket PCs and simulation tools.

CME 434 Cryptography and Network Security
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course covers principles and practice of cryptography and network security: classical systems, symmetric block ciphers (DES, AES, other contemporary symmetric ciphers), linear and differential cryptanalysis, perfect secrecy, public-key cryptography (RSA, discrete logarithms), algorithms for factoring and discrete logarithms, cryptographic protocols, hash functions, authentication, key management, key exchange, signature schemes, email and web security, viruses, firewalls, digital right management, and other topics.

CME 438 Undergraduate Research in Networking
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing, Cumulative average of 3.0 or above, Approval of faculty member supervising the research, and Approval of the CME Undergraduate Committee

Undergraduate Research is an opportunity for an undergraduate student to obtain research experience, and is recommended for those students wishing to do research or otherwise go beyond what is required in normal classes. Often these experiences lead to further research, to graduate school projects, and theses.

Students may participate, under the supervision of a faculty member, in a research project. Before registering in CME 438, the student must submit a proposal for approval by the supervising faculty member and the CME Undergraduate Committee, regarding the nature of the research, specific goals, and final report. The prerequisites for CME 438 are:

Students taking CME 438 are expected to:

Attend a weekly individual research meeting with the faculty member supervising the research.

Work the equivalent of twelve hours per week in a laboratory. For theoretical research, no laboratory work might be necessary; however, an equivalent amount of work is expected.

Present a project report to receive a numerical course grade.

The University Libraries and laboratories are available to obtain research materials. If the subject matter of the Undergraduate Research course is relevant to the final year project of the student, the committee evaluating the Senior Project will take the work done into consideration in its evaluation of the Senior Project of the student.

CME 439 Special Topics in Networks Engineering
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing,

This course is a 3 credit hour course that is meant to introduce new emerging subjects or issues in Networks Engineering. Such a course can be offered a few times under the same theme and same number, and if approved by the department it can be given a fixed number with a name that reflects the theme.

CME 490 Internship
Credits: 3 (0,0,0) Prerequisite: Completion of 90 Credit hours.

This is an eight-week professional training course in Engineering Management. The program combines classroom learning with work experience to assist students in applying their knowledge and skills to real life situations and enable our students to create future quality career in response to the evolving of local economic and workforce development needs. Students are expected to prepare and present a report of their work experience.

CME 492 Co-Op
Credits: 10 Prerequisite: Completion of 90 Credit hours.

The PSU COOP Education Program combines classroom learning with work experience to assist students in applying their knowledge and skills to real life situations & building strong partnerships between the PSU and the local business community, as well as enable our students to create future quality career in response to the evolving of local economic and workforce development needs.

CME 498 Senior Project I
Credits: 1 (0,2,0) Prerequisite: ENGL 301, Senior Level Standing

A supervised project in groups of normally 3 students aimed at providing practical experience in some aspects of communications and networks engineering. Students are expected to define the project, state its objectives, complete a literature survey, set project specifications and select a design method. They are also expected to do some preliminary modeling and analysis and to acquire the necessary material needed for the completion of the project in the spring term. A professional report and an oral presentation are also required from the students.

CME 499 Senior Project II
Credits: 3 (0,3,0) Prerequisite: CME 498

This is a continuation of Project I. Students are asked to deliver a product that has passed through the design, analysis, testing and evaluation stages. The course also requires the production of a professional report that includes a description of the design process, implementation and testing, verification and validation and a critical appraisal of the project. An oral presentation and a poster are also within the project deliverables.

CEE COURSES

CIVIL AND ENVIRONMENTAL ENGINEERING

Core Courses

EM 203 Statics
Credits: 3 (3,1,0) Prerequisite: MATH 113, PHY 105 and CEE 101

An introduction to the analysis and solution of engineering design problems related to particles and rigid bodies in equilibrium. Primary concepts include the concepts of force systems; vector analysis, moments and couples in 2D and 3D; equilibrium of force systems; analysis of structures; plan trusses and frames; distributed force system; centroids and composite bodies; area moments of inertia; analysis of beams; and friction.

CEE 202 Dynamics
Credits: 3 (3,1,0) Prerequisite: MATH 113, PHY 105, EM 203

This course deals with dynamics of particles and rigid bodies, applications of free-body diagrams, Newton's second law, the impulse-momentum method and the work-energy principle to solve dynamic problems in mechanical systems. In addition, topics such as Kinematics of rectilinear, curvilinear motion of particles, Kinematics of rotation and plane motion of rigid bodies are also covered.

BIO 101 Biology
Credits: 3 (3,1,0) Prerequisite: CHM 101

Course covers major fields and fundamental principles of biology. Fundamental studies in biology emphasizing the unity and diversity of life. Topics include the basic chemistry of biological processes, cell types and organelles, energy harvesting and energy producing pathways, cell and life cycles, genetics, DNA structure, genes, natural selection, population genetics, and phylogenetic analysis.

GEO 201 GEOLOGY
Credits: 3 (3,1,0) Prerequisites: None

Major principles of physical geology covering the structure of the Earth, plate tectonics, volcanism and other mountain building processes, the surface erosion process, and the formation and properties of minerals and rocks. Course covers application of geological knowledge to civil engineering problems such as landslide, subsidence and earthquake etc. and engineering classification of soils.

EM 301 Surveying
Credits: 3 (2,0,3) Prerequisites: STAT 101

A course on the theory and applications of measurements and errors; linear measurements; surveying principles and instruments; leveling; angles, bearings, and azimuths; stadia measurements; traversing–field aspects; traverse computations and adjustment; topographic surveying; profiles and cross-sections; areas, volumes, and earthwork calculations; triangulation; fundamentals of surveying for building and infrastructure construction; setting out horizontal and vertical curves; setting out engineering structures and construction projects. Hands on experience with a wide variety of common surveying equipment, including use and operation of levels, theodolites, total station, and GPS.

CEE 322 Highway and Transportation Engineering
Credits: 3 (3,1,0) Prerequisites: EM 301

This course will introduce the student to the fundamentals of transportation and highway engineering – from planning and design to operations. The course introduces the technological, economic, and social aspects of transportation. It emphasizes concepts of geometric, structural design, and construction of highways, also characteristics of driver, vehicles, and roads. Supply-demand interactions, traffic studies, and analysis. Besides, highway safety and intelligent transportation systems are covered.

CEE 323 Construction Project Management
Credits: 3 (3, 0, 0) Prerequisite: CEE 205

This course provides students with a solid understanding of the process and practice of project management of construction projects. Items covered include construction project characteristics and phases; construction job site layout; material and equipment planning and procurement; operations and processes analysis and planning; productivity and resource use considerations; performance benchmarking, measurement, analysis, enhancement, and control; safety and health practices for the construction industry; and Communications types – project logs, reports, submittals, meetings, and close out.

CEE 421 Legal Aspects of Engineering
Credits: 3(3,0,0) Prerequisites: ETHC 305

A course on the structure for how contractual aspects and relationships work in construction industry; with respect of contract law and legal rules application in actual practice; similarly how the legal problem are managed; specifically subject covered the prime construction process, principal documents for design services and subcontracting service; standard form documents---for design and prime construction services; Project participants and the Initial Decision Maker (IDM); the contracts, procurements and bid evaluation, construction contract documents and specifications, torts, parties in contract, professional liability, changes and variation orders, insurance expert testimony, arbitration, patents and copyrights, sureties and ethics.

CEE 241 Introduction Environmental Engineering
Credits: 3(3,0,0) Prerequisite: BIO 101

This is an introductory course in Environmental Engineering. Sources and environmental effects of pollutants will be conceptualized. Fundamental principles that are the foundation for the field of environmental engineering will be overviewed. This course explores how these principles are applied to water quality engineering, air quality engineering, and hazardous waste management.
Impact of human activities and projects on the environment will be discussed. This course will enable the students to think in an interdisciplinary manner, to make judgments and decisions to solve environmental problems.

CEE 242 Fluid Mechanics
Credits: 3 (2,1,2) Prerequisites: PHY 205

Basic principles of fluid mechanics. Topics include fluid properties, statics, forces on plane and curve surfaces, kinematics of fluid motion, integral and differential representation of conservation of mass, balance of linear and angular momentum, the first Law of Thermodynamics, continuity equation,

Bernoulli's equation, energy principle, dimensional analysis, and elementary viscous flow. Frictional losses, simple pipeline analysis and steady channel flow are covered.

CEE 341 Engineering Hydrology
Credits: 3 (2,1,2) Prerequisite: CEE 242

The course provides the fundamentals of engineering hydrology through the processes of hydrologic cycle including precipitation, infiltration, and runoff. It covers the development of quantitative approaches for engineering hydrology problems such as watershed modelling and storm water analysis, groundwater flow, and related designs.

CEE 261 Structural Analysis I
Credits: 3 (3,1,0) Prerequisite: EM 203 Co-requisite: EE 101, CEE 262

Equilibrium, stability, and determinacy. Influence lines for beams and trusses. Deflection of beams and frames by double-integration method, moment-area theorems, and conjugate beam. Introduction to indeterminate structures. Approximate analysis of indeterminate building frames. Computer structural analysis applications.

CEE 262 Mechanics of Materials
Credits: 3 (2,1,2) Prerequisites: EM 203, MATH 113

This course tackles the fundamentals of properties of structural materials; analysis of stress and deformation in axially loaded members, circular shafts, and beams, and in statically indeterminate systems containing these components. Specifically, the course will come across the following topics: Definitions of stress and strain; Stress, strain, and deformation of axially loaded bars and torsionally loaded shafts; Distributed loads; Statically indeterminate problems; Stress & strain components and transformations and Mohr's circle; Pressure vessels; Linear elastic constitutive equations; Shear and moment diagrams; Bending and transverse shear stress; Combined loading; Beam deflection; and Column buckling. Laboratory experiments are associated with the lectures.

CEE 361 Reinforced Concrete Design I
Credits: 3(3,1,0) Prerequisite: CEE 262, CEE 261

Behavior, analysis, design, and construction of reinforced concrete structural members including beams, slabs, columns, and footings.

CEE 362 SOIL MECHANICS AND FOUNDATIONS
Credits: 3 (2,1,2) Prerequisites: CEE 262, GEO 201 Co-requisite: CEE 242

A course on soil classification and index properties; soil structure and moisture; compaction; seepage; effective stress concept; compressibility and consolidation; stress and settlement analysis; shear strength; slope stability; soil stabilization methods. The course includes hands-on laboratory experiments of most important soil properties.

CEE 363 Steel Design I
Credits: (3,1,0) Prerequisite: CEE 262, CEE 261

Introduction. Types of structural steel members. Specifications and building codes. Design

philosophies. Steels and properties. Stress-strain curve. Design of tension members. Design of structural fasteners. Welding; types of joints and welds and design. Design of compression members; columns and plates.

CEE 461 Structural Analysis II
Credits: 3 (3,1,0) Prerequisite: CEE 261

Linear analysis of indeterminate structures such as plane trusses and frames structures using the stiffness matrix method. Software applications on structural analysis of determinate and indeterminate structures. Calculation of wind and seismic loads on structures using building codes.

CEE 342 Environmental Engineering Processes
Credits: 3 (2,1,2) Prerequisite: CEE 241, CEE 341

Course covers water quality control systems. Physical-chemical unit processes applied to systems designed for treatment of municipal and industrial waters. It also covers processes involved in the biological treatment of wastewater. Aerobic and anaerobic treatment, sludge stabilization, and nutrient removal.

Electives Courses

CEE 422 Contracts, Specifications and Quantity Surveying
Credits: 3 (2,1,2) Prerequisites: CEE 322

The course focuses on the structure of construction documents and their interrelationships. Items covered include: means of contract procurements; standard agreements, general and particular contract conditions; construction drawings; administrative and procedural requirements for construction; and the various types of contracts relating to the construction business. Technical specifications and methods of quantity surveying are the focus of most of the lab work.

CEE 423 Construction Safety
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course explores Safety practices in the construction industry & the broad range of topics related to construction projects safety. Items covered include: regulations and standards; construction projects hazard avoidance concepts and techniques; plant safety applications, management and its safety responsibilities; analytical trees and fault tree analysis; risk assessment, emergency planning, personal protection and first aid; and the role of information systems in safety management. The course is designed to assist the student with the implementation of safe healthy practices in engineering projects.

CEE 424 BIM Construction Management
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course provides solid hand-on knowledge about BIM through the understanding of its theoretical and historical backgrounds as well as the practical exercises of the related various BIM software tools. The course will explore the benefits of BIM tools and methods as used by all relevant stakeholders, such as clients, design teams, construction manager, contractors and maintenance operators etc. This course also work with BIM software tools to create 3D models that extract quantities for estimation purposes on the basis of input resources as well as that operate construction schedule(4D simulation) for project planning. Furthermore, the course will focus on the virtual design & construction

management process that integrates 3D BIM model with scheduling and costing, what is called, 5D simulation.

CEE 425 Highway and Airport Engineering
Credits: 3 (3,0,0) Prerequisite: CEE 322

This course covers fundamentals of pavement design, requirements of an ideal pavement, elements of pavement structure, types of pavement, pavement evaluation methods and rehabilitation & maintenance techniques of highway pavements. It also covers airport planning, geometric design, inlet size & location design, runoff, surface and subsurface design.

CEE 426 Traffic Engineering
Credits: 3 (3,0,0) Prerequisite: CEE 322

This course provides knowledge of fundamentals of traffic engineering, with emphasis on traffic studies, traffic control devices, safety and crash prediction and traffic impact analysis. It includes driver behavior and interactions between vehicle, road and traffic environment determine both traffic performance and safety. Planning, design, regulation and operation of road traffic are covered.

CEE 427 Transportation Systems Management
Credits: 3 (3,0,0) Prerequisite: CEE 322

This course covers fundamentals of transportation engineering. Design, operations and planning of transportation systems and modes with applications of various technologies, emphasizing road and public transit. It also covers highway geometric and pavement design principles.

CEE 428 Cost Engineering: Estimating, Budgeting and Control
Credits: 3 (2,0,3) Prerequisites: CEE 323

The course explores Cost Engineering for construction organizations, projects, and operations. Topics covered include: construction financing; break-even, profit, cash flow analyses, capital budgeting, equipment costs and procurement decisions; construction financial accounting, cost accounting, and cost control systems; cost breakdown, fixed and variable costs, direct and indirect costs, insurance and bond premiums, and overhead and markup; cost indices and conceptual estimates, parametric estimates, detailed estimates, unit price proposals, measuring work and payment determination.

CEE 429 Project Planning, Scheduling and Control
Credits: 3 (2,0,3) Prerequisite: CEE 323

Study of the concepts used in planning, scheduling and controlling construction projects. Investigation of the planning activities for construction projects starting with Work Break Down Structure (WBS), resource, equipment and materials analysis and selection; productivity, time and cost estimates. Scheduling techniques including precedence diagrams, Critical Path Method (CPM), Program Evaluation Review Techniques (PERT), linear scheduling methods, resource leveling, time-cost analysis, bar charts, time-scaled diagrams, and computer applications (Primavera, Microsoft Project, or equivalent software); Project updating, evaluation and control, and earned value analysis.

CEE 430 Construction Equipment and Methods
Credits: 3 (3,0,0) Prerequisite: CEE 323

This course explores issues and concepts relating to contemporary developments in materials, construction and building engineering technology and introduces students to techniques appropriate for the production of medium to large scale buildings. Students will engage with these new theories and technologies in an exploratory environment to develop an understanding of various structural systems and elements, building fabric, materiality, detailing, and the relationship between design, construction and structures.

CEE 441 Energy Resources Management
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course examines the four major components of energy management: supply, demand, regulation and environment together with the concepts and principles behind successful energy management. Topics include energy auditing and economic analysis; management control and maintenance systems; sustainability and high performance green buildings; alternative energy systems; boilers and fired systems; cogeneration and HVAC systems; ground source heat pumps; lighting and electrical management; natural gas purchasing; thermal storage; codes and standards; indoor air quality; utility deregulation and energy systems outsourcing; energy security risk analysis methods; and financing energy management projects.

CEE 442 Environmental Management
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course surveys the scientific principles of environmental issues and environmental management practices, with attention to the health of both humans and the ecosystem. Fundamental and emerging topics related to air and water pollution, water use and management, aquatic ecosystems, energy and climate change, biodiversity, toxic substances in the environment, solid waste management, and regulatory strategies for risk assessment and environmental management are examined. The course will critically examine contemporary thinking on these environmental themes including: sustainable use practices, political-ecology, decentralized environmental management, and community-based approaches, social learning, and regional and urban planning.

CEE 443 Leadership in Energy and Environmental Design (LEED)
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

The growth of the green and sustainable building market has been widely publicized recently, accelerated largely by government policies and rising recognition that such buildings are more sustainable, environment-friendly and economical to operate in the building construction industry. The course denotes basic knowledge of green building principles and practices on the basis of Leadership in Energy and Environmental Design (LEED) rating system. The course provides a point system to score green building design and construction, which is categorized in five basic areas: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and Indoor Environmental Quality.

CEE 444 Solid Waste Management
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

Evolution of solid waste management. Sources, types, and composition of municipal solid waste. Physical, chemical, and biological properties of municipality solid waste. Management and planning issues. Hazardous wastes found in municipal solid waste. Solid waste generation Waste handling and separation, storage, and processing at the source. Collection of solid waste and material separation and processing technologies. Thermal conversion technologies. Biological and chemical conversion

technologies. Recycling of Materials found in solid waste. Disposal of solid waste Closure of landfills.

CEE 446 Air Pollution Management
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

The course introduces the effects of air pollutants on human beings and environment, the sources of air pollution, and the physical and chemical behavior of pollutants in the atmosphere. Also, it covers legislation and regulation; control technologies and future trends toward preventing air pollution.

CEE 447 Groundwater Engineering
Credits: 3 (3,0,0) Prerequisite: CEE 341

Fundamental science of hydrogeology, the study of the distribution and movement of water through geologic formations, i.e. soil, sediments, and rocks. The mathematical models of fluid flow in porous media and methods for solving these equations (e.g., analytical, numerical, and statistical approaches). Practical groundwater engineering problems: characterizing the subsurface using aquifer tests, transport and remediation of contaminants, and innovations in groundwater management, as time permits.

CEE 463 Deep Foundations
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

Site investigation for deep foundations; Analysis, design and installation of pile foundations; axial capacity and settlement of pile and pile groups; drilled piers and caissons; Rock socketed piles, negative skin friction, and effects of soil movement on pile; Static and Dynamic Pile Load test.

CEE 464 Concrete Technology
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course explores the various aspects of concrete technology. It will emphasize on the design of concrete mixes using different approaches, the different types and properties of cement replacement materials. It will also cover special concretes which include self-compacting concrete, fiber reinforced concrete, high strength concrete, lightweight aggregate concrete and polymer concrete. Overview of the concrete production and delivery process, Hot and cold weather concreting and shotcreting, will also be covered.

CEE 465 Assessment and Repair of Reinforced Concrete Structures
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

Structural evaluation of buildings. Cracks in building. Types of cracks. Early thermal shrinkage, drying shrinkage and thermal cracks. Inspection and diagnosis. Repair of cracks, material and system. Monitoring of cracks. Testing of concrete in the structure. Destructive tests: cores and pull outs. Nondestructive tests: Rebound hammer, penetration resistance and UPV. Retrofitting techniques of structures.

CEE 466 Steel Design II
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

Design of laterally supported beams subjected to bending. Shear in beams. Design for torsion in

beams. Lateral torsional buckling of beams. Continuous beams. Design of plate girders. Combined bending and axial load. Connections.

CEE 467 Prestressed Concrete and Bridge Design
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

CEE 468 Wind and Seismic Resistant Structures
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

CEE 469 Soil Stabilization and Improvement
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course covers general information of soil types, their behavior and the available techniques for improvement; modifications by using admixtures and grouting; shallow and deep mechanical methods for improvement; use of geotextiles in filtration, seepage control, separation, reinforcement and water retention; Treatment of marginal soils; Landfills.

CEE 470 Soil Mechanics II
Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

Stresses and Strains in soil media; Lateral earth pressure; Stress path; Constitutive models for soils; failure criteria; unsaturated soils; Consolidation theory; elasticity, viscoelasticity, and plasticity theories applied to geo materials; constitutive, numerical and experimental modeling.

EM COURSES

ENGINEERING MANAGEMENT

EM 101 ENGINEERING DRAWING
Credits: 2 (0,0,6) Prerequisite: None

This course trains students on the graphical interpretation of orthographic projection to include auxiliary views, section views, dimensioning, translation of design instructions into detail and assembly drawings, drawing conventions including weldments, piping, referencing and surface finish notation, election of tolerances based on design requirements.

EM 203 STATICS
Credits: 3 (3,1,0) Prerequisites: MATH 113, PHYS 105, EM 101

An introduction to the analysis and solution of engineering design problems related to particles and rigid bodies in equilibrium. Primary concepts include the concepts of force systems; vector analysis, moments and couples in 2D and 3D; equilibrium of force systems; analysis of structures; plan trusses and frames; distributed force system; centroids and composite bodies; area moments of inertia; analysis of beams; and friction.

EM 204 STRENGTH OF MATERIALS
Credits: 3 (2,0,3) Prerequisite: EM 203

This course tackles the fundamentals of properties of structural materials. The following topics are examined: definitions of stress and strain; stress, strain, and deformation of axially loaded bars and torsionally loaded shafts; distributed loads; statically indeterminate problems; stress and strain components and transformations and Mohr's circle; pressure vessels; linear elastic constitutive equations; shear and moment diagrams; bending and transverse shear stress; combined loading; beam deflection; and column buckling. Laboratory experiments are associated with the lectures.

EM 205 THERMODYNAMICS
Credits: 3 (3,1,0) Prerequisites: PHYS 105, MATH 113

This course introduces students to thermodynamics. Elements covers include: system and control volume concepts; properties of a pure substance; work and heat; the first law of thermodynamics as applied to a system and a control volume, internal energy, enthalpy; the second law of thermodynamics; Carnot cycle, entropy, reversible and irreversible processes; applications of steady-state steady-flow, uniform-state uniform-flow, and other processes.

EM 206 MATERIALS SCIENCE
Credits: 3 (3,0,0) Prerequisites: CHEM 101, PHYS 105

The course covers a broad range of engineering materials: mechanical, electrical and chemical; fundamentals of crystallography; impurities and imperfections in solids; atomic diffusion; single phase metals and alloys; elastic and plastic deformation, recrystallization and grain growth; multi-phase materials; phase diagrams with emphasis on iron-iron carbide system; heat treatment process, such as annealing, normalizing and quenching; studies of widely used engineering materials: steels, plastics, ceramics, concrete and wood; in addition to fundamentals of metallurgy and alloys.

EM 208 FLUID MECHANICS
Credits: 3 (3,1,0) Prerequisite: EM 205

The course canvasses the basics of fluid mechanics. Topics include fluid properties, statics, forces on plane and curve surfaces, kinematics of fluid motion, integral and differential representation of conservation of mass, balance of linear and angular momentum, the first law of thermo- dynamics, continuity equation, Bernoulli's equation, energy principle, dimensional analysis, and elementary viscous flow. Frictional losses, simple pipeline analysis and steady channel flow are also covered.

EM 301 SURVEYING
Credits: 3 (2,0,3) Prerequisite: STAT 101

This course explores the theory and practice of surveying. Areas covered include: theory and applications of measurements and errors; linear measurements; surveying principles and instruments; leveling; angles, bearings, and azimuths; stadia measurements; traversing–field aspects; traverse computations and adjustment; topographic surveying; profiles and cross-sections; areas, volumes, and earthwork calculations; triangulation; fundamentals of surveying for building and infrastructure construction; setting out horizontal and vertical curves; setting out engineering structures and construction projects. Students acquire hands on experience with a wide variety of common surveying equipment, including use and operation of levels, theodolites, total station, and GPS.

EM 303 STRUCTURES I
Credits: 3 (3,1,0) Prerequisites: EM 203 Co-requisite: CS101, EM 204

The course looks at the factors and mechanics of building structures. Topics discussed include: equilibrium, stability, and determinacy; influence lines for beams and trusses; deflection of beams and frames by double-integration method, moment-area theorems, and conjugate beam; approximate analyses of indeterminate structures; and computer structural analysis applications.

EM 304 REINFORCED CONCRETE DESIGN
Credits: 3 (3,1,0) Prerequisites: EM 303, EM 204 Co-requisite: EM 381

The focus of the course is understanding and working with reinforced concrete. Items covered include: behavior, analysis, design, and construction of reinforced concrete structural members: beams, slabs, columns, and footings.

EM 306 SOIL MECHANICS AND FOUNDATIONS
Credits: 3 (2,0,3) Prerequisites: EM 206, EM 204 Co-requisite: EM 208

The course examines soil mechanics and foundation. Topics discussed are soil classification and index properties; soil structure and moisture; compaction; seepage; effective stress concept; compressibility and consolidation; stress and settlement analysis; shear strength; slope stability; soil stabilization methods. The class features hands-on laboratory experiments relating to important soil properties.

EM 315 Management of Organizations and Human Resources
Credits: 3 (3,0,0) Prerequisite: Junior Level Standing

The orientation of the course is toward developing managerial skills useful in establishing organizational personnel policy. Focus is on how effective organizational and human resource

management practices can create competitive advantages for organizations. Specific topics include leadership; organizational design, structure, diversity, culture, and strategy; the role of human resources in the management process; human-resources planning and forecasting; job information systems; recruitment and selection; and human-resources development - compensation, performance evaluation, managing diversity, and expatriate management.

EM 317 PRINCIPLES OF ACCOUNTING AND FINANCE
Credits: 3 (3,1,0) Prerequisite: Junior Level Standing

This course introduces students to the fundamental concepts of financial and managerial accounting, with an emphasis on actions managers take to more effectively address the goals of the firm. Key topics covered include the preparation and analysis of financial statements; consideration of variable and fixed costs; application of accounting information for decision-making; and analysis of budget variances, asset valuation, risk; and profitability analysis using ratios.

EM 326 PROJECT MANAGEMENT
Credits: 3 (3,1,0) Prerequisites: STAT 101, BUS 101 or EM 315

This course examines the functions and techniques for effective management of systems development and effective project leadership. Topics covered include: project definition, phases, and work breakdown; scope, risk, configuration, and quality management; cost and time estimation; and tools for planning, scheduling, monitoring and controlling of project development.

EM 327 ENGINEERING ECONOMY
Credits: 3 (3,0,0) Prerequisite: MATH 113

The course focuses on coupling technical analysis and economic feasibility to determine the best course of action among alternatives competing for scarce resources. Areas discussed include: the principles, concepts, and methodology of the time value of money; cost-estimating techniques for engineering projects; and the ethical and social responsibilities of engineers applicable to project decisions affecting job creation and loss, personnel placement, and capital expenditure.

EM 335 OPERATIONS RESEARCH
Credits: 3 (3,1,0) Prerequisite: CS 101, STAT 101, MATH 225

This course presents resource optimization through mathematical programming. The course starts with the art of mathematical modeling for engineering and management problems. Emphasis is placed on applications of forecasting and optimization models to typical engineering management problems. Topics include problem formulation, mathematical model building, linear programming, the Simplex algorithm, duality, game theory, queuing theory, dynamic programming, and nonlinear programming. Post-optimality analysis is studied from the viewpoint of technology management. The course includes a term project involving a real-life problem.

EM 345 PRODUCTION PLANNING AND CONTROL
Credits: 3 (3,0,0) Prerequisite: STAT 101, EM 206

The course introduces students to the production planning. Topics looked at include: fundamentals of forecasting techniques; inventory analysis; master production scheduling; material and capacity requirements; and planning and scheduling methods. Recent

developments in manufacturing, Japanese manufacturing techniques, hybrid manufacturing management system are also discussed.

EM 346 LOGISTICS MANAGEMENT
Credits: 3 (3,0,0) Prerequisite: EM 335

The course surveys the fundamental analytic tools, approaches, and techniques used in the design and operation of logistics systems and integrated supply chains. There is a strong emphasis on the development and use of fundamental models to illustrate the underlying concepts involved in both intra and inter-company logistics operations. Major topics covered are: warehousing management; transportation management; supply chain network design; management and minimization of supply chain uncertainty; and supply contracts and collaboration.

EM 347 QUALITY MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: STAT 101

This course examines the principles and techniques of managing and improving quality in manufacturing and service facilities. Topics include quality control charts (for processes as well as raw materials and end items), continuous quality improvement tools, service quality, total quality management concept, and quality awards.

EM 348 FACILITIES MANAGEMENT
Credits: 3 (3,0,0) Prerequisite: EM 345

This course looks at the basics of the facility design stages of an industrial factory. Items examined include: product, process and material handling analysis; area allocation and space analysis; flow analysis; plant layout and plan; and computerized facility layout and allocations. The course also tackles topics related to facilities and property industries, budgeting, standards, labor relations, safety, personnel administration, maintenance (exterior and interior), energy conservation, HVAC systems and space planning.

EM 381 CONSTRUCTION MATERIALS
Credits: 3 (2,0,3) Prerequisite: EM 206

The course covers the composition and the physical and mechanical properties of construction materials. Construction materials surveyed include: asphalt, pavement base materials, Portland cement concrete, steel, polymers, wood, aluminum, and advanced composite materials. Proportioning of concrete mixtures including admixtures is also examined. Hands on laboratory experiments and demonstrations are used to familiarize students with testing methods, equipment, standards, and quality control procedures.

EM 383 BUILDINGS CONSTRUCTION
Credits: 3 (2,0,3) Prerequisites: EM 204, EM 205; Co-requisite: EM 381, CME 112

Introduces basic knowledge of building systems, materials, technical specifications, techniques, and finishing with emphasis on understanding blueprints and symbols, developing construction drawings, and installation. The course lab features field trips to fabrication plants and construction sites. The two major areas examined are structural systems, construction processes, and assemblies along with the basic mechanical and electrical systems required in buildings.

EM 384 CONTRACTS, SPECIFICATIONS, AND QUANTITY SURVEYING

Credits: 3 (2,0,3) Prerequisites: EM 383; Co-requisite: EM 304

The course focuses on the structure of construction documents and their interrelationships. Items covered include: means of contract procurements; standard agreements, general and particular contract conditions; construction drawings; administrative and procedural requirements for construction; and the various types of contracts relating to the construction business. Technical specifications and methods of quantity surveying are the focus of most of the lab work.

EM 408 GENERAL ENGINEERING DESIGN

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course introduces the main principles and recommendations of design in the following engineering fields: industrial machines design; transportation and traffic systems design; systems analysis and design; and facility systems. The last field is examined at length featuring overviews of the electrical systems and mechanical systems within a facility and their integration within the total structure.

EM 438 MODELING AND SIMULATION

Credits: 3 (1,0,6) Prerequisites: STAT 272, EM 335, EM 345

The course concentrates on simulation modeling and analysis techniques cued to their applications to production, logistics, service, and other systems. Emphasis is given to model building, application of basic statistical data analysis, and the use of simulation for design, evaluation, and improvement of such systems. Topics include; random variables and generation, discrete-event simulation, Monte Carlo simulation, formulation and solution of simple simulation models, statistical analysis of simulation output, verification, validation, and accreditation of models, selecting and fitting input distributions, simulation output analysis, and variance reduction methods. The course includes lab work and group projects.

EM 448 INVENTORY PLANNING AND CONTROL

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course is a specialized course on inventory planning. It builds on the materials covered in EM 346 Logistics Management. The fundamental models in this field are reviewed and readings on further situations and models – including stochastic inventory models – are examined. Case discussions and modeling projects are elements of the course as well.

EM 458 PRODUCT DESIGN AND DEVELOPMENT

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course presents and utilizes an integrated approach to new product design, development, and launch with corporate-sponsored projects. This project-based course covers modern tools and methods for product design and development. Student teams apply the skills learned in the foundation courses to develop a new product and prototype. Team members' experience the sequential nature of formulating, evaluating, and developing a new product concept. Class sessions are conducted in workshop mode and employ cases and hands-on exercises to reinforce the key ideas, e.g. identifying customer needs, methodologies for the generation and selection of concepts, product architecture, industrial design, and design-for-manufacturing.

EM 459 MANUFACTURING PROCESSES

Credits: 3 (2,0,3) Prerequisite: EM 208; Senior Level Standing

The course focuses on manufacturing processes of metals, plastics and ceramics including machining and forming; plastics and powder metallurgy; and welding and casting. The course concentrates on process selection for optimum design. Laboratory experiments are associated

with the lectures.

EM 468 INDUSTRIAL SAFETY

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course explores the broad range of topics related to industrial safety. Items covered include: regulations and standards; industrial hazard avoidance concepts and techniques; plant safety applications, management and its safety responsibilities; analytical trees and fault tree analysis; risk assessment, emergency planning, personal protection and first aid; and the role of information systems in safety management.

EM 469 HUMAN FACTORS AND WORK METHODS

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course is concerned with the design and evaluation of interaction between the users and an engineered system. It focuses on the human performance of tasks, the structure of human-system Communications, human capabilities to use system components, and the design, specification, and evaluation of interfaces. Topics discussed cover displays and controls, cognition, perception, cumulative trauma disorders and biomechanics of work; work analysis and design; methods engineering - study of the basic work measurement techniques; applications and limitations of the stop-watch time study, pre-determined motion times.

EM 471 TECHNOLOGY AND INNOVATION MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course surveys the basic principles of managing technology and innovation in the corporate environment and the critical role technology plays as a strategic resource to achieve an organization's business objectives. The course focuses on the challenges inherent in attempting to take advantage of both incremental or routine innovation and more radical or revolutionary changes in products and processes. Topics include the evolution of technology, technology assessment, technology transfer, technology acceptance, technology lifecycle, understanding technological innovation in industry and organizational contexts, intellectual property, and the new product/service development process.

EM 472 KNOWLEDGE MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

Knowledge Management (KM) involves the design, implementation and review of social and technological activities and processes to improve the creating, sharing and application or use of knowledge. This course examines the concept of Knowledge Management and the systems that enable people to acquire, store, distribute and process knowledge. Topics covered include: defining what knowledge is and the types of knowledge that exist; how systems thinking is integral to understanding and managing knowledge; and economic issues relating to acquiring, storing, distributing, and processing knowledge.

EM 473 ENERGY RESOURCES MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course examines the four major components of energy management: supply, demand, regulation and environment together with the concepts and principles behind successful energy management. Topics include energy auditing and economic analysis; management control and maintenance systems; sustainability and high performance green buildings; alternative energy systems; boilers and fired systems; cogeneration and HVAC systems; ground source heat pumps; lighting and electrical management; natural gas purchasing; thermal storage; codes and standards; indoor air quality; utility deregulation and energy systems outsourcing; energy security risk analysis methods; and financing energy management projects.

EM 474 ENVIRONMENTAL MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

The course looks at the three types of pollution: gaseous, liquid and solid. The course goes over modern environmental measures practiced in abating pollution and wastes. Environmental assessment methods and environmental standards and regulations (both national and international) are discussed as well.

EM 475 TRANSPORTATION SYSTEMS MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course looks at a number of topics encompassed in the area of transportation management including: modern transportation systems, management of transportation authority, and traffic environment and safety issues.

EM 476 COMMUNICATIONS SYSTEMS MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: Senior Level Standing

This course introduces students to problems and analysis related to the design, planning, control, and improvement of Communications systems. These analyses are used in decisions ranging from tactical planning to strategic planning. The course focuses on new approaches such as decentralized management and the management of emerging technologies. Topics covered include process analysis, quality management, security, decentralized management systems, self- configuration and self-management, policy-based management, fault management, capacity and facilities planning, models to describe and reduce congestion, and maintenance. Cases from the telecommunications industry are examined in the course.

EM 482 CONSTRUCTION EQUIPMENT AND METHODS

Credits: 3 (2,0,3) Prerequisites: EM 304, EM 306

The course covers construction equipment and methods for civil/structural facilities with emphasis on equipment-paced operations including safety aspects. Topics covered include: equipment categories; cost analysis of equipment and assembly techniques; fleet operations; powering equipment; selection and utilization of construction equipment for assorted tasks; methods for concrete and steel construction; safety and inspection requirements and task applications.

EM 484 CONSTRUCTION MANAGEMENT

Credits: 3 (3,0,0) Prerequisites: EM 384; Co-requisite: EM 482, EM 488

This course provides students with a solid understanding of the process and practice of project management of construction projects. Items covered include construction project characteristics and phases; construction job site layout; material and equipment planning and procurement; operations and processes analysis and planning; productivity and resource use considerations; performance benchmarking, measurement, analysis, enhancement, and control; safety and health practices for the construction industry; and Communications types – project logs, reports, submittals, meetings, and close out.

EM 486 COST ENGINEERING: ESTIMATING, BUDGETING, AND CONTROL

Credits: 3 (2,0,3) Prerequisites: EM 317, EM 327, EM 384; Co-requisite: EM 482

The course explores Cost Engineering for construction organizations, projects, and operations. Topics covered include: construction financing; break-even, profit, cash flow analyses, capital budgeting, equipment costs and procurement decisions; construction financial accounting, cost accounting, and cost control systems; cost breakdown, fixed and variable costs, direct and indirect costs, insurance and bond premiums, and overhead and markup; cost indices and conceptual estimates, parametric estimates, detailed estimates, unit price proposals,

measuring work and payment determination.

EM 488 PROJECT PLANNING, SCHEDULING AND CONTROL

Credits: 3 (2,0,3) Prerequisite: Senior Level Standing

Study of the concepts used in planning, scheduling and controlling construction projects. Investigation of the planning activities for construction projects starting with Work Break Down Structure (WBS), resource, equipment and materials analysis and selection; productivity, time and cost estimates. Scheduling techniques including precedence diagrams, Critical Path Method (CPM), Program Evaluation Review Techniques (PERT), linear scheduling methods, resource leveling, time-cost analysis, bar charts, time-scaled diagrams, and computer applications (Primavera, Microsoft Project, or equivalent software); Project updating, evaluation and control, and earned value analysis.

EM 490 INTERNSHIP

Credits: 3 Prerequisite: Completion of 90 credit hours

This is an eight-week professional training course in Engineering Management. The program combines classroom learning with work experience to assist students in applying their knowledge and skills to real life situations enable students to explore future quality careers in response to the evolving of local economic and workforce development needs. Students prepare and present reports on their work experience.

EM 492 Co-Op

Credits: 10 Prerequisite: Completion of 90 credit hours

The PSU Co-Op Education Program combines classroom learning with work experience to assist students in applying their knowledge and skills to real life situations and building strong partnerships between the PSU and the local business community. The Co-Op enables students to pursue future quality careers that meet the needs of the local economic and workforce development.

EM 498 SENIOR PROJECT I

Credits: 1 Prerequisites: ENG 301, Senior Level Standing

The course is offered in the fall term and involves supervised projects usually done by groups of 3 students aimed at providing practical experience in industrial manufacturing and production or construction engineering management. These student groups define their projects, state their objectives, write up surveys of literature, set project specifications and select design methods.

Following preliminary modeling and analyses, the teams acquire the necessary materials needed for project completion in the Spring term. All project groups turn in professional reports and make oral presentations on their projects.

EM 499 SENIOR PROJECT II

Credits: 3 Prerequisite: EM 498

This is a continuation of Project I. Project groups deliver their products that have progressed through the design, analysis, testing and evaluation stages. The project teams produce a polished professional report that describes the design process, implementation and testing, verification and validation and a critical appraisal of the project. An oral presentation and graphic works are complementary project deliverables.

EE COURSES
ELECTRICAL ENGINEERING

EE 201 Introduction to Circuit

Credits: 4 (3,1,2) Prerequisite: PHY 205, Math 113

This module is designed to provide students introductory topics in the circuit variables & elements, D.C and A.C circuits: network reduction, Ohm' Law, Kirchoff's Laws, sources & source transformation, series / parallel & delta/star combinations, Network theorems: superposition; mesh & node analysis: Thevenin's & Norton's Equivalent circuits, Maximum power transfer, inductors & capacitors, natural & step responses of first order RL & RC circuits.

EE 202 Circuit Analysis

Credits: 3 (3,1,0) Prerequisite: EE 201

This includes an in-depth study of AC using frequency response and Laplace Transform. Advanced topics such as magnetically coupled circuits and their application to transformers, three-phase circuits, filter design, and two-port networks are also covered.

EE 221 Logic Design

Credits: 4 (3,1,2) Prerequisite: EE 101

This module enables students to understand concepts in binary numbers, number base conversion, complements and codes, definition of Boolean Algebra, Boolean functions, digital logic gates, integrated circuits, Karnaugh map methods, combinational logic circuits, sequential logic circuits and Memory modules. Design and analysis of sequential logic circuits such as: Shift Registers, Counters, Synchronous and Asynchronous Sequential Circuits, State Diagrams, State Tables, Students will be able to develop, measure, and test different types of Sequential Circuits using D-type, T-type and JK-type Flip-Flops.

EE 211 Electronic Fundamental

Credits: 4 (3,1,2) Prerequisite: EE 201

This course covers the characteristics and applications of semiconductor devices and circuits. It starts with explaining the basics of semiconductor physics required for understanding electronic systems design. It introduces the fundamentals of various electronic devices including diodes, bipolar junction transistors (BJTs), field effect transistors (FETs) and metal oxide semiconductor field effect transistor (MOSFET). It also emphasizes analysis and design of different amplifier configurations of the aforementioned electronic devices.

EE 231 Signals and Systems

Credits: 3 (3,1,0) Prerequisite: MATH 225, EE 201

This module is designed to enable students to understand concepts in linear systems and perform signal operations. It also introduces Laplace transform, convolution, system functions, frequency response, Fourier series and Fourier transforms.

EE 304 Electrical Machine

Credits: 3 (3,1,0) Prerequisites: EE 202, EE 341

Introduction to electrical drives, Magnetic circuit concepts, Power transformer theory, Electro-mechanical systems (dynamics and analogies), Motor/load interactions, Standard DC machines, Brushless DC machines. Induction Machines, Synchronous Machines, Control of Electrical DC Machines, Control of Electrical AC Machines.

EE 305 Power Electronics

Credits: 4 (3,1,2) Prerequisite: EE 211

This course is an introduction to Power Electronics. It enables the student to understand the basic Power Electronics components, operations, design, and the analysis of basic power electronics converter circuits. The course is focused on the applications of the power converter in various sectors e.g. industrial, electric grid, renewable energy, microgrid, electric vehicle etc. In addition, the course covers the basic characteristics, control scheme and applications of power semiconductor devices and circuits.

EE 322 Microprocessors design

Credits: 4 (3,1,2) Prerequisite: EE 221, EE 211

This course introduces microprocessor architecture and microcomputer systems, including memory and input/output interfacing. Topics include structured language programming, bus architecture, bus cycle types, I/O systems, memory systems, interrupts, and other related topics. Upon completion, students should be able to interpret, analyze, verify, and troubleshoot fundamental microprocessor circuits and programs using appropriate techniques and test equipment.

EE 332 Control System

Credits: 3 (3,1,0) Prerequisite: EE 231

Introduction to feedback control systems. Block diagram and signal flow graph representation. Mathematical modeling of physical systems. Stability of linear control systems. Time-domain and frequency-domain analysis tools and performance assessment. Lead and lag compensatory design. Proportional, integral, and derivative control.

EE 341 Electromagnetics Fundamentals

Credits: 3 (3,1,0) Prerequisite: EE 201, MATH 225

This module is designed to introduce the electromagnetic fields. Coulomb's law, Gauss's law, electrical potential, dielectric materials capacitance, boundary value problems, Biot-Savart law, Ampere's law, Lorentz force equation, magnetic materials, magnetic inductance, time varying fields and Maxwell's equations.

EE 351 Communication System:

Credits: 4(3,1,2) Prerequisite: EE 211, EE 231

This course focuses on continuous-wave modulation, which is the basic operation of analog communication systems. It gives the student an insight and understanding of signals classifications, noise, Fourier series, Fourier transform, spectrum analysis, and explores their applications in the context of analog communication systems. We cover thoroughly the generation and reception of double-side band, single side-band, vestigial side-band, angle modulation signals.

EE 403 Power System

Credits: 3 (3,1,0) Prerequisite: EE 304

Generation of electrical energy (coal, hydro, gas, sun, water, etc.) / Power and power factor calculations in single phase and three phase power / Network calculations for balanced and unbalanced, star and delta connected, ABC and CBA sequence three phase networks / Load flow calculations / The per unit system representation / Single line equivalent diagrams / Numeric solving of non-linear equations (in power flow calculations) / Load flow calculations.

EE 490 Senior Project

Credits: 3 (3,0,0) Prerequisite: ENGL 301, Senior Level Standing

A supervised project in groups of normally 3 students aimed at providing practical experience in some aspects of electrical and electronics engineering. Students are expected to define the project, state its objectives, complete a literature survey, set project specifications and select a design method. They are also expected to do some preliminary modeling and analysis and to acquire the necessary material needed for the completion of the project in the spring term. A professional report and an oral presentation are also required from the students.

EE 492 CO-OP OR INTERNSHIP

Credits: 10 Prerequisite: Completion of 128 Credit hours and 2.0/4.0 CGPA

The PSU Coop Education Program combines classroom learning with work experience to assist students in applying their knowledge and skills to real life situations and building strong partnerships between the PSU and the local business community. The Coop enables students to pursue future quality careers that meet the needs of the local economic and workforce development.

COLLEGE OF ARCHITECTURE AND DESIGN [CAD]

INTRODUCTION

The College of Architecture and Design (CAD) at PSU consists of two academic programs: Department of Architecture and Department of Interior Design. The two departments target female students and are designed to graduate qualified and competent architects and designers for the local, regional, and international job markets. The college is known for its forward-thinking faculty, market connections and collaboration opportunities. It has crafted a dynamic strategic plan designed to deliver quality programs that reflect excellence and leadership in higher education in Saudi Arabia and the region.

The content and structure of the programs are comparable to those offered by leading universities in the region and worldwide. In addition, the programs are designed in accordance with international standards. The Architecture and Interior Design programs offer a Bachelor of Science degree in their respective fields after successful completion of the respective curricula requirements of 138 credit hours. Duration of study for both programs is four years in addition to the preparatory year program. Lastly, these programs are guided by the following vision and mission of the College of Architecture and design.

CAD VISION

The College of Architecture and Design aspires to be the leading institute in the region that provides education, practice, and research towards community advancement, innovation, culture continuity, and sustainability.

CAD MISSION

The College of Architecture and Design aims to graduate professional designers and architects who will enrich the community through the use of technology innovation and fostering creativity. The college aspires to raise the sense of environmental and community responsibility, and foster research and evidence-based design.

CAD DEGREE PROGRAMS

- Bachelor of Science in Architecture [ARCH]
- Bachelor of Science in Interior Design [ID]

GRADUATION REQUIREMENTS

To obtain bachelor degrees, students must satisfy the requirements related to credits, grade point average, program of study, experiential/community link, and other courses within the maximum period that is specified in the PSU Undergraduate Rules and Regulations. The requirements are as follow:

- Pass the Preparatory Year program.
- Complete the credits required by the respective major.
- Earn an overall cumulative grade point average (GPA) of at least 2.0 (out of 4.0)
- Earn a program grade point average (GPA) of at least 2.0 (out of 4.0)
- Satisfy PSU requirements
- Satisfy CAD requirements
- Satisfy Program requirements
- Satisfy Experiential Learning /Community Link requirements (e.g., Co-Op, internship, senior project, etc).

Structure of Undergraduate Academic Programs

The structure of undergraduate academic programs consists of the following elements:

- **University Requirements:** set of core academic subjects that all PSU students in a college must take.
- **College Requirements:** set of courses designed to meet the specific needs of individual colleges
- **Program Requirements:** set of courses designed to meet the specific needs of individual degree programs
- **Major or Field of Specialization Requirements:** set of core subjects that constitute the main areas of knowledge in a particular field of specialization of each academic degree
- **Electives:** a discrete number of courses allotted in each academic degree that can expand the students' knowledge in their fields of specialization or to broaden the range of their intellectual pursuits
- **Experiential Learning or Community Link:** set of programs or activities targeted to enrich the students' knowledge through practical experience, observations of real work behaviors, and hands-on application of knowledge gained from classroom lectures and discussions to actual situations such as solving real organization problems and concerns
- **Language of Instruction:** except for those subjects that are devoted to the study of the Arabic Language and Islamic Studies, the medium of instruction at PSU is English.

CAD Degree Programs

Students seeking a degree in the CAD must take a minimum of 138 credits according to the framework illustrated in the CAD program table below.

Number of Credits	ARCH	ID
University Requirements	23	23
College | Department Requirements	28	28
Program Requirements	78	81
Approved Electives	9	6
Total	138	138

The CAD curricular design is composed of four types of courses as described above: University, College|Department, Program, and Elective. All CAD degree programs share the same list of university requirements but differ in the composition of college|department and program requirements. Below are the College of Architecture and Design University Required Courses.

University Requirements

University Requirements					
Required Courses in English			Required Courses in Arabic		
Course#	Title	CRs	Course#	Title	CRs
ENG 101	Intensive English Writing	3	ARAB101	Arab WritingI	2
PSY 101	Introduction to Psychology	3	ARAB103	Arab WritingII	2
COM 201	Communications Skills	3	ARAB203	Arab WritingIII	2
			ISC101	Islamic Ethics	2
			ISC103	Islamic Economic System	2
			ISC105	Holy Quran Sciences	2
			ISC203	New Financial Transactions	2
				Subtotal	14
	Subtotal	9		**Total**	**23**

BACHELOR OF SCIENCE IN ARCHITECTURE
BS IN ARCHITECTURE

INTRODUCTION

The Department of Architecture offers a comprehensive program that fosters creativity, innovation, informed problems-solving skills, and cultivation of human needs as individuals and community. This is achieved in parallel by incorporating cultural and traditional considerations in the curriculum.

The program requires 4 years in addition to the foundation year: PYP. It includes a 7-month professional training as a Co-Op program to prepare our students for the professional practice inside and outside KSA.

As our students develop autonomous lifelong learning competences, they are supported to develop their personal and professional capabilities as well as their responsibility to improve their communities.

Our learning outcomes are accomplished by a group of highly qualified faculty members with a rich variety of academic backgrounds.

Our graduates are prepared to serve as qualified professionals and leaders in the fields of Architecture, Urban Design, Landscape Design, Graphic Presentation, Software Application as well as Model-Making. They are also prepared to pursue their graduate studies in Architecture or related fields.

The Architecture program takes into account the needs of the local community for university educated professional architects. The design and content of the Architecture curriculum was benchmarked with prominent universities. Additionally, the program is in compliance with National Architectural Accrediting Board (NAAB) requirements, thus ensuring the scientific, engineering, and artistic study of architecture subjects. The Architecture Program graduates have the necessary professional skills to embark on successful careers in the industry and/or pursue higher education in Architecture and related disciplines.

PROGRAM VISION

The Department of Architecture prepares the students to contribute significantly, positively and creatively to the profession of Architecture and the advancement of the community, culture and environment.

PROGRAM MISSION

The mission of the Department of Architecture at PSU is to provide our students with high quality education that meets international standards. This is achieved through enriching their knowledge, motivating them to research-oriented lifelong learning, enhancing their critical thinking, and applying modern technologies in their courses. Our team of qualified faculty aims at preparing students to lead a successful career in the professional field, encouraging them to create an architecture that develops their environment and community, and boosting up their social responsibility, involvement of sustainable designing and building for the future.

PROGRAM OBJECTIVES

- Advance architectural education through research, critical thinking, and practice
- Graduate young architects with life-long professional practice in a manner that is responsive and responsible to society, culture, and the environment
- Interact with the local, regional, and international scientific and professional institutions
- Apply knowledge and concepts of sustainable architecture and technology

PROGRAM LEARNING OUTCOMES | THE ABILITY TO

- Demonstrate a coherent understanding of the historical, theoretical, and national, regional & international knowledge of Architecture
- Demonstrate knowledge about design principles, materials, cost, stakeholders (client) & project management
- Apply analytical & Critical thinking for creative problem solving and design development
- Incorporate building systems (structural, environmental, technical, sustainable, circulation, accessibility, contextual fit, life safety, Barrier-Free, landscaping, building envelope) in design for human comfort
- Apply principles of formal & spatial configuration and relate them to human, social, urban and environmental factors
- Work effectively in teams to accomplish a goal
- Work autonomously and take responsibility & leadership for lifelong learning
- Act responsibly and legally in personal and professional relationships inside & outside the classroom and in personal and public forums (using all forms of media and technology)
- Articulate ideas clearly to others in oral, written and graphic (manual & computer) representations
- Demonstrate proficient skills in computer, information technology and numeric applications
- Present concepts using drafting techniques & physical models

CAREER OPPORTUNITIES

- Architectural Designer
- Architectural researcher
- BIM/CAD manager
- Retail architect
- Graphic designer
- City planner
- Urban designer
- Building material specialist
- Program designer
- Project manager
- Hospitality designer
- Architectural Software Consultant
- Green design consultant
- Model maker
- Urban planner

STRUCTURE OF THE PROGRAM

The program has the following components:

University Requirements	23	Credits
College | Department Requirements	28	Credits
Program Requirements	78	Credits
Approved Electives	9	Credits
TOTAL	138	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

College Requirements

College Requirements		
Course#	Title	CRs
MATH 103	Descriptive Geometry	3
PHY 105	Physics I	4
ENG 301	English Technical Writing	3
ARCH 111	Basic Design I -2D	3
ARCH 112	Basic Design II -3D	3
ARCH 131	Technical Drawing I	2
ARCH 132	Technical Drawing II	2
ID 131	Free hand Drawings	2
MMGD 231	Computer Aided Design	3
MMGD 232	Computer Visualization and Simulation	3
	Subtotal	28

ARCHITECTURE PROGRAMS REQUIREMENTS

ARCH PROGRAM REQUIREMENTS					
COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
ARCH CORE COURSES			Program Electives – 3 of the courses below		
ARCH 122	HISTORY AND THEORY OF ARCHITECTURE	3	ARCH 401	SPECIAL TOPICS IN ARCHITECTURE	3
ARCH 140	HUMAN FACTORS AND THE BUILT ENVIRONMENT	2	ARCH 431	Shape Grammar	3
ARCH 211	ARCHDESIGNI–RESIDENTIAL INTERIORS|EXTERIORS	4	ARCH 432	IMAGING AND ELECTRONIC AGE	3
ARCH 212	ARCH DESIGN II–CULTURAL OR RELIGIOUS	4	ARCH 441	LOW INCOME HOUSING	3
ARCH 223	HISTORY AND THEORY OF ISLAMIC ARCHITECTURE	2	ARCH 442	HOUSING FOR PEOPLE WITH LIMITED ABILITIES	3
ARCH 224	HISTORY AND THEORY OF CONTEMP|MODERN ARCH	3	ARCH 443	REAL ESTATE DEVELOPMENT	3
ARCH 251	CONSTRUCTION TECHNOLOGY I	3	ARCH 444	GIS FOR URBAN DESIGN	3
ARCH 252	CONSTRUCTION TECHNOLOGY II	3	ARCH 445	SPACE SYNTAX	3
ARCH 260	BUILDINGS SURVEYING	2	ARCH 455	ARCHITECTURAL PUBLICATIONS	3
ARCH 261	STRUCTURES FOR ARCHITECTS I	2	ARCH 456	EMERGING BLDG MATERIALS AND TECHNIQUES	3
ARCH2 62	STRUCTURES FOR ARCHITECTS II	2	ARCH 465	SUSTAINABLE AND ENVIRONMENTAL DESIGN	3
ARCH 311	ARCH DESIGN III	4	ID 425	DESIGN THEORY AND CRITICISM	3
ARCH 341	THEORIES OF HOUSING DESIGN	2	ID 435	PORTFOLIO DESIGN	3
ARCH 343	LANDSCAPE ARCHITECTURE	2	MMGD 334	PHOTOGRAPHY	3
ARCH 344	THEORIES OF URBAN DESIGN	2	------	ANYCAD APPROVED 3 --OR 4 -- COURSE	3
ARCH 346	SAUDI HERITAGE AND CONSERVATION	2			
ARCH 353	CONSTRUCTION TECH III–CONSTRUCTION DRAWINGS	3			
ARCH 354	SPECIFICATIONS AND QUANTITIES	2			
ARCH 364	ENVIRONMENTAL CONTROL I–THERMAL DESIGN	2			
ARCH 365	ENVIRON CONTROL II–BLDG SYSTEM|ACOUSTICS	2			
ARCH 411	ARCH DESIGN IV–INTEGRATIVE SYSTEMS	4			
ARCH 412	URBAN DESIGN STUDIO	4			
ARCH 451	PROFESSIONAL PRACTICE & DESIGN MANAGEMENT	2			
ARCH 492	CO-OP IN ARCHITECTURE	10			
ARCH 498	SENIOR PROJECT I	2			
ARCH 499	SENIOR PROJECT II	5			
		78		SUBTOTAL	**9**
College & PROGRAM (including 9 CH electives) TOTAL		**115**			

ARCHITECTURE MAJOR SUGGESTED STUDY PLAN

YEAR 1 **SEMESTER 1** **SEMESTER 2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ARCH 111	BASIC DESIGNI	3	ARCH 112	BASIC DESIGNI II	3
ARCH 131	TECHNICAL DRAWINGI	2	ARCH 122	HISTORY AND THEORY OF ARCHITECTURE	3
ARCH 140	HUMAN FACTORS AND THE BUILT ENVIRONMENT	2	ARCH 132	TECHNICAL DRAWING II	2
ID 131	FREEHAND DRAWING	2	MMGD 231	COMPUTER AIDED DESIGN	3
MATH 103	DESCRIPTIVE GEOMETRY	3	PHY 105	PHYSICSI	4
ENG 101	INTENSIVE ENGLISH WRITING	3	COM 201	COMMUNICATIONS SKILLS	3
ISC 101	ISLAMIC ETHICS	2			
ARAB 101	ARABIC WRITING I	2			
	TOTAL	**19**		TOTAL	**18**

YEAR 2 **SEMESTER 1** **SEMESTER 2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ARCH 211	ARCHITECTURE DESIGNI	4	ARCH 212	ARCHITECTURE DESIGNII	4
ARCH 223	HISTORYANDTHEORYOFISLAMICARCHITECTURE	2	ARCH 224	HISTORY&THEORY–MODERN|CONTEMPARCH	3
ARCH 251	CONSTRUCTION TECHNOLOGYI	3	ARCH 252	CONSTRUCTION TECHNOLOGYII	3
ARCH 261	STRUCTURES OF ARCHITECTSI	2	ARCH 260	BUILDINGSSURVEYING	2
MMGD 232	COMPUTERVISUALIZATIONANDSIMULATION	3	ARCH 262	STRUCTURES FOR ARCHITECTSII	2
ISC 103	ISLAMIC ECONOMICSYSTEM	2	ISC 105	HOLY QURANSCIENCES	2
ARAB 103	ARAB WRITINGII	2	ARAB 203	ARABIC WRITINGIII	2
	TOTAL	**18**		TOTAL	**18**

YEAR 3 **SEMESTER 1** **SEMESTER 2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ARCH 311	ARCHITECTURE DESIGN III	4	ARCH 343	LANDSCAPE ARCHITECTURE	2
ARCH 341	THEORIES OF HOUSING DESIGN	2	ARCH 344	THEORIES OF URBAN DESIGN	2
ARCH 346	SAUDI HERITAGEAND CONSERVATION	2	ARCH 354	SPECIFICATIONS AND QUANTITIES	2
ARCH 353	CONSTRUCTION TECHNOLOGY III	3	ARCH 365	ENVIRONMENTAL CONTROL II	2
ARCH 364	ENVIRONMENTAL CONTROL I	2	ARCH 411	ARCHITECTURE DESIGN V	4
ENG 301	ENGLISH TECHNICAL WRITING	3	ARCH 498	SENIOR PROJECT I	2
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	ARCH---	ARCHITECTURE PROGRAM ELECTIVE I	3
			ISC 203	NEW FINANCIALTRANSACTIONS	2
	TOTAL	**19**		TOTAL	**19**

YEAR 4 **SEMESTER 1** **SEMESTER 2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ARCH 412	URBAN DESIGN STUDIO	3	ARCH 492	CO-OP IN ARCHITECTURE (CONTINUES INTO THE SUMMERTERM)	10
ARCH 451	PROFESSIONAL PRACTICE AND DESIGN MGMT.	3			
ARCH 499	SENIOR PROJECT II	5			
ARCH---	ARCHITECTURE PROGRAM ELECTIVE II	3			
ARCH---	ARCHITECTURE PROGRAM ELECTIVE III	3			
	TOTAL	**17**		TOTAL	**10**

- The Internship option is on hold.

BACHELOR OF SCIENCE IN INTERIOR DESIGN
BS IN INTERIOR DESIGN

INTRODUCTION

As a participant in the academic mission of the Prince Sultan University -the Department of Interior Design is committed to producing a distinctive class of high- quality young professionals in the various fields of design work. The Department is committed to fostering intellectual excellence, emphasizing knowledge that is relevant to design (hand-drafting skills and technological computer CAD skills in designing). These young women graduates possess a sound academic background in the fundamental and necessary skills of interior design and thus are fully equipped to deal with the challenges of design projects in the real world and the jobs that await them in commercial, hospitality and residential design firms.

The Interior Design program was developed taking into account the needs of the local communityandtheincreasingdemandsofprofessionalanduniversity-educatedinteriordesigners. In addition, the content and structure of well-known and accredited programs at prominent universities are taken into consideration along with the recommendations of leading international bodies. This enables program graduates to obtain the necessary professional skills that embark on successful industrial careers and/or pursue higher education in Interior Design.

PROGRAM VISION

The Interior Design program aims to provide the job market with professionals who contribute positively to the society and enhance the quality of inhabited spaces.

PROGRAM MISSION

The program aspires to offer high quality learning platform. Modern design technology is integrated with scientific research application, and environmental awareness. It demonstrates contribution to society development lining with cultural heritage. Graduates are equipped with professional and international working ethics.

PROGRAM OBJECTIVES

- Prepare program graduates for promising professional careers domestically and internationally.
- Employ a higher level of design philosophy, research and practice knowledge among students.
- Promote effective communication and team collaboration on faculty and student's' level.
- Encourage innovation in design with emphasis on the human and built environment relationship.
- Promote professional business practices of the interior design profession.
- Raise awareness towards designer's ethical responsibilities to the society.

PROGRAM LEARNING OUTCOMES | THE ABILITY TO

- Define social, cultural, economic, and ecological context and value in all aspects of interior design.
- Recognize the knowledge of human experience and behavior to designing the built environment.

- Analyze the history and theories used in interior design body of knowledge throughout the design process.
- Demonstrate students' ability to work individually and collaborate in team tasks in different interior design practices.
- Demonstrate knowledge of interior construction and codes in relation to building construction systems.
- Show the ability to use of law codes, standards, and guidelines that impact human experience of interior spaces.
- Apply the knowledge of color, light, and indoor environment quality that impact human well-being.
- Demonstrate verbal, visual, and written communication skills required for the profession.
- Illustrate the use of technology in design solutions to integrate furnishings, materials, and finishes.
- Employ interior design knowledge using drawing techniques on two and three dimensional as required.

CAREER OPPORTUNITIES

- Interior designer.
- Junior interior designer.
- Senior interior designer.
- Lighting and acoustics designer.
- Design Consultant.
- Project manager.
- Graphic designer.

STRUCTURE OF THE PROGRAM

The program has the following components:

University Requirements	23	Credits
College | Department Requirements	28	Credits
ID Program Requirements	78	Credits
Approved Electives	9	Credits
TOTAL	138	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

ID College Requirements

Course#	**TITLE**	**CRs**
MATH103	Descriptive Geometry	3
PHY 105	Physics I	4
ENG 301	English Technical Writing	3
ARCH 111	Basic Design I -2D	3
ARCH 112	Basic Design II -3D	3
ARCH 131	Technical Drawing I	2
ARCH 132	Technical Drawing II	2
ID 131	Free hand Drawings	2
MMGD 231	Computer Aided Design	3
MMGD 232	Computer Visualization and Simulation	3
	Subtotal	**28**

ID Department & ID Program Requirements

138 Credits: College Requirements 28 | Program ID Core 81 | Program Electives 6					
Program Elective Courses – 2 of the courses below			**ID Program Requirements**		
Course#	**TITLE**	**CRs**	**Course#**	**TITLE**	**CRs**
ID 425	Design Theory and Criticism	3	**ID Core Courses**		
ID 435	Portfolio Design	3	ID 111	Interior Design Studio	3
ARCH 465	Sustainable and Environmental Design	3	ID 120	Introduction to Interior Design	2
MMGD 211	DigitalGraphics	3	ID 121	History of Art	2
MMGD 334	Photography	3	ID 132	Foundation of Color Design	2
------	Any CAD approved 3-- or 4-- course	3	ID 133	Interior Design Visual Presentation I	2
	Subtotal	6	ID 212	Interior Design Studio II	3
			ID 213	Interior Design Studio III	3
			ID 222	History of Furniture Styles	2
			ID 223	History of Architecture and Interior Design	2
			ID 234	Interior Design Visual Presentation II	2
			ID250	Interior Materials & Sustainable Elements	2
			ID251	Building Construction and Structure	2
			ID 252	Working Drawings and Detailing I	3
			ID 314	Interior Design Studio IV	4
			ID 315	Interior Design Studio V	4
			ID 324	History of Islamic Architecture and ID	2
			ID 342	LandscapeDesign	2
			ID 353	Working Drawings and Detailing II	3
			ID 354	Furniture Design and Details	3
			ID 355	Lighting Design Techniques	2
			ID 442	Saudi Heritage and Conservation	2
			ID 456	Advanced Lighting Design & Acoustic Tech.	3
			ID 457	Specifications and Quantities	2
			ID 458	Building Services Integration	3
			ID 459	Professional Practice	2
			ID 492	Co-Op	10
			ID 498	Senior Project I	2
			ID 499	Senior Project II	5
			ARCH 140	Human Factor and the Built Environment	2
				Program Core Subtotal	81
	Department & Program Total				**138**

INTERIOR DESIGN MAJOR SUGGESTED STUDY PLAN

YEAR 1 **SEMESTER 1** **SEMESTER 2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ID 120	INTRODUCTION TO INTERIOR DESIGN	2	ID 111	INTERIOR DESIGN STUDIO I	3
ID 131	FREE HAND DRAWING	2	ID 121	HISTORY OF ART	2
ID 132	FOUNDATIONS OF COLOR DESIGN	2	ID 133	INTERIOR DESIGN VISUAL PRESENTATION I	2
ARCH 111	BASIC DESIGN I	3	ARCH 112	BASIC DESIGN II	3
ARCH 131	TECHNICAL DRAWING I	2	ARCH 132	TECHNICAL DRAWING II	2
ARCH 140	HUMAN FACTORS AND THE BUILT ENVIRONMENT	2	PHY 105	PHYSICS I	4
MATH 103	DESCRIPTIVE GEOMETRY	3	ARAB 101	ARAB WRITING I	2
ENG 101	INTENSIVE ENGLISH WRITING	3			
	TOTAL	**19**		TOTAL	**18**

YEAR 2 **SEMESTER 1** **SEMESTER 2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ID 212	INTERIOR DESIGN STUDIO II	3	ID 213	INTERIOR DESIGN STUDIO III	3
ID 222	HISTORY OF FURNITURE STYLES	2	ID 223	HISTORY OF ARCHITECTURE AND INTERIOR DESIGN	2
ID 250	INTERIOR MATERIALS AND SUSTAINABLE ELEMENTS	2	ID 234	INTERIOR DESIGN VISUAL PRESENTATION II	2
ID 251	BUILDING CONSTRUCTION AND STRUCTURE	2	ID 252	WORKING DRAWINGS AND DETAILING I	3
MMGD 231	COMPUTER AIDED DESIGN	3	MMGD 232	COMPUTER VISUALIZATION AND SIMULATION	3
ENG 301	ENGLISH TECHNICAL WRITING	3	COM 201	COMMUNICATIONS SKILLS	3
ISC 101	ISLAMIC ETHICS	2	ISC 103	ISLAMIC ECONOMIC SYSTEM	2
ARAB 103	ARAB WRITING II	2			
	TOTAL	**19**		TOTAL	**18**

YEAR 3 **SEMESTER 1** **SEMESTER 2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ID 314	INTERIOR DESIGN STUDIO IV	4	ID 315	INTERIOR DESIGN STUDIO V	4
ID 324	HISTORY OF ISLAMIC ARCH AND INTERIOR DESIGN	2	ID 342	LANDSCAPEDESIGN	2
ID 353	WORKING DRAWINGS AND DETAILING II	3	ID 456	ADVANCED LIGHTING DESIGN AND ACOUSTIC TECH	3
ID 354	FURNITUREDESIGN AND DETAILS	3	ID 457	SPECIFICATIONS AND QUANTITIES	2
ID 355	LIGHTING DESIGN TECHNIQUES	2	ID 498	SENIOR PROJECT I	2
ISC 105	HOLY QURAN SCIENCES	2	ID ---	INTERIOR DESIGN PROGRAM ELECTIVE I	3
ARAB 203	ARAB WRITING III	2	PSY 101	INTRODUCTION TO PSYCHOLOGY	3
	TOTAL	**18**		TOTAL	**19**

YEAR 4 **SEMESTER 1** **SEMESTER 2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ID 442	SAUDI ARABIA ARCH & HERITAGE CONSERVATION	2	ID 492	CO-OP IN INTERIOR DESIGN (CONTINUES INTO THE SUMMER TERM)	10
ID 458	BUILDING SERVICES INTEGRATION	3			
ID 459	PROFESSIONAL PRACTICE	2			
ID 499	SENIOR PROJECT II	5			
ID ---	INTERIOR DESIGN PROGRAM ELECTIVE II	3			
ISC 203	NEW FINANCIAL TRANSACTIONS	2			
	TOTAL	**17**		TOTAL	**10**

- The Internship option is on hold.

ARCH COURSES
ARCHETICTURE

ARCH 111 BASIC DESIGN I
Credits: 3(1,0,5)

The course introduces the basic principles of order using 2D and 3D compositions of basic design elements. Space explorations through movement and circulation are established. Additional emphases are given to color theory, textures and tones. Class assignments are based on abstract concepts while acquainting students with different media and presentation techniques.

ARCH 112 BASIC DESIGN II
Credits: 3(1,0,5) Prerequisite: ARCH111

This course develops the conceptualization of aesthetics and principles of composition. With this background in place, students apply the same with mixed media to create objects that have utilitarian purpose. As they create, students develop their higher-level thinking and art-related technical skills.

ARCH 122 HISTORY AND THEORY OFARCHITECTURE
Credits: 3(3,0,0) Prerequisite: None

The course offers a historical and analytical review of the art of architecture and design in relation to the physical, religious, social, economic, and political factors which shaped them from prehistory through the Middle Ages, the Renaissance, the 17th century and on to the present.

ARCH 131 TECHNICAL DRAWING I
Credits: 2(1,0,3) Prerequisite: None

This course focuses on the use of instruments and equipment necessary for accurate manual drafting of simple geometric constructions. The fundamentals of two-dimensional architectural drawing skills and the analytical processes using a variety of drawings media are also taught.

ARCH 132 TECHNICAL DRAWINGII
Credits: 2(1,0,3) Prerequisite: ARCH131

This course concentrates on drawing perspective projections. One-point and two-point projections, exterior and interior; casting shades and shadows on horizontal and vertical planes; and axonometrics isometrics made using different rendering techniques in pencil, colored pencils, markers, pens, and ink.

ARCH 140 Human Factor and the Built Environment
Credits: 2(2,0,0) Prerequisite: None

This course examines the theoretical foundations and concepts drawn from human and environmental behaviors as applied to design and the design process. Items covered include the concepts of anthropometrics and ergonometric in design, analysis of space, and behavior within a cultural context.

ARCH 211 Architecture Design I
Credits: 4(1,0,7) Prerequisites: ARCH 112, ARCH 140, ID131

The course covers architectural design for residential interiors and exteriors as asynthetic discipline that considers material/spatial experience, contextual analysis, formal concepts, and social/cultural relationships. Material/graphic representations are explored in models, drawings, collages and renderings.

ARCH 212 Architecture Design II
Credits: 4(1,0,7) Prerequisite: ARCH211

This design class cultivates the ability to respond to natural and built site conditions in the development of a program as well as religious or cultural design projects. Design compositions employ analysis of precedent.

ARCH 223 HISTORY AND THEORY OF ISLAMIC ARCHITECTURE
Credits: 2(2,0,0) Prerequisite: ARCH122

The course examines the history of Islamic architecture, its theoretical bases, and its flowering in the past through to the present.

ARCH 224 HISTORY AND THEORY OF MODERN AND CONTEMPORARY ARCHITECTURE
Credits: 3(3,0,0) Prerequisite: ARCH223

This course surveys the concepts and theories of architecture and urban design relating to the modern and contemporary movements. These two periods are analyzed in typological, formal, technological and philosophical terms.

ARCH 251 CONSTRUCTION TECHNOLOGY I
Credits: 3(2,0,4) Prerequisites: ARCH 131

Via an investigation of building technologies, this course lays the foundation for understanding the systems that make a building and influence the form, texture and character of the construction environment.

ARCH 252 CONSTRUCTION TECHNOLOGY II
Credits: 3(2,0,4) Prerequisite: ARCH251

This course looks at behavior cued to the construction of buildings. The basic principles, appropriate applications, performance, and environmental impact of construction materials, products, components, and assemblies are covered.

ARCH 260 BUILDINGSSURVEYING
Credits: 2(2,0,2) Prerequisite: ARCH132

The course introduces surveying principles and techniques. Items examined include: measurement of distances, triangulation, taping errors, corrections, differential and cross sectional leveling, compass use, measuring heights, elevations, computing angles (amplitude, azimuth), construction and topographic surveys, using traditional and advanced techniques.

ARCH 261 STRUCTURES FOR ARCHITECTS I
Credits: 2(2,2,0) Prerequisites: MATH103, PHYS105, Sophomore Standing

This course surveys the concepts and elemental nature of structural materials. Topics examined covered are statics, strength of materials and over views of simple structural systems together with discussions on design and economics of simple building structures.

ARCH 262 STRUCTURES FOR ARCHITECTS II
Credits: 2(2,2,0) Prerequisite: ARCH261

The course targets the behavior and planning of structural systems. The principals of structural behavior in withstanding the gravity and lateral forces and the evolution are studied, as are the range of and appropriate application of contemporary structural systems.

ARCH 311 ARCHITECTURE DESIGN III
Credits: 4(1,0,7) Prerequisites: ARCH 212, Co-requisite: ARCH262

Design sustainable projects that explore basic environmental issues–e.g. clients 'needs, site planning, masonry, construction material, health, and safety are the matter of this course. The basic principles of life-safety systems with an emphasis on egress are also discussed.

ARCH 341 THEORIES OF HOUSING DESIGN
Credits: 2(2,0,0) Prerequisites: ARCH 122, ARCH212

The course provides an understanding of residential architecture, while investigating behavioral, socio-cultural, planning, environmental, construction, legal, and financing issues that impact its design and production. It includes reviewing behavioral, social, and cultural factors in housing design.

ARCH343 LAND SCAPE ARCHITECTURE
Credits: 2(2,0,2) Prerequisites: ARCH 252, ARCH260

This course examines the theories and surveys the history of landscape architecture. It also looks at the relationship of contemporary landscape architecture to contemporary architecture.

ARCH 344 THEORIES OF URBAN DESIGN
Credits: 2(2,0,0) Prerequisite: ARCH341

The course surveys the theories of urban design. Topics covered include: the study of precedents, recent philosophy, design vocabulary, behavioral responses, and implementation strategies.

ARCH 346 SAUDI HERITAGE AND CONSERVATION
Credits: 2(2,0,0) Prerequisite: ARCH260

Traditional as well as modern architectural styles are examined in this course. Buildings and settlement patterns are analyzed within the Saudi cultural context. Research, discussion and case-studies are used to explore socio-political, economic and historical issues related to the restoration, preservation and adaptive use of buildings. Field measuring and recording techniques are practiced and then used to produce drawings.

ARCH 353 CONSTRUCTION TECHNOLOGY III
Credits: 3(2,0,4) Prerequisite: ARCH252

The course focuses on construction drawings and integrated systems. Students learn how to make technically precise drawings for proposed designs.

ARCH 354 SPECIFICATIONS AND QUANTITIES
Credits: 2(2,0,2) Prerequisite: ARCH353

This course covers the fundamentals of quantity surveying, building costs, life-cycle costs, and construction estimating. Practice in writing outline specifications for proposed designs is an integral part of the course.

ARCH 364 ENVIRONMENTAL CONTROL I
Credits: 2(2,2,0) Prerequisites: ARCH 251, Junior Standing

The course covers a vast array of energy-related issues as they apply to site planning and architectural design. Topics include: thermal design comfort, site climate analysis, building thermal response, and solar system design; air treatment, distribution systems, and related energy systems; water resources supplies and treatment, distribution and disposal systems; together with electrical, vertical transportation, Communications, security, and fire protections systems.

ARCH 365 ENVIRONMENTAL CONTROL II – BUILDING SYSTEM INTEGRATION /ACOUSTICS
Credits: 2(2,2,0) Prerequisite: ARCH364

This course discusses the development and application of visual/auditory comfort criteria, lighting and acoustical design, and their respective design implications.

ARCH 401 SPECIAL TOPICS IN ARCHITECTURE
Credits: 3(3,0,0) Prerequisite: None

This course allows specialized, in-depth studies of subjects supplementing architecture. It explores new topics on an experimental basis, appropriate for testing interest and ability in architecture.

ARCH 411 ARCHITECTURE DESIGN V
Credits: 4(1,0,7) Prerequisite: ARCH 311 (Co-Op option); ARCH312(Internship option)

The object of the course is for students to design comprehensive architectural projects for institutional buildings. Areas dealt with include development of programmed spaces demonstratinganunderstandingofstructuralandenvironmentalsystems, building envelope systems, life-safety provisions, wall sections, building assemblies and the principles of sustainability.

ARCH 412 URBAN DESIGN STUDIO
Credits: 4(1,0,7) Prerequisite: ARCH411

The course discusses design processes featured in existing urban environments and calls on students to critically assess site and program, and creatively integrate the role of service to the public as client.

ARCH 431 SHAPE GRAMMAR
Credits: 3(3,0,0) Prerequisite: None

The course goes over the principles underlying computer programming, the emphasis on algorithms, along with the procedures and program structures applicable to architecture.

ARCH 432 ARCHITECTURE IMAGING AND ELECTRONIC AGE
Credits: 3(3,0,0) Prerequisite: None

This is an interdisciplinary course designed to introduce students in the creative arts, science, engineering, and architecture to the concepts of digital pictorial representation and display. It is a concept and theory course, which concentrates on “why” rather than “how.” Topics include: perspective representations, display technology, how television works, bandwidth and printing concepts, digital photography, computer graphics modeling and rendering, and user interfaces. Historical precedents from the Renaissance to today modern computer and digital effects are discussed and critiqued.

ARCH 441 LOW-INCOME HOUSING
Credits: 3(3,0,0) Prerequisite: None

The course provides evaluation and analysis of low-income housing theories and policies impact on technical, functional, socio-behavioral factors, and design.

ARCH 442 HOUSING FOR PEOPLE WITH LIMITED ABILITIES
Credits: 3(3,0,0) Prerequisite: None

The course examines the implications of policy, planning, and design theories of housing for the elderly and people with limited disabilities.

ARCH 443 REAL ESTATE DEVELOPMENT
Credits: 3(3,0,0) Prerequisite: None

The course considers theories, strategies, and methods relating to real-estate prospects. The course looks at the development of sustainable planning based on assessment of real market needs and demands, as well as location analysis for proper marketing devolution.

ARCH 444 GIS FOR URBAN DESIGN
Credits: 3(3,0,0) Prerequisite: None

The course covers methods of constructing a Geographical Information System (GIS).Students acquire the necessary skills to prepare intelligent maps with spatial databases for parcel mapping, planning, zoning, facility mapping, creating buffer zones, slope analysis, and neighborhood and zone analysis, using CAD map software packages.

ARCH 445 SPACE SYNTAX
Credits: 3(3,0,0) Prerequisite: None

The course explores structural properties of spatial representation. Both the mental images and the possible critical aspects that connect those basic images with specific cultural contexts are examined. The aim of the course is to guide students in the discovery the potentialities of

translation from one representational language to another and to produce practical exercises on concrete spatial structures.

ARCH 451 PROFESSIONAL PRACTICE AND DESIGN MANAGEMENT
Credits: 2(3,0,0) Prerequisite: ARCH 354

The course focuses on architectural practice. Topics discussed include office procedures, contract management, ethics, professional judgment, legal constraints, and adherence to codes, contracts, regulations and laws.

ARCH 455 ARCHITECTURAL PUBLICATIONS
Credits: 3(3,0,0) Prerequisite: None

The course integrates conceptual communicative thinking and design as well as principles and practices of publication design and production, with emphasis on magazines, newsletters, newspapers and contemporary formats and use of traditional and electronic information services as resources. 20th century and current print architectural and web-based publications, are surveyed and critically assessed.

ARCH 456 EMERGING BUILDING MATERIALS ANDTECHNIQUES
Credits: 3(3,0,0) Prerequisite: None

The course focuses one merging building materials and techniques that have the potential to be applied in architectural design. It looks at exploratory technological advances that have introduced new materials in the market and their impact on global sustainability.

ARCH 465 SUSTAINABLE AND ENVIRONMENTAL DESIGN
Credits: 3(3,0,0) Prerequisite: None

The course provides an overview of critical developments in sustainable building design strategies by examining environmental problems and possible solutions through design. It explains the principles of sustainability in architecture and urban design decisions that conserve natural and built resources, culturally important buildings and sites, and healthful buildings and communities.

ARCH 492 Co-Op
Credits:10 (0,0,0) Prerequisite: Completion of 90 credit hours

The Co-Op is a career related professional program available to all Architecture students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to Architecture students who have accumulated the requisite number or more credits. The Co-Op option counts for 10 credit hours (CRs) for practical onsite experience over a 7 month period, i.e. spanning one semester and a summer.

ARCH 498 SENIOR PROJECT I
Credits: 2(2,0,0) Prerequisites: ENG 301, Senior Standing;Co-requisite:ARCH411

The course is oriented towards systematic analysis of senior project dealing with functional and spatial relationships, location and setting, physical and human environments, use of precedents, and provision of synthesis and alternative concepts for design. The outcome will be presented as written and visual presentation

ARCH 499 SENIOR PROJECT II

Credits: 5(0,0,10) Prerequisite: ARCH498

The course is a continuation of the thesis research outcomes and synthesis; it proceeds to develop preliminary architectural design concepts, assesses alternative design approaches, and develops design through systematic evaluation process of architectural, structural, environmental, and aesthetic entities. The product includes preparation of a full set of working design drawings

ID COURSES
INTERIOR DESIGN

ID 111 INTERIOR DESIGN STUDIO I [RESIDENTIAL DESIGN]
Credits: 3(1,0,5) Prerequisites: ARCH 111, ID 120; Co-requisite: ARCH 132, ID 133

The course introduces solutions to functional and aesthetic problems along with examinations of interior residential environmental issues. Emphasis is placed on orientation, design theory, space planning, lighting, fabrics and furnishings. The development from the conceptual phase to final design based on interior considerations and external influences is tracked. Emphasis is placed on three-dimensional design processes, rendering and graphic representation of spaces.

ID 120 INTRODUCTION TO INTERIOR DESIGN
Credits: 2(2,0,0)

This course provides an orientation to the interior design profession and its relationship to allied fields. The basic principles and concepts of aesthetics and processes relevant to interior design are discussed. Philosophical approaches and contemporary developments in the discipline are discussed as well.

ID 121 HISTORY OF ART
Credits: 2(2,0,0) Prerequisite: None

This class offers an overview of the history of art and architecture through the ages. Cultural and social issues are included. The lectures cover the process of artistic creation and pose questions for discussion and reflection.

ID 131 FREE HAND DRAWING
Credits: 2(1,0,3) Prerequisite: None

The course teaches drawing of humans, spaces, objects, and other figures using freehand in the solution of figure construction with emphases on perceptual, observational, and creative expression. Students practice drawing in pencil, ink, and watercolors and learn the subtleties of textures and tones.

ID 132 FOUNDATIONS OF COLOR DESIGN
Credits: 2(2,0,2) Prerequisite: None

This is a basic course in the fundamentals of color and design. The course introduces students to aesthetic, historical, perceptual, scientific, and psychological aspects of color, light and their implications for interior design. Students explore color through experimentation, observation, and evaluation. Contemporary design projects are analyzed for their use of color theory.

ID 133 INTERIOR DESIGN VISUAL PRESENTATION I
Credits: 2 (1,0,3) Prerequisite: ID 131

This course is an introduction to different techniques, materials and processes used in painting. Color rendering techniques are introduced as students continue to build on skills acquired in Drawing. Traditional painting methods and contemporary approaches are explored. Media are introduced in this course: pencil, color pencil, magic marker, pen, watercolor, gouache, chalk pastel, and acrylic paints, for use in later ID courses.

ID 212 INTERIOR DESIGN STUDIO II[DESIGN OF COMMERCIAL BUILDINGS]
Credits: 3(1,0,5) Prerequisites: ID 111, ARCH 112, ARCH140

Students are introduced to programming, specifications, code requirements, and the use of systems furniture as they relate to planning small commercial facilities. Emphasis is on the design process using space planning concepts and methods, problem solving, and application of design theory specific to commercial office environments.

ID 213 INTERIOR DESIGN STUDIO III [DESIGN OF OFFICE BUILDING]
Credits: 3(1,0,5) Prerequisites: ID 212, MMGD 231

This course provides practice in the solution of functional and aesthetic problems of interior environments relevant to office buildings. With the focus on the problem-solving discipline of the design process and its application to public spaces, students work conceptually to achieve interior design goals and present their projects professionally.

ID 222 HISTORY STYLE OF FURNITURE
Credits: 2(2,0,0) Prerequisite: ID 121

The course surveys the main characteristics and motifs of Western and Eastern furniture from antiquity to the 19th Century. Students examine how people, social conditions, and technology influenced furniture design in each period. Class format includes illustrated lectures and discussions.

ID 223 HISTORY OF ARCHITECTURE AND INTERIOR DESIGN
Credits: 2(2,0,0) Prerequisite: ID 222

This course examines interior architecture, decoration and decorative arts within their cultural, technological, social, economic and political contexts, from ancient times through to the eighteenth century. Emphasis is placed on European, American and Islamic countries.

Architecture and interior design of the nineteenth and twentieth centuries are discussed against a background of interior architecture, furniture, and design philosophies.

ID 234 INTERIOR DESIGN VISUAL PRESENTATION II
Credits: 2(1,0,3) Prerequisites: ID 132, MMGD 231

This course introduces students to Adobe Photoshop and Corel Draw programs to present and color projects. Using these highly creative tools for organizing and presenting digital images, students learn to capture and digitally manipulate images and text expressively in both digital and printed presentation documents and materials.

ID 250 INTERIOR MATERIALS AND SUSTAINABLE ELEMENTS
Credits: 2(2,0,2) Prerequisite: ARCH 131

This course canvasses the technical and aesthetic aspects of textiles. Emphasis is placed on product knowledge, specifications, technology, and terminology. The course also examines non- textile based materials. Students learn how to select, specify and apply appropriate materials and finishes on the basis of aesthetics, material cost, environmental impact and performance. In addition, the course presents the LEED rating system within the context of professional interior design practice.

ID 251 BUILDING CONSTRUCTION AND STRUCTURE
Credits: 2(2,0,2) Prerequisite: ARCH 131

This course covers the basics of structural design and building construction relevant to the technical training of interior designers. The course focuses on the variety of building materials, their behaviors as structural elements and building products, and the sets of safety codes and construction procedures in the context of a building.

ID 252 WORKING DRAWINGS AND DETAILING I
Credits: 3(1,0,5) Prerequisites: ID 250, ID 251, MMGD 231

This course covers construction drawing formats and principles. While learning to develop the plans, elevations, sections, and details, students gradually assemble the set of working drawings for a small commercial or residential interior project.

ID 314 INTERIOR DESIGN STUDIO IV [DESIGN OF EDUCATIONAL BUILDINGS]
Credits: 4(1,0,7) Prerequisites: ID 213, ID 234, MMGD 232

Building on previously studied design concepts, students work collaboratively to apply their knowledge and skills in the production of an Educational Building design project. Projects emphasize research, creative problem solving, effective Communications, sustainability and the application of LEED C-I standards.

ID 315 INTERIOR DESIGN STUDIO V [HOSPITALITY BUILDINGS]
Credits: 4(1,0,7) Prerequisites: ID 314, ID 354, ID 355

This course focuses on hospitality spaces, the problem-solving discipline of the design process and its application to hotel, resort, restaurant, entertainment, and related interior spaces. The emphasis is on developing concepts to achieve design goals in tandem with application of theoretical knowledge and technical skills to design solutions. Students work on a variety of professionally relevant interior design projects.

ID 324 HISTORY OF ISLAMIC ARCHITECTURE AND INTERIOR DESIGN
Credits: 2(2,0,0) Prerequisite: ID 223

This is a theory|studio course. Students are taken on a guided tour of the architecture and interior features of Islamic period design. In the theory portion of the course, students focus on interior design and the decorative patterns and motifs of this period of architecture. Students are taught to distinguish between different periods of Islamic architectural ornamentation and geographic origin (i.e., Turkish, Persian, Indian, Moroccan etc.) Students also study how Islamic ornamentation has influenced interiors and furnishings. In the studio, Islamic geometry is demonstrated to illustrate principles of Islamic patterns and design.

ID 342 LANDSCAPE DESIGN
Credits: 2(2,0,2) Prerequisite: MMGD 232

Interior design students are introduced to planning and designing of environmental interior landscapes. The vast gamut of operations relevant to interior landscaping, from program formulation to implementation, is explored. Instruction also addresses and stresses a synthesis of environmental and social factors integral to the shaping of domestic settings in Saudi Arabia.

ID 353 WORKING DRAWINGS AND DETAILING II
Credits: 3(1,0,5) Prerequisite: ID 252

This course focuses on technical aspects of interior design with an emphasis on construction techniques, building systems and finishes. The course content includes creative problem solving and the development of working and presentation drawings.

ID 354 FURNITURE DESIGN AND DETAILS
Credits: 3 (2,0,4) Co-requisite: ID 353

This course is an introduction and overview of furniture and case-good design. Students study construction techniques, design, and materials associated with casework, tables, seating and furniture for commercial and residential interiors. Preparation of detailed working drawings, models, and presentation drawings are emphasized in this course. Students work through a project from the initial design stages through to completion of finished pieces of furniture.

ID 355 LIGHTING DESIGN TECHNIQUES
Credits: 2(3,0,0) Prerequisite: None

This course considers the role of illumination methods, lighting systems and mechanical systems in the design of interior spaces. Emphasis is placed on color and light, illumination aesthetics and applications, human behavior and responses to light and color, as well as strategies for dealing with heating, ventilation, air conditioning and acoustical systems.

ID 425 DESIGN THEORY AND CRITICISM
Credits: 3(3,0,0) Prerequisite: Senior Standing

This course is an introduction to the elements and methods of critical thinking in architecture and interior design and their applications through discussion and writing. The course focuses on critical evaluation, problem solving, and decision making.

ID 435 PORTFOLIO DESIGN
Credits: 3 (3,0,0) Prerequisites: None

This course is the capstone element in the development and preparation of a design projects portfolio. This course assists students in developing high-level commitment to professional performance, refining both visual presentation and oral Communications skills necessary for success in the interior design industry. It emphasizes creative self-assessment, portfolio preparation, written Communications, presentation, interview, and job search skills. Students' professional portfolios are reviewed and career opportunities explored.

ID 442 SAUDI ARABIA ARCHITECTURAL HERITAGE AND CONSERVATION
Credits: 2(2,0,2) Prerequisite: ID 324

The course covers interior architecture and decorative arts within the cultural, technological and social contexts of the Kingdom of Saudi Arabia from ancient times up through the 19th century.

ID 456 ADVANCED LIGHTING AND ACOUSTIC TECHNIQUES
Credits: 3(3,0,0) Prerequisite: ID 355

The course looks at advanced techniques used in planning lighting and acoustic mechanics in the design of interior spaces.

ID 457 SPECIFICATIONS AND QUANTITIES
Credits: 2(2,0,2) Prerequisite: ID 354

The field of Interior Design practice and execution is explored including the writing of detailed specifications, working out costing of materials and making a prototype of any one furniture piece.

ID 458 BUILDING SERVICES INTEGRATION
Credits: 3(3,0,0) Prerequisite: ID 456

This course surveys the integration of the following systems found in buildings: structural systems (skeleton, pre-cast, load bearing), mechanical systems (elevators, HVAC, plumbing), electrical systems (lighting, acoustics, power) and safety fire protection systems. Students assess the best approaches to systems and services integration that correspond to user need and economic feasibility.

ID 459 PROFESSIONAL PRACTICES
Credits: 2(3,0,0) Prerequisite: ID 457

In this course, students study business and office practices, fees and commissions, the preparation of estimates and contracts, professional ethics and job opportunities.

ID 492 Co-Op
Credits: 10(0,0,0) Prerequisite: Completion of 90 credit hours

The Co-Op is a career related professional program available to all Interior Design students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to Interior Design students who have accumulated the requisite number or more credits. The Co-Op option counts for 10 credit hours (CRs) for practical onsite experience over a 7 month period, i.e. spanning one semester and summer.

ID 498 INTERIOR DESIGN STUDIO VII - SENIOR PROJECT I
Credits: 2(2,0,0) Prerequisites: ENG 301, ID 315, Senior Standing

This course is a research-based course that lays the foundation for the Senior Project course to be taken in the following semester. In consultation with the faculty and through guided research, students select an appropriate topic for their Senior Project. Their tasks are to write research proposal featuring a summary of their preliminary research, articulate are search question and describe the scope of their project.

ID 499 INTERIOR DESIGN STUDIO VIII - SENIOR PROJECT II
Credits: 5(0,0,10) Prerequisites: ID 457, ID 498

This is the final studio course. It focuses on the multidimensional aspects of analyzing complex problems. Attention is placed on creativity and integration with previous experiences utilizing systematic design methodologies, research, programming, estimation, and detailing all phases of the design process.

MMGD COURSES
MULTI-MEDIA & GRAPHIC

MMGD 211 DESIGN GRAPHIC DESIGN I –VISUAL FORM
Credits: 3 (2,0,2) Prerequisite: MMGD 231

The course lays the foundation for graphic design studies. It focuses on the applications of the basic elements of color, line, and shape to a specific message. The course is designed to enhance students' visual perception and problem solving skills as their projects are critiqued weekly.

MMGD 231 COMPUTER AIDED DESIGN I
Credits: 3 (1,0,5) Prerequisite: MATH 103, ARCH 131

This course introduces computer aided graphic software such as AutoCad for technical application in 2D and 3D presentations. The course emphasizes the use of computers rendering techniques for simulating models, materials, and textures, and the importance of presenting these simulations in multiple shots.

MMGD 232 COMPUTER VISUALIZATION AND SIMULATION
Credits: 3 (1,0,5) Prerequisite: MMGD 231

The course focuses on the use of advanced computer software multi-media design. Students obtain hands-on-experience applying digital methods used in design, modeling, rendering, lighting, etc. for visualized drawing. The course covers basic animation modeling (Rhino and Maya), shading, rendering, animation (3D MAX and Mental Ray), and digital media editing (Adobe Photoshop, Adobe Illustrator and Adobe Premier) or equivalent modeling software.

MMGD 334 PHOTOGRAPHY
Credits: 3 (2,0,2) Prerequisite: Junior Standing

The course discusses the significance of medium photography within communications processes and the difference between human perception and photographic image. It covers the fundamentals and principles of photographic image making and aesthetics. The use of photography as an investigative and presentation tool is also discussed. Emphasis on composition and design elements of view, lighting, black and white technique; as well, digital image manipulation, and input and output strategies using digital cameras and creative camera controls. The course focuses finally on proficiency in working with equipment and software combined with creativity to produce a quality portfolio

COLLEGE OF HUMANITIES & SCIENCES [CHS]

INTRODUCTION

The College of Humanities & Sciences offers two undergraduate programs: Applied Linguistics and Translation. The duration of each program is four years. The development of these programs is based on the needs of the local community and the interdisciplinary nature of academic subjects. The choices of programs and specialized concentrations can help students to communicate with other cultures to keep abreast with the fast pace and challenges of the information age.

CHS VISION

The College of Humanities and Sciences aims to be the leader in humanities and sciences education and research in KSA.

CHS MISSION

The College of Humanities and Sciences aspires to provide students with a high-quality education in the fields of humanities and sciences in order to advance their scientific knowledge, enhance their cultural awareness, broaden their horizons, and create a balance in student life that supports educational growth and life-long learning skills. CHS is also committed to producing quality research with distinct societal impact.

The Department of Linguistics and Translation offers undergraduate programs: Applied Linguistics and Translation. The duration of each program is four years. The development of these programs is based on the needs of the local community and the interdisciplinary nature of academic subjects. The choices of programs and specialized concentrations can help students to communicate with other cultures to keep abreast with the fast pace and challenges of the information age.

CHS DEGREE PROGRAMS

- Bachelor of Arts in Applied Linguistics [AL]
- Bachelor of Arts in Translation [TRAN]

GRADUATION REQUIREMENTS

To receive bachelor's degrees, students must satisfy the requirements related to credits, grade point average, program of study, experiential/community links, and other courses within the maximum period that is specified in the PSU Undergraduate Rules and Regulations. The requirements are as follow:

- Pass the Preparatory Year program
- Complete the credits required by the respective majors
- Earn an overall cumulative grade point average (GPA) of at least 2.0 (out of 4.0)
- Earn a program grade point average (GPA) of at least 2.0 (out of 4.0)
- Satisfy PSU university requirements
- Satisfy College of Humanities and Sciences requirements
- Satisfy Program requirements
- Satisfy Experiential Learning /Community Link requirements (e.g., Co-Op)

Structure of Undergraduate Academic Programs

The structure of undergraduate academic programs consists of the following elements:

- **University Requirements:** set of core academic subjects that all PSU students in a College must take.
- **College Requirements**: set of courses designed to meet the specific needs of individual colleges
- **Program Requirements**: set of courses designed to meet the specific needs of individual degree programs
- **Major or Field of Specialization Requirements:** set of core subjects that constitute the main areas of knowledge in a particular field of specialization of each academic degree
- **Electives:** a discrete number of courses allotted in each academic degree that can expand the students' knowledge in their fields of specialization or to broaden the range of their intellectual pursuits
- **Experiential Learning or Community Link**: set of programs or activities targeted to enrich the students' knowledge through practical experience, observations of real work behaviors, and hands-on application of knowledge gained from classroom lectures and discussions to actual situations such as solving real organization problems and concerns
- **Language of Instruction:** except for those subjects that are devoted to the study of the Arabic Language and Islamic Studies, the medium of instruction at PSU is English.

CHS Degree Programs

Students seeking degrees in the CHS must earn a minimum of 133 credits as illustrated in the table below.

Number of Credits	AL	Tran
University Requirements	23	23
College Requirements	32	32
Program Requirements	27	26
Concentration Requirements	33	34
College Electives	9	9
Free Electives	9	9
Total	133	133

While both the Applied Linguistics and Translation degree programs both total 133 credits, the AL Department offers two concentrations: English for Professions [ELP] and Teaching English as a Foreign Language [TEFL], hence the differentiation in the table above. The University Requirements (see below) and the College Requirements are uniform.

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

BACHELOR OF ARTS IN APPLIED LINGUISTICS
BA IN APPLIED LINGUISTICS

INTRODUCTION

Applied Linguistics is one of the major subfields of General Linguistics. It is concerned with the application of knowledge on the nature of Language as defined by linguistic research. Applied Linguistics deals with practical issues and problems in which language is a central component especially learning and teaching of foreign languages.

PROGRAM VISION

The Applied Linguistics Program aspires to be a world-class program and a recognized leader in the advancement of linguistics and its practical applications.

PROGRAM MISSION

The Applied Linguistics Program aims to provide its students with quality education in Linguistics and its applications whilst fostering awareness of cultural and cross-linguistic variations. The program aims at developing students' linguistic proficiency, communication skills, critical thinking, research skills and use of information technology

PROGRAM OBJECTIVES

- To build students' knowledge of the structure and function of language and its use and change in various cultural and social settings.
- To enable students to understand the relationship between linguistic theories and its professional applications.
- To train students to effectively utilize communication skills, critical thinking skills, analytical and synthetic skills, reading, writing and research skills.

PROGRAM LEARNING OUTCOMES | THE ABILITY TO

Knowledge

1.1 Demonstrate fundamental understanding of the nature, function and structure of core areas of linguistics and applied linguistics. Knowledgeable

1.2 Recognize the relationship between the theories of linguistics and applied Linguistics displaying an awareness of their interdisciplinary nature and how they connect with other fields. Knowledgeable

Cognitive skills

2.1 Explore the structure and evolution of words and texts from the point of view of phonology, morphology, grammar, syntax, semantics displaying awareness of cross-linguistic variations. Critical thinkers

2.3 Analyze the nature and function of language as a human attribute including Language acquisition, language and society, language and culture, language and thought. Communicators, Critical Thinkers

2.2 Demonstrate an ability to produce, reflect critically and edit oral and written communication products to diverse social, cultural, professional or academic communities using appropriate digital media and technology. Communicators, Critical thinkers, Digital Natives

Values

3.1 Display an ability to lead and engage in research individually or collaboratively recognizing the ethical and legal considerations and demonstrating an aptitude for life-long learning. Communicators, Team Players, Socially Responsible and Ethical

3.2 Demonstrate preparedness for pursuing an academic path and/or a Professional career in language teaching or corporate and organizational communication displaying responsibility, accountability and commitment to work ethics. Communicators, Team players, Socially Responsible and Ethical

CAREER OPPORTUNITIES

- TEFL instructor
- English program supervisor
- English program/curriculum designer
- Publishing copy-editor/proof-reader
- Editorial assistant
- Information officer
- Primary/ secondary school teacher
- Public relations officer
- Language test designer/administrator
- Journalism

STRUCTURE OF THE PROGRAM

The Applied Linguistics Program offers two tracks:

- Teaching English as a Foreign Language [TEFL]
- English for Professionals [ELP]

Each track has six components:

General Education Requirements 64 credits		
University Requirements	23	Credits
College Requirements	32	Credits
Free Electives	9	Credits
Major Requirements: 69 Credit Hours		
Program Requirements	27	Credits
Track Requirements	33	Credits
Program Electives	9	Credits
TOTAL	133	Credits

Applied Linguistics Program Requirements

110 CREDITS: COLLEGE 32 | DEPARTMENT 27| TRACK 33 |PROGRAM ELECTIVES 9 |FREE ELECTIVES 9					
College Requirements			**Program Requirements**		
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
ELAN 241	Fiction	3	ELAN 130	Introduction To Linguistics	3
ELAN 104	Analytic Reading & Writing	3	ELAN 240	Introduction To Literature	3
ELAN 205	Advanced Reading & Writing	3	ELAN 232	Morphology And Syntax	3
ELAN 206	Research Writing	3	ELAN 334	Semantics And Pragmatics	3
ELAN 107	English Grammar I	3	ELAN 131	Phonetics And Phonology	3
ELAN 108	English Grammar Ii	3	ELAN 233	Introduction To Applied Linguistics	3
HPE 101	Physical Education I	1	ELAN 335	Discourse Analysis	3
HPE 102	Physical Education Ii	1	ELAN 336	Sociolinguistics	3
ELAN 311	Western Thought	3	ELAN 460	Professional And Ethical Issues	3
STAT 100	Introduction To Statistics	3		Subtotal	27
ARAB 201	Functional Grammar	3			
IR 101	Information Resources	3			
	Subtotal	32			
TEFL Track Requirements			**ELP track requirements**		
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
TEFL 250	Language Acquisition	3	ELP 201	Writing For Professional Communication	3
TEFL 351	Tefl Methods (1)	4	ELP 202	Oral Communication For Social And Occupational Purposes	3
TEFL 353	Technology In Language Teaching	3	ELP 303	English For Administration	3
TEFL 454	Evaluation And Assessment	3	ELP 304	English For Public Relations And Marketing	4
TEFL 455	Curriculum Design & Material Development	3	ELP 405	English For Global Media And Communication Technologies Communication Technologies	4
TEFL 452	Tefl Methods (2)	4	ELP 407	English For Scientific, Technical And Web-Based Writing	3
TEFL 459	Practicum	3	ELP 408	English For Political Communication & Propaganda	3
TEFL 492	Cooperative Learning	10	ELP 492	Cooperative Learning	10
	Subtotal	33		Subtotal	33
TEFL TRACK – PROGRAM ELECTIVES (select 3 courses)			**ELP TRACK – PROGRAM ELECTIVES (select 3 courses)**		
Course #	**TITLE**	**CRs**	**Course #**	**TITLE**	**CRs**
EUR 101	European Language I	3	EUR 101	European Language I	3
EUR 102	European Language Ii	3	EUR 102	European Language Ii	3
ELAN 242	Drama	3	ELAN 242	Drama	3
ELAN 243	Poetry	3	ELAN 243	Poetry	3
ELAN 337	Psycholinguistics	3	ELAN 337	Psycholinguistics	3
ELAN 425	Selected Works In British And American Literature	3	ELAN 425	Selected Works In British And American Literature	3
ETRA 250	Introduction To Translation Theories	3	ETRA 250	Introduction To Translation Theories	3
ETRA 251	General Translation	3	ETRA 351	Sight Translation	3
ETRA 351	Sight Translation	3	ELAN 341	World Literature	3
TEFL 457	English For Young Learners	3	ETRA 354	Lexicography And Terminology	3
TEFL 458	English For Specific Purposes	3	ETRA 353	Computer Applications In Translation	3
	Subtotal	9		Subtotal	9
UNIVERSITY ELECTIVES 9 hours					

APPLIED LINGUISTICS – TEFL TRACK –Distribution of Courses

YEAR1 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ENG 101	INTENSIVE ENGLISH WRITING	3	ELAN 104	ANALYTIC READING & WRITING	3
ELAN 107	ENGLISH GRAMMAR I	3	ELAN 108	ENGLISH GRAMMAR II	3
ELAN 130	INTRODUCTION TO LINGUISTICS	3	ELAN 131	PHONETICS AND PHONOLOGY	3
ARAB 101	ARABIC WRITING I	2	ARAB 103	ARABIC WRITING II	2
HPE 101	HEALTH AND PHYSICAL EDUCATION	1	HPE 102	HEALTH & PHYSICAL EDUCATION	1
PYS 101	INTRODUCTION TO PSYCHOLOGY	3	ISC 105	STUDIES OF THE HOLY QURAN	2
ISC 101	ISLAMIC ETHICS	2	ISC 103	ISLAMIC ECONOMIC SYSTEM	2
	TOTAL	17		TOTAL	16

YEAR2 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ELAN 233	INTRODUCTION TO APPLIED LINGUISTICS	3	TEFL 250	LANGUAGE ACQUISITION	3
ELAN 240	INTRODUCTION TO LITERATURE	3	ELAN 241	FICTION	3
ELAN 205	ADVANCED READING AND WRITING	3	ELAN 232	MORPHOLOGY & SYNTAX	3
ISC 205/ ISC 203	FAMILY IN ISLAM/ NEW FINANCIAL TRANSACTIONS	2	ELAN 206	RESEARCH WRITING	3
COM 201	COMMUNICATION SKILLS	3	ARAB 203	ARABIC WRITING III	2
IR 101	INFORMATION RESOURCES	3	--- ---	PROGRAM ELECTIVE I	3
	TOTAL	17		TOTAL	17

YEAR3 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ELAN 334	SEMANTICS & PRAGMATICS	3	TEFL 353	TECHNOLOGY IN LANGUAGE TEACHING	3
TEFL 351	TEFL (1)	4	ELAN 311	WESTERN THOUGHT	3
ELAN 335	DISCOURSE ANALYSIS	3	ELAN 336	SOCIOLINGUISTICS	3
ARAB 201	FUNCTIONAL GRAMMAR	3	STAT 100	INTRODUCTION TO STATISTICS	3
--- ---	PROGRAM ELECTIVE (2)	3	--- ---	PROGRAM ELECTIVE (3)	3
--- ---	FREE ELECTIVE (1)	3	--- ---	FREE ELECTIVE (2)	3
	TOTAL	19		TOTAL	18

YEAR 4 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
TEFL 454	EVALUATION AND ASSESSMENT	3	TEFL 492	COOPERATIVE LEARNING	10
ELAN 460	PROFESSIONAL AND ETHICAL ISSUES	3			
TEFL 455	CURRICULUM DESIGN & MATERIAL DEVELOPMENT	3			
TEFL 452	TEFL II	4			
TEFL 459	PRACTICUM	3			
--- ---	FREE ELECTIVE (3)	3			
	TOTAL	19		TOTAL	10

- The Internship option is on hold.

APPLIED LINGUISTICS – ELP TRACK –Distribution of Courses

YEAR 1 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ENG 101	INTENSIVE ENGLISH WRITING	3	ELAN 104	ANALYTIC READING & WRITING	3
ELAN 107	ENGLISH GRAMMAR I	3	ELAN 108	ENGLISH GRAMMAR II	3
ELAN 130	INTRODUCTION TO LINGUISTICS	3	ELAN 131	PHONETICS AND PHONOLOGY	3
ARAB 101	ARABIC WRITING I	2	ARAB 103	ARABIC WRITING II	2
HPE 101	HEALTH AND PHYSICAL EDUCATION	1	HPE 102	HEALTH & PHYSICAL EDUCATION	1
PYS 101	INTRODUCTION TO PSYCHOLOGY	3	ISC 105	STUDIES OF THE HOLY QURAN	2
ISC 101	ISLAMIC ETHICS	2	ISC 103	ISLAMIC ECONOMIC SYSTEM	2
	TOTAL	17		TOTAL	16

YEAR 2 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ELAN 233	INTRODUCTION TO APPLIED LINGUISTICS	3	ELP 201	WRITING FOR PROFESSIONAL COMMUNICATION	3
ELAN 240	INTRODUCTION TO LITERATURE	3	ELAN 241	FICTION	3
ELAN 205	ADVANCED READING AND WRITING	3	ELAN 232	MORPHOLOGY & SYNTAX	3
ISC 205/ ISC 203	FAMILY IN ISLAM/ NEW FINANCIAL TRANSACTIONS	2	ELAN 206	RESEARCH WRITING	3
COM 201	COMMUNICATION SKILLS	3	ARAB 203	ARABIC WRITING III	2
IR 101	INFORMATION RESOURCES	3	--- ---	PROGRAM ELECTIVE I	3
	TOTAL	17		TOTAL	18

YEAR 3 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ELAN 334	SEMANTICS & PRAGMATICS	3	ELP 303	ENGLISH FOR ADMINISTRATION	3
ELP 202	ORAL COMMUNICATION FOR SOCIAL AND OCCUPATIONAL PURPOSES	3	ELP 304	ENGLISH FOR PUBLIC RELATIONS AND MARKETING	4
ELAN 335	DISCOURSE ANALYSIS	3	ELAN 311	WESTERN THOUGHT	3
ARAB 201	FUNCTIONAL GRAMMAR	3	ELAN 336	SOCIOLINGUISTICS	3
--- ---	PROGRAM ELECTIVE (2)	3	STAT 100	INTRODUCTION TO STATISTICS	3
--- ---	FREE ELECTIVE (1)	3	--- ---	FREE ELECTIVE (2)	3
	TOTAL	19		TOTAL	17

YEAR 4 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ELP 405	ENGLISH FOR GLOBAL MEDIA AND COMMUNICATION TECHNOLOGIES	4	ELP 492	COOPERATIVE LEARNING	10
ELAN 460	PROFESSIONAL AND ETHICAL ISSUES	3			
ELP 407	ENGLISH FOR SCIENTIFIC, TECHNICAL AND WEB-BASED WRITING	3			
ELP 408	ENGLISH FOR POLITICAL COMMUNICATION & PROPAGANDA	3			
--- ---	FREE ELECTIVE (3)	3			
--- ---	PROGRAM ELECTIVE (3)	3			
	TOTAL	19		TOTAL	10

- The Internship option is on hold.

BACHELOR OF ARTS IN TRANSLATION
BA IN TRANSLATION

INTRODUCTION

Translation has always played a vital role in human communications throughout history. It was responsible for the development of many civilizations. For example, the material aspect of Islamic civilization flourished as a result of translation of scientific and medical works from Indian, Persian, Syrian and Greek cultures. The European Renaissance was not possible without extensive Arab and Islamic influence through translation of Arabic works in the various fields of knowledge, including philosophy, astronomy, medicine, and mathematics into Latin and other European languages.

In the modern age, with globalization and the explosion in the fields of Communications and Information, translation has become essential for speakers of different languages to communicate with each other. Due to the employment of speakers of foreign languages in public and private sectors in Saudi Arabia, there is a dire need for translators and interpreters to assist Saudis in their communications with these workers. Conferences, symposia, and visits by foreign delegations also require the services of translators and interpreters.

PROGRAM VISION

The Translation Program aspires to produce global citizens capable of shaping the future by facilitating communication across languages and cultures.

PROGRAM MISSION

The Translation Program aims at developing the students' translation competence by refining their language proficiency and building up the different types of knowledge and skills necessary for interlingual communication. It also seeks to equip them with communication, critical thinking and research skills, along with facility in using information technology in their professional fields.

PROGRAM GOALS

- To build students' knowledge of the structure and function of English language and its use in various communication situations.
- To enable students to understand the varied translation approaches and their professional applications in the translation of texts in different fields.
- To develop students' communication skills, critical thinking and analytical skills, and research and professional development skills.

PROGRAM LEARNING OUTCOMES | THE ABILITY TO

- Demonstrate an understanding of the English language in use and an awareness of cultural and cross-linguistic variations.
- Outline major theories of translation and recognize their applications in different fields of human knowledge and experience.
- Develop translation competence with professionalism and ethical responsibilities.
- Exhibit an ability to apply critical thinking and analytical skills, linguistic and communication skills, and research skills in translation work.
- Illustrate an ability to work independently and within a team, to use technology to enhance knowledge, and to engage in life-long learning and professional development.

Career Opportunities

- Translator in a variety of occupations
- Media and journalism
- Editing and publishing
- Bilateral and community interpreting

Structure of the Program

The Translation Program has the following components:

University Requirements	23	Credits
College Requirements	32	Credits
Program Requirements	26	Credits
Track Requirements	34	Credits
Free Electives	9	Credits
Program Electives	9	Credits
Total	133	Credits

110 CREDITS: College 32 | Department 26 | Program 34 | Free Electives 9| Program Electives 9					
College Requirements			**Program Requirements**		
COURSE#	**TITLE**	**CRS**	**COURSE#**	**TITLE**	**CRS**
ELAN 241	Fiction	3	**ENG-T CORE COURSES**		
ELAN 104	Analytic Reading And Writing	3	ELAN 130	Introduction To Linguistics	3
ELAN 205	Advanced Reading And Writing	3	ELAN 240	Introduction To Literature	3
ELAN 206	Research Writing	3	ELAN 232	Morphology And Syntax	3
ELAN 107	English Grammar I	3	ELAN 334	Semantics And Pragmatics	3
ELAN 108	English Grammar Ii	3	ETRA 456	Editing And Publishing	3
HPE 101	Physical Education I	1	ETRA 233	Text Linguistics	3
HPE 102	Physical Education Ii	1	ETRA 250	Introduction To Translation	3
ELAN 311	Western Thought	3	ELAN 131	Phonetics And Phonology	3
STAT 100	Introduction To Statistics	3	ARAB 303	Arab Rhetoric	2
ARAB 201	Functional Grammar	3		Subtotal	**26**
IR 101	Information Resources	3	**Track Requirements**		
	Subtotal	**32**	ETRA 453	Simultaneous Interpretation	3
Program Electives 9 Hours (Select 3 Courses)			ETRA 455	Legal And Political Translation	3
EUR 101	European Language I	3	ETRA 351	Sight Translation	3
EUR 102	European Language Ii	3	ETRA 353	Computer Applications In Translation	3
EUR 103	European Language Iii	3	ETRA 355	Business And Media Translation	3
ELAN 425	Selected Works In American And British Literature	3	ETRA 354	Lexicography And Terminology	3
ELAN 341	World Literature	3	ETRA 356	Scientific And Medical Translation	3
ELAN 242	Drama	3	ETRA 352	Consecutive Interpretation	3
ETRA 251	General Translation	3	ETRA 495	Cooperative Learning	10
ETRA 454	Literary Translation	3			
ETRA 358	Issued In Translation	3		Subtotal	**34**
ELAN 337	Psycholinguistics	3	**Free Electives 9 Hours**		
ELAN 336	Sociolinguistics	3	--- ---	Free Elective I	3
ELP 201	Writing For Professional Communication	3	--- ---	Free Elective Ii	3
ELP 202	Oral Communication For Social And Occupational Purposes	3	--- ---	Free Elective Iii	3
	Subtotal	**9**		Subtotal	**9**
				TOTAL	**110**

TRANSLATION PROGRAM STUDY PLAN

YEAR 1 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ENG 101	INTENSIVE ENGLISH WRITING	3	ELAN 104	ANALYTIC READING AND WRITING	3
ELAN 107	ENGLISH GRAMMAR I	3	ELAN 108	ENGLISH GRAMMAR II	3
ELAN 130	INTRODUCTION TO LINGUISTICS	3	ARAB 103	ARABIC WRITING II	2
ARAB 101	ARABIC WRITING I	2	HPE102	HEALTH AND PHYSICAL EDUCATION	1
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	ISC103	ISLAMIC ECONOMIC SYSTEM	2
ISC101	ISLAMIC ETHICS	2	ISC105	STUDIES OF THE HOLY QURAN	2
HPE101	HEALTH AND PHYSICAL EDUCATION	1	--- ---	FREE ELECTIVE I	3
	TOTAL	17		TOTAL	16

YEAR 2 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ELAN 205	ADVANCED READING AND WRITING	3	ELAN 206	RESEARCH WRITING	3
ELAN 240	INTRODUCTION TO LITERATURE	3	ETRA 233	TEXT LINGUISTICS	3
ETRA 250	INTRODUCTION TO TRANSLATION	3	ELAN 232	ENGLISH MORPHOLOGY AND SYNTAX	3
COM201	COMMUNICATION SKILLS	3	ELAN 241	FICTION	3
ISC 205/ ISC 203	FAMILY IN ISLAM/ NEW FINANCIAL TRANSACTIONS	2	ARAB 201	FUNCTIONAL GRAMMAR	3
IR 101	INFORMATION RECOURSES	3	ARAB 203	ARABIC WRITING III	2
	TOTAL	17		TOTAL	17

YEAR 3 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ETRA 353	COMPUTER APPLICATIONS IN TRANSLATION	3	ETRA 354	LEXICOGRAPHY AND TERMINOLOGY	3
ETRA 351	SIGHT TRANSLATION	3	--- ---	DEPARTMENT ELECTIVE II	3
ELAN 334	SEMANTICS AND PRAGMATICS	3	ETRA 356	SCIENTIFIC AND MEDICAL TRANSLATION	3
ETRA 355	BUSINESS AND MEDIA TRANSLATION	3	ARAB 303	ARABIC RHETORIC	2
ELAN 131	PHONETICS AND PHONOLOGY	3	ETRA 352	CONSECUTIVE INTERPRETING	3
--- ---	DEPARTMENT ELECTIVE I	3	ELAN 311	WESTERN THOUGHT	3
--- ---	FREE ELECTIVE II	3			
	TOTAL	21		TOTAL	17

YEAR 4 **SEMESTER1** **SEMESTER2**

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
ETRA 456	EDITING AND PUBLISHING	3	ETRA 495	Co-Op in Translation (CONTINUES INTO THE SUMMERTERM)	10
ETRA 455	LEGAL AND POLITICAL TRANSLATION	3			
STAT 100	INTRODUCTION TO STATISTICS	3			
ETRA 453	SIMULTANEOUS TRANSLATION	3			
--- ---	DEPARTMENT ELECTIVE III	3			
--- ---	FREE ELECTIVE III	3			
	TOTAL	18		TOTAL	10

- The Internship option is on hold.

CHS COURSES

ELAN 104 ANALYTIC READING AND WRITING
Credits: 3 (3, 0, 0) Prerequisite: ENG 101

This course aims at fulfilling the needs of reading and writing of students of the translation and linguistics major. The course integrates reading and essay writing skills at the upper-intermediate level. It equips students with vital academic vocabulary that can improve their writing skills and enable them to write at a higher thinking level. The skills gained on this course will enable students to link writing well to reading related texts and analyzing them artistically which will improve their creative and critical thinking skills in their essay writing.

ELAN 107 ENGLISH GRAMMAR I
Credits: 3 (3, 0, 0) Prerequisite: ENG 012

This course aims at preparing students to apply English grammar in formal contexts at an upper-intermediate level. The course integrates different kinds of activities to bridge the gap between basic knowledge of grammatical structure and its applications. It is designed to help students enhance their understanding of English grammar, expand their already learned skills and enable them to apply it their usage of English. The course will review parts of speech and their function, different verb tenses, active and passive voice, and types of clauses.

ELAN 108 ENGLISH GRAMMAR II
Credits: 3 (3, 0, 0) Prerequisite: ELAN 107

This course builds on the skills learned in ELAN 107 ENG Grammar and raises the students' grammar skills to the advanced level. The course aims at building the students' grammar skills that are based on practical rather than theoretical considerations. Areas covered in the course include real and unreal conditionals, direct - indirect speech, specification of numbers in English, use of certain modals, negatives and types of questions.

ELAN 130 INTRODUCTION TO LINGUISTICS
Credits: 3 (3, 1, 0) Prerequisite: ENG 012

Students are introduced to general linguistics and its major components are studied in detail. Levels of linguistic analysis are tackled according to the following hierarchy: phonetic, phonology, morphology, syntax and semantics. Students apply what they have learned on the theoretical level to of some selected spoken and written texts.

ELAN 131 PHONETICS AND PHONOLOGY
Credits: 3 (3, 1, 0) Prerequisite: ELAN 130

The main objective of this course is to introduce students to the description of the English sound system (vowels and consonants). Students are given intensive practice in the production and transcription of consonants and vowels in different positions and combinations. Features of connected speech are covered as well. Suprasegmental features of English such as stress, pitch, intonation are examined and practical exercises employed throughout the course enable them to use phonetic transcription effectively.

ELAN 205 ADVANCED READING AND WRITING
Credits: 3 (3, 0, 0) Prerequisite: ELAN 104

This course builds on the skills learned in ELAN 104 and guides students to achievement of reading and essay writing skills at an advanced level. The course also links texts read and advanced vocabulary encountered in readings on a variety of academic topics to improve their creative writing abilities.

ELAN 206 RESEARCH WRITING
Credits: 3 (3, 0, 0) Prerequisite: ELAN 205

Students are introduced to the tools and techniques of collecting and interpreting information. They learn how to draft a research plan by narrowing down a topic, assembling a bibliography, and putting together a review of literature in order to produce a coherent academic research paper.

ELAN 232 MORPHOLOGY AND SYNTAX
Credits: 3 (3, 0, 0) Prerequisite: ELAN 130

The course introduces the study of words, their internal structure, and how they are formed. This course is both theoretical and practical. It is theoretical in that it provides students with consider-able knowledge of morphological terms and processes. Key concepts include words vs. lexical items, inflectional and derivational morphology, compounding and morphological theories. It is practical in that it helps learners develop their skills in morphological analyses on words in English and other languages. Throughout the course, the interrelations between morphology and other sub-disciplines of Linguistics (i.e., Phonology, Semantics and Syntax) are examined.

ELAN 233 INTRODUCTION TO APPLIED LINGUISTICS
Credits: 3 (3, 0, 0) Prerequisite: ELAN 130

This course aims to introduce students to the main areas of study in Applied Linguistics. The scope and subfields of the discipline are surveyed and articulated. The spotlight of the overview of the field is on the theories and practices of language learning and teaching.

ELAN 240 INTRODUCTION TO LITERATURE
Credits: 3 (3, 0, 0) Prerequisite: None

The course explores the three major genres in English literature: Poetry, Novel, and Drama providing an overview of the development of English language/literature. The major components of literary criticism such as literary terms and critical concepts are examined with a focus on how opinion is expressed in scholarly writing.

ELAN 241 FICTION
Credits: 3 (3, 0, 0) Prerequisite: ELAN 240

The course is designed to acquaint students with the genre of novel as it first emerged in the 18th century in England and the reasons beyond its emergence late on the literary scene. The evolution of the novel is tracked across successive eras from 18th century through to the late 20th century with and an emphasis on the social, political, and cultural contexts prevalent in each era in the United Kingdom. The appearance and growth of the American novel in the 19th century is introduced and contrasted to its English counterpart.

ELAN 242 DRAMA
Credits: 3 (3, 0, 0)Prerequisite: ELAN 240

This course is designed to cultivate appreciation of drama by close readings and discussions of plays of three recognized masters of drama: Shakespeare, Wilde and O'Neill in the first portion of the class. Following that other distinguished plays from other parts of the world in the 19th and the 20th centuries are visited and critically discussed.

ELAN 243 POETRY
Credits: 3 (3, 0, 0) Prerequisite: ELAN 240

The course introduces students to English poetry through an in-depth practice readings and analysis of selected works of major British and American poets. The aim is to understand,

analyze and appreciate poetry by determining and evaluating its aesthetic and human values. Students study a variety of major poetic types and forms. Poetic techniques such as figurative language, rhythm and meter are covered and discussed.

ELAN 311 WESTERN THOUGHT
Credits: 3 (3, 0, 0) Prerequisite: ELAN 240

The course introduces the basic intellectual traditions and ideologies that define the Western World. It deals with the foundational topics leading to modernity. Students are presented a broad chronological framework that tracks and identifies the eras and their governing ideas that evolved over the past ages.

ELAN 334 SEMANTICS AND PRAGMATICS
Credits: 3 (3, 0, 0) Prerequisite: ELAN 130

The first part of this course is an introduction to the study of semantics on both the word and sentence level. The second part gives insights into theories of language use, particularly the part on pragmatics dealing with how people communicate more than they literally say or write.

ELAN 335 DISCOURSE ANALYSIS
Credits: 3 (3, 0, 0) Prerequisite: ELAN 130

This course explores the ways in which language varies according to subject area, social setting, communicative purpose and the social roles and identities of those involved. It examines the workings of various forms of speaking and writing - casual conversation, interviews and interrogations, public speaking, emailing and mobile phone texting and mass media articles, to cite just some examples. Students develop skills in analyzing the properties of different texts, in characterizing the interpersonal stances adopted by speakers and writers, and in identifying and classifying the various genres or texts types which operate in particular social settings.

ELAN 336 SOCIOLINGUISTICS
Credits: 3 (3, 0, 0) Prerequisite: ELAN 130

This course canvasses the various areas of research in sociolinguistics: the study of the relationship between language and society. The following topics are discussed: multilingualism (e.g. language choice, diglossia, and code switching), language planning, language maintenance and shift, geographical and social language variation, language change, politeness, language and gender, pidgins and creoles, language and culture, and ethnography.

ELAN 337 PSYCHOLINGUISTICS
Credits: 3 (3, 0, 0) Prerequisite: ELAN 130

This course provides an introduction to the field of Psycholinguistics. It covers basic topics in language comprehension, production and dissolution. It also offers relevant information on the mental lexicon.

ELAN 341 WORLD LITERATURE
Credits: 3 (3, 0, 0) Prerequisite: ELAN 240

World Literature explores literary masterpieces translated into English and unlocked. Treasures are selected from the past, continental Europe, Asia, Africa, Latin American and the Middle East are read, thoughts prompted and in class verbal exchanges articulated. This survey of master works provides students with an overview of the human experience spread across a larger canvas.

ELAN 425 SELECTED WORKS IN BRITISH & AMERICAN LITERATURE
Credits: 3 (3, 0, 0) Prerequisite: ELAN 241

This course focuses on representative great works in British and American literature. In scope, it covers all three genres in both literatures. A novel and a play together with works of poets from both the British and American side will be read and discussed. The selections from the UK and the US complement the other.

ELAN 460 PROFESSIONAL AND ETHICAL ISSUES

Credits: 3 (3, 0, 0) Prerequisite: None

This course will provide a values-based approach to ethical professionalism and provide a method of thinking about and dealing with ethical issues in the work place. The course will provide a discussion of what a profession is and what it means to act professionally. It will include a discussion of the features of moral reasoning and provide a case resolution method for dealing with ethical issues of the work place. The course will cover in-depth those values central to moral life of any professional: integrity, respect for others, justice, compassion, and responsibility.

ELP 201 WRITING FOR PROFESSIONAL COMMUNICATION

Credits: 3 (3, 0, 0) Prerequisite: ELAN 205

This course is designed to enhance students' writing communication skills in the context of workplace situations. The primary focus of the course is on wide array of office writing genres: text messages, emails, memos, brief business correspondences, reports, and formal business letters. Writing resumes, employment applications and follow-up letters are covered as well.

ELP 202 ORAL COMMUNICATION FOR SOCIAL AND OCCUPATIONAL PURPOSES

Credits: 3 (3, 0, 0)Prerequisite: COM 201

The purpose of this course is to introduce students to oral communication skills in social and professional contexts. The emphasis is on learning strategies and techniques of oral communication skills in the following categories: workplace communication, office relations and career development. Students practice workplace communication exercises such as presentations and public speaking. Workplace relationship activities focused on building effective relationship, resolving conflicts, and dealing with customer services are covered as are career development skills.

ELP 303 ENGLISH FOR ADMINISTRATION

Credits: 3 (3, 0, 0) Prerequisite: ELAN 335

The course offers an integrated program that allows students to gain knowledge and practice of business and administrative communication. The program includes the study of organizational structures, types of organizations, management, internal and external organizational communication and business communication environment. The nature and scope of private and public administration are surveyed. The selected topics include customer service, human resources management and negotiation theory. Planning, composing and revising administrative documents are discussed as are designing and delivering informative, positive and persuasive messages.

ELP 304 ENGLISH FOR PUBLIC RELATIONS AND MARKETING

Credits: 4 (4, 0, 0) Prerequisite: ELP 201, ELAN 335

The course focuses on selected topics on public relations: roles, processes, applications, strategies and tactics. Students gain insight on the nature of public relations, its evolution, psychology, ethics, and professionalism. The course also goes over research, program planning, public opinion theory and the connection of PR to marketing, fund-raising, advertising, journalism and law.

ELP 405 ENGLISH FOR GLOBAL MEDIA AND COMMUNICATION TECHNOLOGIES

Credits: 4 (4, 0, 0) Prerequisite: ELP 201, ELP 202, ELAN 335

This course introduces students to the typical linguistic and extra-linguistic features of English media texts. Its aims is to promote a greater awareness of the central concerns in writing and editing English texts for the media and explores intertextual and multimedia communication in everyday life.

ELP 407 ENGLISH SCIENTIFIC, TECHNICAL AND WEB-BASED WRITING

Credits: 3 (3, 0, 0) Prerequisite: ELAN 335

This course helps students understand different types of technical writing, desktop publishing web page design conventions. The emphasis is on style and format to achieve clarity, correctness, conciseness, and online presence in technical writing. Students enjoy liberty to choose their own topics to develop their linguistic and graphical skills and other transferable skills.

ELP 408 ENGLISH FOR POLITICAL COMMUNICATION

Credits: 3 (3, 0, 0) Prerequisite: ELAN 335

This course looks at political communication close up. Following a brief sketch of the historical aspects of communication and public relations in politics, the course looks at fundamental themes and types of political communication, such as agenda setting, negotiation, bargaining, campaigning and branding.

ELP 492 COOPERATIVE LEARNING

Credits: 10 Prerequisite: Departmental Approval

The aim of the course is to provide students with an opportunity to spend a specified period of time in several local and possibly international institutions and companies, and according to a suggested work plan of training. The duration of the program is 7 months and carries a 10 credit hours weight. The evaluation and supervision of the student's performance are provided by both the hosting workplace and the relevant CH department.

ETRA 233 TEXT LINGUISTICS

Credits: 3 (3, 0, 0) Prerequisite: ELAN 130

The course introduces students to the notion of text as a communicative occurrence which meets certain standards of textuality. It also familiarizes students with the linguistic and pragmatic conventions of text types and genres and the differences which may exist between languages and cultures in this respect.

ETRA 250 INTRODUCTION TO TRANSLATION

Credits: 3 (3, 0, 0) Prerequisite: None

This course introduces the basic concepts and elements of translation theory and practice. Items covered include approaches, methods and techniques, steps of the translation process, review, reformulation and revision. Students are familiarized with the role and functions of translator/interpreter in the process of inter-lingual communication.

ETRA 251 GENERAL TRANSLATION

Credits: 3 (3, 0, 0) Prerequisite: ETRA 250

This course is designed to introduce students to the basics of translation work. Through the practice of translating a variety of English and Arabic texts, students will learn to carry out the two main processes

involved: analysis of source texts and reformulation into the target language. Emphasis will be on the techniques used by translators to resolve problems of subject knowledge, language and terminology. The course will also focus on the use of translation tools and resources, and on the different methods and strategies for rendering the content of texts into the other language.

ETRA 351 SIGHT TRANSLATION
Credits: 3 (3, 0, 0) Prerequisite: ETRA 250

Considered as the meeting ground between translation and interpreting, sight translation joins the starting point of the written mode and the end-product of the oral one. Students are given a written text in one language and are tasked to immediately render its meaning orally into the other language. To do this proficiently, two major skills are required: 1) fast reading and comprehension of texts, 2) quick oral response into the other language. Acquisition of these skills is the focus of the course.

ETRA 352 CONSECUTIVE INTERPRETING
Credits: 3 (3, 0, 0) Prerequisite: ETRA 351

This course trains students in the art and skill of consecutive interpretation in both public and inter-personal situations. Techniques and strategies used by expert interpreters (such as making short hand notes and memory taking) are taught and used by the trainees in a variety of exercises.

ETRA 353 COMPUTER APPLICATIONS IN TRANSLATION
Credits: 3 (3, 0, 0) Prerequisite: ETRA 250

This course is an introduction to the topics and methods in the field of applied linguistics. The course emphasizes the application of applied linguistics theories to problems of second language teaching and learning and to language in social context. Topics discussed and developed include grammar and vocabulary, discourse analysis, psycholinguistics, sociolinguistics, pragmatics, corpus linguistics, functional linguistics, non-native reading research, writing, listening and speaking as well as assessment.

ETRA 354: LEXICOGRAPHY AND TERMINOLOGY
Credits: 3 (3, 0, 0) Prerequisite: ELAN 232

The art of dictionary making and the principles of terminology are the subjects of this course. Students are introduced to the main types of dictionaries and their respective uses and components. Dictionary compilation and evaluation methods are also discussed.

ETRA 355 BUSINESS AND MEDIA TRANSLATION
Credits: 3 (3, 0, 0) Prerequisite: ETRA 250

This course familiarizes students with the register and discourse characteristics of the language varieties of business and media in both English and Arabic. Its aims is to develop and reinforce the skills and techniques required for translating texts bearing such features into the two languages. In the fields of business, the focus is on text types such as bank statements, financial reports and business correspondence. In the field of media, text types such as news items, press reports, newsletters, and promotional texts are examined.

ETRA 356 SCIENTIFIC AND MEDICAL TRANSLATION
Credits: 3 (3, 0, 0) Prerequisite: ETRA 250

This course targets translation of scientific and medical texts. In the scientific field, students are trained on analyzing texts to understand the context, terms and concepts in the original text before looking for equivalencies in the other language. To best deal with medical texts, the

medical terminology most commonly used by doctors and other health practitioners in text types such as medical reports, diagnosis, and medical procedures are examined with special attention given to word formation (e.g. Latin roots, suffixes and pre-fixes).

ETRA 358 ISSUES IN TRANSLATION
Credits: 3 (3, 0, 0) Prerequisite: ETRA 355, 356

The course's aim is to sensitize students to major issues in translation studies and how to address the likely problems translators encounter in their work. Problems such as equivalence, quality assessment, gaps of terms, words and culture, requirements of knowledge, etc. are dealt with in the course.

ETRA 453 SIMULTANEOUS INTERPRETING
Credits: 3 (3, 0, 0) Prerequisite: ETRA 352

This course offers students the opportunity to learn and apply simultaneous interpretation techniques to a variety of topics and settings. It aims to develop students' practical skills in simultaneous interpreting English to Arabic and vice versa. The focus is on strategies and techniques in dealing with simultaneous interpreting. The course surveys the different scenarios in which simultaneous interpreting is used and covers the following subject areas: motivational topics, society and social media, health, politics, and international relations.

ETRA 454 LITERARY TRANSLATION
Credits: 3 (0, 0, 3) Prerequisite: ETRA 250

This course introduces the students to the task of literary translation. It features practical exercises on literary genres such as prose, drama, and poetry. It also deals with the literary problems posed: maintaining equivalence of meaning and form, preserving author's creativity and stylistic features, etc.

ETRA 455 LEGAL AND POLITICAL TRANSLATION
Credits: 3 (3, 0, 0) Prerequisite: ETRA 250

This course grooms skill in translating legal and political texts burdened with the complexity of structure and terminology. The essential elements of legal and political writing styles are introduced for this type of formal translation work. Text types such as court decisions, contracts, and notary deeds are dealt with. On the political side, students translate texts types such as editorial articles, speeches, diplomatic and international organizations' documents.

ETRA 456 EDITING AND PUBLISHING
Credits: 3 (3, 0, 0) Prerequisite: ELAN 206

This course focuses on the final stages of translation work covering the topics of revising, editing and publishing in electronic formats. Students are trained to revise and edit their own work, translations done by others, and machine generated translations.

ETRA 495 COOPERATIVE LEARNING
Credits: 10 Prerequisite: Departmental Approval

The aim of the course is to provide students with an opportunity to spend a specified period of time in several local and possibly international institutions and companies, and according to a suggested work plan of training. The duration of the program is 7 months and carries a 10 credit hours weight. The evaluation and supervision of the student's performance are provided by both the hosting workplace and the relevant CH department.

TEFL 250 LANGUAGE ACQUISITION
Credits: 3 (3, 0, 0) Prerequisite: ELAN 233

This course introduces students to major theories and research topics related to first language development and second language acquisition, including their applications to language teaching.

TEFL 351 TEFL METHODS I
Credits: 4 (4, 0, 0) Prerequisite: ELAN 250

This course is an introduction to the teaching English as a Foreign Language (TEFL). It is intended for those who contemplate a career in TEFL. Through a series of lectures, readings, discussions, classroom observations, practical teaching assignments (micro teaching and in class teaching), and interviews, students explore the educational contexts in which English is taught and learned. The course provides a good background and a basic training that is necessary for the TEFL career

TEFL 353 TECHNOLOGY IN LANGUAGE TEACHING
Credits: 3 (3, 0, 0) Prerequisite: TEFL 351

This course is about using computers, or more widely speaking, technologies, as tutors or as tools, in teaching/learning a language. The course introduces students to the latest theories cued to the field of computer assisted language learning. The objective is to enable students to discriminate, analyze and comprehend the pros and the cons of the applications available on the market, so as to exploit these technologies to their full potential, or to be aware of the flaws. Students are trained to do research and hone their critical thinking and presentation skills.

TEFL 452 TEFL METHODS II
Credits: 4 (4, 0, 0) Prerequisite: TEFL 351

The course deepens students' knowledge and understanding of English language teaching. It features a blend of theory and practice that helps them to develop professionally. Skills and techniques that help throughout the teaching career are cultivated. The course goes deeper into current theories of first and second language acquisition and how these theories influence teaching methodologies. Teaching methodologies (mainstream and experimental) are examined and the effectiveness of these methodologies in different learning environments are discussed.

TEFL 454 EVALUATION AND ASSESSMENT
Credits: 3 (3, 0, 0) Prerequisite: TEFL 351

This course examines the purposes and types of assessment and evaluation used in education, and in particular the innovations associated with them. Students learn some feedback and evaluation strategies which are necessary to enhance the delivery of instructions. The first part of the course helps them identify the necessary qualities in a good test: validity, reliability, practicality, beneficial backwash, etc. The second part of the course helps to put the principles of testing into practice so they can evaluate and write tests.

TEFL 455 CURRICULUM DESIGN & MATERIAL DEVELOPMENT
Credits: 3 (3, 0, 0) Prerequisite: TEFL 351

This course introduces a modern approach to designing ELT curricula, courses, and materials. It is divided into two parts. In the first part, the instructor works with the students and guides them in analyzing a course in a program. In the second half, through needs analysis, students identify curricular goals and course objectives, and then determine the appropriate syllabus structure, develop a course unit outline, plan and create materials for the unit, determine training needs for future course instructors, and devise a system of evaluation. In the end, students will formally propose a new curriculum in an in-class presentation.

TEFL 457 ENGLISH FOR YOUNG LEARNERS

Credits: 3 (3, 0, 0) Prerequisite: TEFL 351

This course aims to provide students with the theoretical and practical aspects of Teaching English to Young Learners (TEYL). More specifically, the course addresses issues related to theories of learning, learning strategies for young children, teaching-learning activities, classroom methods and techniques used in TEYL (games, songs and visual materials) and their use in teaching and assessment of young English learners.

TEFL 458 ENGLISH FOR SPECIFIC PURPOSES

Credits: 3 (3, 0, 0) Prerequisite: TEFL 351, TEFL 452

The course deals with varieties of English, their uses and modes of classifying them. The course involves a practical examination and analysis of texts from different professions such as medicine, business, hospitality, law, etc.

TEFL 459 PRACTICUM

Credits: 3 (3, 0, 0) Prerequisite: TEFL 351

This course is designed for trainees in TEFL. It helps them to strengthen their practical teaching skills. First, trainees learn about teaching in TEFL I and TEFL II courses (through reading and in-class teaching assignments). Next, they take part in a series of responsibilities, including observations of other teachers, reporting on those observations, practice teaching, keeping teaching reflections in a personal teaching journal, and receiving feedback from the trainer.

TEFL 492 COOPERATIVE LEARNING

Credits: 10 Prerequisite: Department Approval

The aim of the course is to provide students with an opportunity to join a professional program of TEFL within an actual paid work environment, and according to a suggested work plan of training. The duration of the program is 7 months at an approved female educational institution by the college. The evaluation and supervision of the student's performance are provided by both the aforementioned institution and the department.

ARAB 201 FUNCTIONAL GRAMMAR
Credits: 3 (3,0,0) (ENG University Requirement)

The courses teaches the major functional rules of grammar: case markers and word order. It focuses on three noun cases and three verb cases using common examples. Special attention is given to practical exercises.

ARAB 302 APPLIED GRAMMAR
Credits: 3 (3,0,0) Prerequisite: ARAB 201

This course is a continuation of ARAB 201. It focuses on the application of the rules of grammar. Students are introduced to words with fixed forms, including nouns, verbs and particles. Students are required to apply what they study to a large number of Qur'anic texts, Ahadeeth, and well-regarded literary works.

ARAB 303 ARAB RHETORIC
Credits: 3 (3,0,0) Prerequisite: Departmental Approval

This course explores the artful elements of Arabic. The craft and art of metaphors and good style are examined. The aim of the course is to cultivate a sensitivity to language appreciation in prose and poetry en route to mastery of Arabic.

EUR 101 EUROPEAN LANGUAGE I
Credits: 3 (3,0,0) Prerequisite: Departmental Approval

The course is an elementary course in a major European language. Students learn basic vocabulary and grammar in discourse through listening, speaking, reading and writing. The object is on developing basic communicative ability through short and varied discourse.

EUR 102 EUROPEAN LANGUAGE II
Credits: 3 (3,0,0) Prerequisite: Departmental Approval

This course builds on what was learned in EUR 101. Vocabulary range grows and grammatical competency improves as practice their language skills in situational and topic-based discourse units. Students read short simplified stories and retell them orally and in writing.

EUR 103 EUROPEAN LANGUAGE III
Credits: 3 (3, 0, 0) Prerequisite: EUR 102

This course refines the four skills acquired in previous two courses and advance language fluency through a review of language grammar, reading and frequent writing, and speaking tasks. The emphasis is on improving accuracy and enriching vocabulary to develop communicative competence using various media resources.

COLLEGE OF LAW [CL]

BACHELOR OF LAW

INTRODUCTION

Prince Sultan University (PSU) College of Law is a leader in Legal Education in Saudi Arabia. The Law College boasts a strong Faculty of Law and enjoys growing numbers of capable and ambitious students. The Bachelor of Laws (LLB) program is noted for the excellence of its design, breadth and distinctiveness.

The LLB curriculum was drafted in consultation and concert with Faculty of Law professors from the Universities of Richmond, Harvard and Cambridge with the objective to tailor a program that graduates legal professionals for today's world. Toward that end all Law graduates are schooled in the following fields of law:

Private Law	International Law
Public Law	Islamic (Saudi) Law
Commercial Law	Criminal law

The features of the LLB Law curriculum design that distinguish it from other Law programs in the Kingdom are its tracks, bilingual hallmark and the wealth of opportunities that await its graduates. The first adds depth to breadth. When the Law students enter their seventh term (i.e. Senior Year), they elect one of four tracks featuring five advanced courses in these fields:

Commercial Law International Law Advanced Saudi Law General Law Track

The above specializations are the most needed by the local and global markets for lawyers and legal professionals. The General Law track allows students to freely elect five courses from the other three tracks for an individualized specialization. The bilingual nature of the program e.g. over 40% of the PSU courses are in English for those Law students electing the Commercial Law and International Law tracks to optimize the range of job opportunities. The co-op ensures that law students experience legal practice in some of the leading law offices, companies and governmental bodies in Riyadh. College of Law students upon their graduation have been very well received and often preferred in a variety of Saudi workplace venues with some going directly on to reputable postgraduate programs abroad. Summing up, Prince Sultan University's Law College is the place for the youth of today to begin their quest for promising careers in Law.

COLLEGE VISION

- Building on our cultural heritage and shaping our future by educating the legal experts.
- Strengthening the legal system and the society by developing skilled lawyers who serve diverse communities.
- Promoting professionalism, ethics and environmental awareness by furthering discourse and knowledge.
- Implementing cutting-edge technology, encouraging enthusiastic researchers striving for intellectual growth.

COLLEGE MISSION

- The College of Law aims to provide an outstanding legal education and training that promotes the rule of law, ethics and sustainability and serves the societies of the region.
- To encourage the research and legal technology skills by providing the best research tools and technology education for life-long practice and continuous improvement.
- To educate law students to anticipate and lead legal change to serve the interests of the Saudi society, the region and the international community.
- To prepare lawyers that can contribute to society in various capacities within the local, national, regional and global governance structures and organizations.

PROGRAM MISSION

- To maintain its leadership in legal education with an innovative and research-oriented program, continuously striving to improve the law and the society, nationally and internationally
- To provide the Saudi, regional and global market with high quality bilingual graduates in law
- To enable the LLB graduates to continue their postgraduate studies in reputable universities and practice in leading offices, organizations and governmental bodies

PROGRAM GOALS

- To provide an outstanding legal education implementing technology and research in a collaborative environment
- To ensure that graduates have acquired the knowledge, skills and values required to be future leaders and are properly prepared for entry into professional careers in Law
- Teach legal principles, the fundamentals of jurisprudence, and legal skills and values in a manner that combines theory and practice
- Cultivate student competency in Legal Writing in both Arabic and English
- To keep our program updated based on the labor market needs locally and internationally
- To build competitive legal skilled practitioners technically and ethically.
- To encourage intellectual and research production
- Provide students with opportunities to exhibit their legal knowledge via competitions, conferences, and internships

Structure Of The Program

The Law undergraduate program has three components:

University Requirements	23	Credits
College Requirements	12	Credits
Program Requirements	102	Credits
Total	137	Credits

University Requirements

Required Courses in English			Required Courses in Arabic		
Course #	Title	CRs	Course #	Title	CRs
ENG 101	Intensive English Writing	3	ARAB 101	Arabic Writing I	2
COM 201	Communications Skills	3	ARAB 103	Arabic Writing II	2
PSY 101	Introduction to Psychology	3	ARAB 203	Arabic Writing III	2
			ISC 101	Islamic Ethics	2
			ISC 103	Islamic Economic System	2
			ISC 105	Holy Quran Sciences	2
			ISC 203	New Financial Transactions	2
	Subtotal	9		Subtotal	14
				Total	**23**

College Requirements

COURSE#	TITLE		CRS
IR 101	Information Resources		3
ETHC 351	Legal Ethics		3
BUS 101	Introduction To Business1	Choose One	3
ECON 102	Fundamentals Of Economics 1		
LAW 380	Moot Court		
LAW 381	Introduction To Corporate Governance		
LAW 382	Artificial Intelligence, Technology And Law		
HIST 151	History Of Law2	Choose One	3
HIST 153	Comparative Political Systems2		
		Total	**12**

Law Program Requirements

102 Credits: Required 77 | Law Track 15 | Co-Op 10 | Arabic 72-57 : English20-35					
Law Program Required Courses in English			**Law Program Courses In Arabic**		
COURSE #	**TITLE**	**CRs**	**COURSE #**	**TITLE**	**CRs**
LAW 112	Law Of Tort	3	LAW 101	Principles Of Law	3
LAW 152	Constitutional Law	3	LAW 111	Sources Of Obligations	3
LAW 231	English Legal Writing	3	LAW 150	Administrative Law I	3
LAW 255	Public International Law	3	LAW 170	Family Law	2
LAW 342	Company Law	3	LAW 172	Fundamentals Of jurisprudence	3
LAW 352	Law Of Contracts Ii	3	LAW 213	Theories Of Obligation Provisions	3
LAW 369	Conflict Of Laws	2	LAW 221	Judicial System And Pleadings	3
			LAW 223	Law Of Contracts I	2
			LAW 230	Arabic Legal Writing	3
			LAW 243	Commercial Law	3
			LAW 262	Criminal Law I	3
			LAW 263	Criminal Law Ii	3
			LAW 273	Administrative law Ii	2
			LAW 313	Real And Personal Guarantees	3
			LAW 316	Property And Assets	3
			LAW 320	Labor Law And Social Security	3
			LAW 340	Criminal Law Iii	3
			LAW 357	Zakat And Taxation System	3
			LAW 359	Administrative Law Iii	3
			LAW 374	Succession, Wills And Endowments	3
				SUBTOTAL	57
	SUBTOTAL	20		COMBINED SUBTOTAL	77
Choose #1, #2, or#3					
COURSE #	**#1 ADVANCED SAUDI LAW**	**CRs**	**COURSE #**	**#2 INTERNATIONAL LAW**	**CRs**
LAW 431	Execution Of Judgments	3	LAW 402	Commercial Organizations	3
LAW 432	Insurance	3	LAW 403	Arbitration law	3
LAW 435	Evidence Law	3	LAW 405	Capital Market Law	3
LAW 436	Criminology	3	LAW 407	Intellectual Property law	3
LAW 437	Principles Of Islamic Jurisprudence	3	LAW 409	Banking law	3
COURSE #	**#3 COMMERCIAL LAW**	**CRs**			
LAW 461	International Trade Law	3			
LAW 462	International Environmental Law	3			
LAW 464	Human Rights Law	3			
LAW 466	International Humanitarian Law	3			
LAW 468	Dispute Settlement	3			
LAW TRACK	Option 15 Credits				15
LAW 492	Co-Op In Law				10
				TOTAL	102

LAW STUDY PLAN

YEAR1 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
LAW 101	PRINCIPLES OF LAW	3	LAW 111	SOURCES OF OBLIGATION	3
LAW 150	ADMINISTRATIVE LAW I	3	LAW 112	LAW OF TORT	3
LAW 170	FAMILY LAW	2	LAW 152	CONSTITUTIONAL LAW	3
ENG 101	INTENSIVE ENGLISH WRITING	3	LAW 172	FUNDAMENTALS OF JURISPRUDENCE	3
IR 101	INFORMATION RESOURCES	3	HIST 151*	HISTORY OF LAW*	3
ISC 101	ISLAMIC ETHICS	2	HIST 153*	COMPARATIVE POLITICAL SYSTEMS*	
ISC 103	ISLAMIC ECONOMIC SYSTEM	2	ISC 105	HOLY QURAN SCIENCES	2
			ARAB 101	ARABIC WRITING I	2
	TOTAL	18	* select one	TOTAL	19

YEAR2 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
LAW 213	THEORIES OF OBLIGATION PROVISIONS	3	LAW 231	ENGLISH LEGAL WRITING	3
LAW 221	JUDICIAL SYSTEM AND PLEADINGS	3	LAW 243	COMMERCIAL LAW I	3
LAW 223	LAW OF CONTRACTS I	2	LAW 263	CRIMINAL LAW II	3
LAW 230	ARABIC LEGAL WRITING	3	LAW 273	ADMINISTRATIVE LAW II	2
LAW 255	PUBLIC INTERNATIONAL LAW	3	COM 201	COMMUNICATIONS SKILLS	3
LAW 262	CRIMINAL LAW I	3	ISC 203	NEW FINANCIAL TRANSACTIONS	2
PSY 101	INTRODUCTION TO PSYCHOLOGY	3	ARAB 103	ARABIC WRITING II	2
	TOTAL	20		TOTAL	18

YEAR3 **SEMESTER 1** **SEMESTER 2**

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
LAW 313	REAL AND PERSONAL GUARANTEES	3	LAW 316	PROPERTY AND ASSETS	3
LAW 320	LABOR LAW AND SOCIAL SECURITY	3	LAW 352	LAW OF CONTRACTS II	3
LAW 340	CRIMINAL LAW III	3	LAW 357	ZAKAT AND TAXATION SYSTEM	3
LAW 342	COMPANY LAW	3	LAW 359	ADMINISTRATIVE LAW III	3
LAW 374	SUCCESSION, WILLS AND ENDOWMENTS	3	LAW 369	CONFLICT OF LAWS	2
BUS 101*	INTRODUCTION TO BUSINESS*	3	ETHC 351	LEGAL ETHICS	3
ECON 102*	FUNDAMENTALS OF ECONOMICS*				
LAW 380*	MOOT COURT				
LAW 381*	INTRODUCTION TO CORPORATE GOVERNANCE				
LAW 382*	ARTIFICIAL INTELLIGENCE, TECHNOLOGY AND LAW				
ARAB 203	ARABIC WRITING III	2			
* select one	TOTAL	20		TOTAL	17

OPTION # 1 ADVANCED SAUDI LAW TRACK

YEAR4 SEMESTER1 SEMESTER2

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
LAW 431	EXECUTION OF JUDGMENTS	3			
LAW 432	INSURANCE	3			
LAW 435	EVIDENCE LAW	3	LAW 492	CO-OP IN LAW	10
LAW 436	CRIMINOLOGY	3		(CONTINUES INTO THE SUMMER TERM)	
LAW 437	PRINCIPLES OF ISLAMIC JURISPRUDENCE	3			
	TOTAL	15		TOTAL	10

OPTION # 2 INTERNATIONAL LAW TRACK

YEAR4 SEMESTER 1 SEMESTER 2

COURSE#	TITLE	CRS	COURSE#	TITLE	CRS
LAW 461	INTERNATIONAL TRADE LAW	3			
LAW 462	INTERNATIONAL ENVIRONMENTAL LAW	3			
LAW 464	HUMAN RIGHTS LAW	3	LAW 492	CO-OP IN LAW	10
LAW 466	INTERNATIONALHUMANITARIAN LAW	3		(CONTINUES INTO THE SUMMERTERM)	
LAW 468	DISPUTE SETTLEMENT	3			
	TOTAL	15		TOTAL	10

OPTION # 3 COMMERCIAL LAW TRACK

YEAR4 SEMESTER 1 SEMESTER 2

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
LAW 402	COMMERCIAL ORGANIZATIONS	3			
LAW 403	ARBITRATION LAW	3			
LAW 405	CAPITAL MARKET LAW	3	LAW 492	CO-OP IN LAW	10
LAW 407	INTELLECTUAL PROPERTY LAW	3		(CONTINUES INTO THE SUMMER TERM)	
LAW 409	BANKING LAW	3			
	TOTAL	15		TOTAL	10

OPTION # 4 GENERAL LAW TRACK

YEAR4 SEMESTER 1 SEMESTER 2

COURSE #	TITLE	CRS	COURSE #	TITLE	CRS
CHOOSE COURSE FROM OPTION # 1,2,3		3			
CHOOSE COURSE FROM OPTION # 1,2,3		3			
CHOOSE COURSE FROM OPTION # 1,2,3		3	LAW 492	CO-OP IN LAW	10
CHOOSE COURSE FROM OPTION # 1,2,3		3		(CONTINUES INTO THE SUMMER TERM)	
CHOOSE COURSE FROM OPTION # 1,2,3		3			
	TOTAL	15		TOTAL	10

- The Internship option is on hold.

LAW COURSES

LAW 101: PRINCIPLES OF LAW

Credits: 3(3-0-0)

This course is a core component of the first year of the Bachelor of Laws program offered by PSU. The course explores the theory of law and rights. It is designed to provide the students with the following: the concept of law and the characteristics of legal rules, different types of law, resources of legal rules, how law is interpreted and the agencies that apply the law. In addition, it considers the definition, typologies, and sources of rights, who enjoys certain rights and how rights can be implemented and forfeited.

LAW 111: SOURCES OF OBLIGATIONS

Credits: 3 (3-0-0) Prerequisite: LAW101

The general theory of obligations is considered one of the important theories in law. Therefore, this course is a prerequisite for LAW 223. It provides an inclusive overview of theory of obligation, willful sources (contracts and unilateral act) and non-willful sources (tort and unjust enrichment)..

LAW 112: LAW OF TORT

Credits: 3 (3-0-0) Prerequisite: LAW101

This is an obligatory course. This course is designed to provide students with a general introduction and critical understanding of Tort Law, providing general concepts and theories of the law of torts from a common law and comparative civil law perspective. It differentiates between a civil and a criminal wrong. It encompasses a representative range of several types of civil wrongs from a common law perspective: negligence, defamation, nuisance, intentional torts, nervous shock, misrepresentation, strict liability, occupier's liability, and vicarious liability and compares them to the analysis under comparative civil law.

LAW 150: ADMINISTRATIVE LAW I

Credits: 3(3-0-0)

This course is one of the important courses of administrative law. It covers the genesis of administrative law, state administrative organization, public facilities, administrative discipline, civil service, administrative decisions, and public funds. These topics are important for law students, as they form the principles of organizing administrative authority, administrative work in the state. Thus, this course is necessary to ensure great understanding of legal provisions and achieving the state's public interest at an individual and authority level

LAW 152: CONSTITUTIONAL LAW

Credits: 3 (3-0-0) Prerequisite: LAW101

The course Constitutional Law is a first-year course that highlights the importance of constitutionalism all around the world. The course focuses mainly on the Constitutions of three countries: the United States of America, the United Kingdom and the Kingdom of Saudi Arabia. The approach of presenting these three countries allows students to compare the different legal systems and provides them with the basic and general knowledge of constitutional law.

LAW 170: FAMILY LAW

Credits: 2(2-1-0)

This course covers family law and the legal provisions related to it. For example, marriage, its pillars, conditions, impacts, and divorce and its impacts. It also covers other types of couple's separation, such as Khul', dissolution of marriage contract or due to a flaw, custody, and infant feeding. In this course, the students will learn the Legal conduct of personal status, as it shows

the mainstays of the family and stresses on the duties and rights of each member. In addition, it will allow the students to acquire knowledge, in terms of settling families' disputes and personal status's related cases.

LAW 172: FUNDAMENTALS OF JURISPRUDENCE

Credits: 3 (3-0-0) Prerequisite: LAW101

The course offers an introduction for law students about doctrinal rules. It explains its four pillars which are; the evidence (and its types), the signified (the consideration of judgment, the judge, the convict), the connotations (abrogation, its types, its provisions), and the inferred (ijtihad, qualifications of the mujtahid, types of ijtihad, the provisions of ijtihad- imitation - fatwa). By the end of this course, students will be able to link between the legal text and the legal provision based on it, clarify the reasons for the practical provisions and the goal behind them, and write reports in the light of the legal provisions and legal evidence topics.

LAW 213: THEORIES OF OBLIGATION PROVISIONS

Credits: 3 (3-0-0) Prerequisite: LAW112

This course is considered part 2 of civil law courses of Bachelor of Laws program offered by Prince Sultan University. In this course, the students will be able to complete what they took in LAW111&LAW112. This course covers the effects of obligation, natural obligation, civil obligation, modified descriptions of obligation effects, condition and deadlines, multiple obligation, multiple obligation parties, and means of preserving the rights of creditors in implementation. Furthermore, the course covers transfer of obligation, assignment of right, assignment of debt, methods of fulfillment or equivalent to fulfillment of compliance obligation, fulfillment in return, renewal, deputation in fulfillment, compensation, collective liabilities, and compliance obligation without fulfillment.

LAW 221: JUDICIAL SYSTEM AND PLEADINGS

Credits: 3 (3-0-0) Prerequisite: LAW111

The course explains to the student the ways and procedures used to obtain legal rights based on Saudi systems such as the Law of Procedure Before Sharia Courts. It specifically explains the procedures of civil and commercial lawsuits, by explaining the formation of the courts and the competent authorities. Therefore, through this course, the student will be able to apply knowledge to practice.

LAW 223: LAW OF CONTRACTS I

Credits: 2(2-0-0) Prerequisite: LAW 111

This course is one of the civil law courses series. It covers contract theory. Therefore, the students in this course are introduced to the most important provisions and issues related to the most common civil contracts, namely sales and lease contracts, by focusing on how they are created, implemented, and expired. In addition, the most important provisions related to the general terms and conditions of these contracts. It covers as well how to resolve civil conflict related to sale and rent by reviewing precedents from Saudi courts and international arbitration committees.

LAW 230: ARABIC LEGAL WRITING

Credits: 3(3-0-0) Prerequisite: LAW 101

This course introduces the students to practices, procedures and protocols of legal writing in Arabic. The focus is on the Arabic language and drafting of different legal documents, including various pleadings and defense documents, drafting contracts, conducting legal research, writing legal memos, providing legal consultations, and presenting their work in writing and in oral argument. This course is designed to prepare the students for the job market in accordance with

the targeted legal areas.

LAW 231: ENGLISH LEGAL WRITING

Credits: 3 (3-0-0) Prerequisite: LAW112

The course is an obligatory course. It aims to give practical training to law students about writing, drafting legal documents. These documents are considered essential part of any law degree. Students receive first-hand experience of what a law firm require in legal writing, once they join the job market. The course has various areas of legal written practice of making documents for clients and court proceedings like pleading papers or contracts. Students will have opportunities to learn and apply their legal English skills by becoming familiar with resources available to students, observing real-world legal situations

LAW 243: COMMERCIAL LAW

Credits: 3 (3-1-0) Prerequisite: LAW213

This course is part 1 of the Commercial Law System. It covers three sections: the first one introduces Commercial Law, by indicating the scope of Commercial Law application, the criteria of differentiating commercial from civil transactions, and the effects of the distinction between them. The second section explains the conditions for acquiring the status of a trader, its obligations, and the commercial place and its required licenses. As for the third section, it covers the definitions of commercial papers, their types (the bill of exchange, the promissory note and the check), their creation, their circulation, and the guarantees of their fulfillment.

LAW 255: PUBLIC INTERNATIONAL LAW

Credits: 3 (3-0-0) Prerequisite: LAW101

This course is an obligatory course. This course focuses on the relations between states, international organizations, and other legal actors within the public international framework. It explores competing notions of sovereignty and the dilemma of conflict resolution between parties under international law. Special attention will be paid to the recognition of states and the consequent obligations of states, the law of treaties, and topical issues in international law, for example illegal settling of territories, the law of the sea, the requirements and obstacles of state formation and humanitarian law.

LAW 262: CRIMINAL LAW I

Credits: 3 (3-0-0) Prerequisite: LAW101

The course introduces Theory of Crime and Theory of Sanction in Sharia and law. It is presented in three parts: Part I – defines crime and lists its characteristics, divisions, and types (legal, material, moral). Part II- deals with the study of the criminal in terms of defining his role as a contributor to the crime, as being directly involved in the crime (original contribution) or a co-creator (associative contribution), according to the acts he committed. In addition, this part is concerned with the statement of the criminal responsibility for what is attributed to him and the availability of the eligibility conditions at the time of committing the crime (perception, freedom of choice). Furthermore, it covers the obstacles of criminal responsibility that may result, under certain conditions, in the absence of criminal responsibility or the removal of the criminal character of the act. Part III- introduces the Theory of Sanction, its divisions, types, and individualization. Moreover, it indicates the reasons for mitigating and aggravating the sanction, the methods of execution, its suspension, its limitations, its alternatives, and the effects of its implementation.

LAW 263: CRIMINAL LAW II

Credits: 3 (3-0-0) Prerequisite: LAW262

This course aims to provide the student with the knowledge, skills and values necessary to understand the principles and detailed provisions related to the elements of each crime or a specific category of different crimes and to apply them to the various-cases related to them. Therefore, this course covers an important aspect of punitive crimes such as bribery and crimes ancillary to it, embezzlement of public funds, counterfeiting the currency circulated in the system in the Kingdom of Saudi Arabia, seals, stamps, signs and papers forgery crimes, drug crimes, money laundering crimes and check crimes.

LAW 273: ADMINISTRATIVE LAW II

Credits: 2 (2-0-0) Prerequisite: LAW150

This course is considered one of the most important topics of administrative law, as it deals with contractual procedures in governmental agencies, and there is no doubt that these procedures are of paramount importance because they are related to public funds. Therefore, taking this course is an indispensable necessity to understand the legal provisions of contracts concluded by the administrative agencies, in order to verify that these contracts are directed in accordance with the public interest.

LAW 313: REAL AND PERSONAL GUARANTEES

Credits: 3 (3-0-0) Prerequisite: LAW213

This course is related to Civil Law courses in the Law Program of Prince Sultan University. LAW 111& LAW213 are perquisite for this course. During this course, the total accessory real rights with a focus on the right of mortgage and personal guarantees, and sponsorship are covered. By taking this course, the civil law vocabularies will be completely covered for the students, as well as creditor's private protection methods.

LAW 316: PROPERTY AND ASSETS

Credits: 3 (3-0-0) Prerequisite: LAW213

This course is the last course in the series of Civil Law courses in the Law Program of Prince Sultan University. It covers real guarantees, with a focus on property rights. Also, by taking this course, the civil law vocabularies will be completely covered for the student. In addition, it is concerned with teaching the reasons for acquiring a property in Islamic Sharia and law, which enables the student to identify these reasons and realize the extent of compatibility between legal reasons and their legal principles. The course as well will highlight the types of funds and foreigners property rights in the Kingdom of Saudi Arabia.

LAW 320: LABOR LAW AND SOCIAL SECURITY

Credits: 3 (3-1-0) Prerequisite: LAW111

This course is concerned with the organization of labor relations according to the employment contract in the private sector, employment contracts for employees Under Budget wagetory item or in the public sector. It covers the most important provisions related to the establishment, implementation and termination of the employment contracts of a Saudi and foreign employee and how to resolve disputes related to them. The reason behind linking the Labor Law to the Insurance Law is that the two are an integral part of the other. In addition, the Insurance Law is the law under which the employee remains after the end of his contractual relationship that is protected by the Labor Law in order to face social risks and obtain the pension.

LAW 340: CRIMINAL LAW III

Credits: 3 (3-0-0) Prerequisite: LAW263

This course represents the procedural or formal aspect of criminal law. CRIMINAL LAW & CRIMINAL LAW II are prerequisite courses. This course aims to provide the students with knowledge, skills and values necessary to understand the general principles and detailed provisions of criminal procedures and apply them to the various cases related to this system. This includes the system of criminal procedures and its relationship with other criminal and procedural laws, the main system of judgment and procedural penalties, criminal cases, the inference and the exceptional competencies of criminal police, the preliminary investigation stage, the trial stage, judgments objections and their implementation.

LAW 342: COMPANY LAW

Credits: 3 (3-1-0) Prerequisite: LAW243

This course considers the legal regulation of business organizations, concentrating on commercial companies. It discusses the types of business organizations and the fundamental principles of corporate personality /limited liability which underpin company law. The whole cycle from incorporation to liquidation, bankruptcy regulations of a company's operations and examined corporate governance, shareholder's rights, and corporate finances.

LAW 352: LAW OF CONTRACTS II

Credits: 3 (3-0-0) Prerequisite: LAW243

This in an advanced course on contract law that follows up on previous courses on commercial and contract law. The course deals with three important areas of commercial contracts, namely, sale of goods, agency and hire-purchase from an international and comparative law perspective. The course is intended to cover the origins and nature of these contracts, how these contracts may be created, the terms and conditions included in the contracts, possible problems related to the performance of the contracts, the relationship between the parties and the rights and liabilities of the parties.

LAW 357: ZAKAT AND TAXATION SYSTEM

Credits: 3 (3-0-0) Prerequisite: LAW243

This course is practical, and it is one of the compulsory Law courses. Commercial Law I is a prerequisite course. This course deals with the definition of Zakat, its characteristics, objectives, and conditions, which assets are subject to Zakat, estimating it in accordance with Saudi law. This course also deals with the tax system in terms of its definition, characteristics, and objectives, types, estimating it, the mechanism of their collection, disputes and objections to assessments assessed by the tax administration.

LAW 359: ADMINISTRATIVE LAW III

Credits: 3 (3-0-0) Prerequisite: LAW150

This course focuses on legal conflicts with government agencies or one of the country's institutions, departments and authorities. It also explains the principle of legality and judicial control over the administrative authority, the types of lawsuits before the administrative judiciary and the organization of the administrative judiciary in the Kingdom of Saudi Arabia. By completing the three courses on administrative law, the students will acquire plenty of skills, including, the analysis and criticism, research writing, and commenting on administrative judicial law.

LAW 369: CONFLICT OF LAWS

Credits: 2 (2-0-0) Prerequisite: LAW101

The course conflict of laws, also known as private international law, is an advanced course that follows up on the understanding gained in previous courses on private and commercial substantive law as well as procedural law. The course focuses on cross-border private and commercial legal relations. Although it introduces new theoretical concepts to the students, it is largely taught from a practical perspective of a lawyer who needs to answer the three basics questions: the courts of which state can hear the cross-border case, what will be the applicable law to the case and will such judgment be recognized and enforced in a foreign state.

LAW 374: SUCCESSION, WILLS AND ENDOWMENTS

Credits: 3 (3-0-0) Prerequisite: LAW172

This course covers issues of inheritance, by explaining the heirs and associations, the conditions of their inheritance, and how it is distributed among them. It also covers the provisions of wills and endowments, and the application of them by listing the applicable regulations in the Kingdom of Saudi Arabia.

LAW 380: MOOT COURT

Credits: 3 (3-0-0) Prerequisite: LAW221, LAW 231

The course aims to achieve proficiency and excellence in students' skills to apply law in practice. The final outcome of a course is a successful participation in a simulation of civil litigation, arbitration or criminal procedure in which students are prepared for their future profession of an attorney, judge or arbitrator. The moot court course will be closely linked to either ongoing or future moot court students' competitions in different legal disciplines (such as Willem C. Vis moot on international commercial arbitration or Jessup). The content of the course depends on the problem/case analyzed and will focus on in depth analysis of the specific legal field required to solve the case, instead of covering broad legal topics.

LAW 381: INTRODUCTION TO CORPORATE GOVERNANCE

Credits: 3 (3-0-0) Prerequisite: LAW243

This course will explore key basic aspects of corporate governance. The course focuses on rules to lead and guide the company that includes mechanisms to regulate the various relationships between the Board, Executive Directors, shareholders and Stakeholders. The aim is to analyze and discuss the rules and procedures to facilitate the decision-making process with transparency and credibility to protect the rights of shareholders and stakeholders and achieve fairness, competitiveness and transparency on the exchange and the business environment.

LAW 382: ARTIFICIAL INTELLIGENCE, TECHNOLOGY AND LAW

Credits: 3 (3-0-0) Prerequisite: LAW112

The course deals with contemporary legal challenges faced with the development of artificial intelligence, robotics and information technology. It introduces the students in the current technological development and explores new legal questions arising out of this development. The legal challenges are various and include liability, data protection, e-commerce, cross-border jurisdiction and applicable law. The relationship between the technological development and ethical standards will be discussed.

LAW 402: COMMERCIAL ORGANIZATIONS

Credits: 3 (3-0-0) Prerequisite: LAW342

The course International Commercial Organization is an advanced course that focuses on the role of the international commercial and financial organizations in regard to trade regulation. The aim of this course is to raise students' awareness of the key roles that international organizations play in global, regional and domestic policy making. The main organizations that the course covers are the World Trade Organization (WTO), the Organization for Economic Development and Cooperation (OECD), the International Monetary Fund (IMF) and the World Bank.

LAW 403: ARBITRATION LAW

Credits: 3 (3-0-0) Prerequisite: LAW243

This is an advanced course which introduces students to fundamentals of international arbitration based on their previous knowledge and skills acquired in commercial law and procedural law courses. Although it introduces new theoretical concepts to the students, it is largely taught from a practical perspective of a practicing lawyer and focuses on drafting of arbitration agreements, writing submissions in arbitration, research and pleading.

LAW 405: CAPITAL MARKET LAW

Credits: 3 (3-0-0) Prerequisite: LAW342

This course is an advanced course building on the previously acquired understanding of commercial law designed specifically to understand the capital markets rules and regulations in Saudi Arabia. It is a backbone of the financial system of a country. Capital Market rules and regulations were issued to create a transparent, fair and regulated market that keeps pace with the current developments in other international financial markets.

LAW 407: INTELLECTUAL PROPERTY LAW

Credits: 3 (3-0-0) Prerequisite: LAW243

Intellectual property law is an advanced course within the Commercial law track designed to provide students with understanding, skills and values of contemporary questions of intellectual property laws of Saudi Arabia, the international treaties and comparative law in the field. Topics covered include general characteristics of intellectual property rights, several types of intellectual property rights such as copyrights, patents, trademark, design etc, and remedies for protection of the rights.

LAW 409: BANKING LAW

Credits: 3 (3-0-0) Prerequisite: LAW243

The course banking law is an advanced course designed for the final year' students and belongs to the commercial law track. This course covers topics such as: the banking structure and the various types of banks, nature of banker-customer relationship, rights and duties of both banker and customer towards each other and this includes the bankers' legal liabilities and business aspects of banking. Other related topics include negotiable instruments, recent issues in banking i.e aspects of bank lending and securities, electric banking and money laundering.

LAW 431: EXECUTION OF JUDGMENTS

Credits: 3 (3-0-0) Prerequisite: LAW221

This course is considered the last course in the series of Law courses. LAW 221 is a prerequisite course. This course deals with the definition of execution, the rights that may be executed, the direct authority for execution, the parties to execution, the reasons for execution, the documents necessary for execution, the expedited execution and its forms, the place of execution, and the funds that may not be executed. It also deals with procedures for seizing movable money, objecting to the seizure, seizing debtor's money with others, cancellation of attachment and its effects, execution on the property and the stages of its completion, precautionary attachment and its procedures, and finally forced sale and forced eviction.

LAW 432: INSURANCE

Credits: 3 (3-0-0) Prerequisite: LAW223

This course is one of the main courses in the advanced Saudi Law course. It shows the concept of insurance, its definition, its importance, the difference between cooperative insurance and commercial insurance, its types (health insurance, vehicle insurance, life insurance), the technical bases of insurance, and insurance guarantees, the effects of insurance on the obligations of the insurance parties, the expiry of the insurance contract, and the settlement of insurance conflicts in accordance with Saudi regulations.

LAW 435: EVIDENCE LAW

Credits: 3 (3-0-0) Prerequisite: LAW221

This course covers the objective and procedural rules of proof, the different doctrines of proof, methods of proof: documentary material, testimony, circumstantial evidence, admission, oaths, expertise, court inspection, the procedures and authoritative methods of proof, the role of the judge in Islamic jurisprudence and comparative systems, the practical importance of the burden of proof, and judgments issued for proof and their characteristics.

LAW 436: CRIMINOLOGY

Credits: 3 (3-0-0) Prerequisite: LAW340

This course is taught within the course of advanced Saudi Law. It covers many important topics such as identifying the criminal phenomenon in terms of its research problems, starting with defining the concept of criminology, the content of crime and the criminal. Then, the research methods that criminology uses to investigate the facts of this phenomenon. It introduces the students to the factors that may affect a person and push him to social deviation and criminal behavior, and the punitive schools and philosophies. In addition, the forms of the criminal penalty, the methods of punitive execution, the methods of treatment within the penal institutions, and the means of aftercare for that punitive implementation.

LAW 437: PRINCIPLES OF ISLAMIC JURISPRUDENCE

Credits: 3 (3-0-0) Prerequisite: LAW172

This course is one of the courses of the advanced Saudi Law course. It covers many topics related to the jurisprudence, such as the definition of jurisprudence rules, the difference between them and the fundamentalism, the stages of codification of the science of jurisprudence, its most important sources, literature and sections, the major general jurisprudence rules, and the minor jurisprudence rules.

LAW 461: INTERNATIONAL TRADE LAW

Credits: 3 (3-0-0) Prerequisite: LAW243

The course aims to provide an in-depth knowledge and understanding of the laws relating to international trade. It provides a deep overview over the laws, rules and conventions on international sale of goods, trade in goods and service, carriage of goods by air, sea, and road, instruments used in various international business contract, dispute resolution etc. This course examines the distinctive issues, current relevant principles, concepts and problems involved in international trade. The course helps the student to understand the basic principles of international business and their impact on the world's economy and to learn the operational mechanism of international trade.

LAW 462: INTERNATIONAL ENVIRONMENT LAW

Credits: 3 (3-0-0) Prerequisite: LAW255

The course of Environmental Law is an advanced course that provides the basis of international environmental law by identifying its sources, regulations, procedures and actors. The course examines both international and national protection of the environment and offers an overview of global environmental challenges and core legal principles.

LAW 464: HUMAN RIGHTSLAW

Credits: 3 (3-0-0) Prerequisite: LAW255

The course Human Rights Law is an advanced course that offers an introduction to the theory and practice of human rights withing the International law track. It examines the different sources of human rights as well as their enforcement and development. The course also provides students with the analysis of these rights through conventions, international and regional organizations as well as national laws.

LAW 466: INTERNATIONAL HUMANITARIAN LAW

Credits: 3 (3-0-0) Prerequisite: LAW255

The course International Humanitarian Law is an advanced course that explores the development and application of humanitarian law also known as the law of armed conflict. The course focuses on the underlying principles governing armed conflicts and enables a careful evaluation of the various international humanitarian rules intended to protect victims during armed conflict and civil wars. The course is based on many cases from the International Criminal Court to provide a greater understanding of the application of the law of armed conflict at the practical level in the contemporary operating environment.

LAW 468: DISPUTE SETTLEMENT

Credits: 3 (3-0-0) Prerequisite: LAW255

The course covers the general meaning of international dispute settlement and methods of dispute settlement. This include the definitions of various relevant terms like dispute, settlement and international disputes, the role of international law and institutional institutions in relation to dispute settlements, causes of international disputes and participants in international disputes. It covers also the methods of dispute settlement which include direct methods, third party intervention, the regional approach and judicial settlement. The process for international dispute settlement involving the arbitral tribunal and new model for dispute settlement shall be covered too.

LAW 492: CO-OP (COOPERATIVE EDUCATION)

Credits: 10 Prerequisite: Departmental Approval

The Co-Op is a career related professional program available to all Law students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to university students who have accumulated 90 or more credits. The Co-Op option counts for 10 credit hours (CRs) in practical experience over a 7 month period- usually spanning one semester and a summer.

BUS 101 INTRODUCTION TO BUSINESS

Credits: 3 (3,0,0) Prerequisite: None

This course is a survey of the modern business world. It provides the student with a general knowledge of the composition and functions of the business organization as well as its role as a social institution. The course deals with business environment, management functions (planning, organization, and control), and business functions (marketing, human resources, operations, and finance). This course is a prerequisite to all higher courses in business.

ECON 102 FUNDAMENTALS OF ECONOMICS

Credits: 3 (3-0-0) Prerequisite: None

The course is designed to provide students with an overview of the principles and theories of Economics. This introductory course will describe the general structure of macroeconomics and relate that to the Saudi economy and how it is financially structured and regulated.

ETHC 351: LEGAL ETHICS

Credits:3 (3-0-0) Prerequisite: None

This course is an introduction to legal ethics and the philosophy and regulation of morals and values underpinning legal profession. Legal professionals are engaged in the practice and administration of law in the society, the course focus on the establishment and regulation of the legal profession in Saudi Arabia and other parts of the world. Topics to be covered include the Role and Responsibilities of Lawyers in Society and the Lawyer-Client Relationship.

HIST151: HISTORY OF LAW

Credits: 3 (3-0-0) Prerequisite: None

Students who plan to work in almost any area of law, as well as those interested in the academic study of legal history have much to gain from this History of Law course elective. The Program of Study in Law and History offers students a chance to examine law and its relationship to the larger world of philosophy, religion, politics, and government – in the context of studying law in a period of time, different from our own. It is designed to reflect the present evolution of interdisciplinary university education in our rapidly changing world. Law and History offers students a chance to contrast our present circumstances with the past, a chance to understand the long path of development that led to the legal problems we grapple with in the present, and the chance to see the deep roots of the social forces that are changing the shape of our own world.

HIST 153: COMPARATIVE POLITICAL SYSTEMS

Credits: 3 (3-0-0) Prerequisite: None

This course is an elective course on Comparative Political systems. This course offers a broad introduction to comparative politics, the subfield of political science concerned mainly with political ideas, institutions, and behavior within states.

Politics, the distribution, exercise, and consequences of power – exists at multiple levels of our society and in our daily lives. We experience politics in action, for example, during international negotiations, government policy choices, in the workplace, and in our own families. This course focuses on the formal, public sphere of politics and power relations through a systematic study and comparison of types of government and political systems.

IR 101: INFORMATION RESOURCES

Credits: 3 (3-0-0) Prerequisite: None

This course provides an introduction to techniques of information retrieval and information evaluation. Students completing this course will have the skills needed to locate and critically

evaluate information, to think critically about research strategies, and to apply these concepts to undergraduate research using Library resources and the Internet.

GENERAL COURSES OFFERED BY DIFFERENT COLLEGES

COURSES IN ARABIC

ARAB 101 ARABIC WRITING

Credits: 2 (2,0,0) Prerequisite: None

This is the first part of university-level Arabic writing course. The course aims to provide students with a detailed knowledge of Arabic grammar, usage, punctuation and paragraphing in order to improve their writing skills. They are given practice in writing simple sentences, and combining them into compound and complex sentences using punctuation marks. The course seeks to improve the students writing abilities and style. This includes writing long paragraphs, whole essays and one research paper.

ARAB 103 ARABIC WRITING II

Credits: 2 (2,0,0) Prerequisite: ARAB 101

This second-level Arabic writing course aims at providing students with the skills necessary for scientific and technical writing style. This includes learning certain skills necessary for technical and scientific writing of reports, formats, definitions, descriptions, explaining processes, and establishing comparisons. Students are asked to make at least two oral presentations, as well as a number of written assignments in and out of class.

ARAB 203 ARABIC WRITING III

Credits: 2(2,0,0) Prerequisite: ARAB 103

This course focuses on developing practical Arabic language skills for those students preparing to study and work in scientific and technological fields as well as in fields of business. Its teaching units are meant to build on writing skills already acquired in the two previous Arabic courses.

Arabic Writing III focuses on the formal aspects of language, such as grammar and vocabulary associated with the Arabic used in science, technology, computer, and business. It is also designed with the aim of developing the student abilities to express in Arabic the concepts involved in studying those subjects.

ARAB 201 FUNCTIONAL GRAMMAR

Credits: 3 (3,0,0)

The course teaches the major functional rules of grammar: case markers and word order. It focuses on three noun cases and three verb cases using common examples. Special attention is given to practical exercises.

ARAB 302 APPLIED GRAMMAR

Credits: 3 (3,0,0) Prerequisite: ARAB 201

This course is a continuation of ARAB 201. It focuses on the application of the rules of grammar. Students are introduced to words with fixed forms, including nouns, verbs and particles. Students are required to apply what they study to a large number of Qur'anic texts, Ahadeeth, and well-regarded literary works.

ARAB 303 ARAB RHETORIC

Credits: 2 (2,0,0) Prerequisite: Departmental Approval

This course explores the artful elements of Arabic. The craft and art of metaphors and good style are examined. The aim of the course is to cultivate a sensitivity to language appreciation in prose and poetry en route to mastery of Arabic.

ISC 101 ISLAMIC ETHICS

Credits: 2 (2,0,0) Prerequisite: None

This course examines the concept of ethics and its importance to human life. It also touches upon related areas, such as, the origins of morals and ethics, types of human behavior and their motives, human ethics and their purposes. Various categories and classifications of ethical behavior, the degrees of ethics, the types and manifestations of vice are defined; and how the Holy Quran and the Sunnah honor, purge and exalt the human soul are discussed. Examples of ethical behavior such as, truthfulness, honesty, faithfulness, modesty, benevolence and good conduct are extolled.

ISC 103 ISLAMIC ECONOMIC SYSTEM

Credits: 2 (2,0,0) Prerequisite: None

The course aims at expounding the Islamic economic system and how to implement it in daily affairs. It touches upon Islamic economic system in relationship to Islamic Law in handling of modern economic problems, as well as its views on property, ownership, inheritance, and economic welfare. The course compares Islamic solutions to modern economic problems to those of other secular economic systems. Issues such as production, distribution, consumption, contracts, finance are also treated from an Islamic point of view.

ISC 105 HOLY QURAN SCIENCES

Credits: 2 (2,0,0) Prerequisite: None

This course introduces the Quranic sciences and what kinds should be studied so as to expose students to the correct concept of the Holy Quran in order to apply it correctly as the accepted science which is in conformity with reason, and those rejected ones that are not. The most important requisites of the knowledge of the Quranic sciences is the awareness of its interpretation, the perception of its miraculous aspects, knowing its flawless, ambiguity, abrogation, abrogated, absolute, restricted, and other aspects of its eloquence. Without studying the above subjects the study of the Holy Quran will be inadequate and the student will be deprived of a lot of knowledge.

ISC 203 NEW FINANCIAL TRANSACTIONS

Credits: 2(2,0,0) Prerequisite: ISC 103

The company, as a type of contract, arose a long time ago to meet the needs of the people. This development of social life led to different kinds of companies and contracts, which can be expressed as modern financial transactions, such as partnership company, limited partnership company, joint venture company, joint stock company, limited liability company, mixed economics company, public joint stock company, and insurance company. These are studied in addition to the companies known in the Islamic jurisprudence in the past such as proprietorship company, permission partnership company, all kinds of contract companies, and speculation company. The course clarifies these modern financial transactions and the viewpoint of the Islamic Shari'a on them.

ISC 205 FAMILY IN ISLAM

Credits: 2 (2,0,0)

This course is designed to deal with the issues related to family building, responsibilities and problems. Among the issues to be dealt with are: choice of future spouse, the marriage contract and its requirements, rights of spouses, parents, children and relatives. The second part of the course deals with Islamic solutions to marital problems, such as divorce, waiting period, alimony and custody of children, giving the rulings of the religion on these matters

GENERAL COURSES OFFERED BY DIFFERENT COLLEGES

COURSES IN ENGLISH

ART 101 ART APPRECIATION
Credits: 2 (2,0,0)

This course surveys the development and interrelationship of the visual arts, music and drama, both classical and contemporary, in selected cultures.

CHM 101 GENERAL CHEMISTRY
Credits: 4 (3,0,3) Prerequisite: None

This course introduces students to the basics of chemistry and the makeup of matter. Several fundamental models of chemistry are looked at, the relationship of chemistry to the real world is understood, and students experiment and develop problem solving skills.

COM 201 COMMUNICATIONS SKILLS
Credits: 3(3,0,0) Prerequisite: ENG 101

The course is designed to familiarize students with the processes of Communications in interpersonal, organizational, mass and intercultural contexts. Topics covered include: Communications paradigms, perceptual processes, personal and professional relationships. The course also includes materials related to verbal and non-verbal Communications, Communications technology, and the role Communications plays in culture.

COM 301 PROFESSIONAL AND TECHNICAL PRESENTATIONS
Credits: 2 (2,0,0) Prerequisite: COM201

Communications 301 is an advanced presentations skills course. Building on basic presentation skills acquired in Com 201, students learn how to improve their verbal and nonverbal skills as well as develop effective strategies to inform and persuade audiences. They also learn how to read and analyze audiences and how to organize and prepare winning presentations in a professional setting. Students research, prepare and deliver technical presentations and speak before general professional audiences on topics of interest.

COM 401 INTERPERSONAL SKILLS FOR LEADERS AND MANAGERS
Credits: 3(3,0,0) Prerequisites: BUS101, 60+ credit hours

This course is a multi-disciplinary and multi-topic training course that cultivate skills needed in various business or work-related situations. The course is conducted employing modules cued to the following skills sets: negotiation strategies and tactics; meetings and time management; creative thinking; personal financing; and career preparation skills, e.g. writing resumes and conducting effective interviews.

ECON 101 MICROECONOMIC ANALYSIS
Credits: 3 (3,0,0) Prerequisite: None

This course provides an introduction to the elements of microeconomic analysis. Topics include: consumer behavior, production theory, the role of market structure and prices, and resource allocation.

ECON 102 FUNDAMENTALS OF ECONOMICS
Credits: 3 (3-0-0) Prerequisite: None

The course is designed to provide students with an overview of the principles and theories of Economics. This introductory course will describe the general structure of macroeconomics and relate that to the Saudi economy and how it is financially structured and regulated.

ECON 103 MACROECONOMIC ANALYSIS

Credits: 3(3,0,0) Prerequisite: None

This course provides an introduction to the elements of macroeconomic analysis. Topics include: determination of national income, composition of output, inflation, and unemployment. This course also discusses also the role of government relating to public spending, regulation,
taxation, along with monetary and fiscal policies.

ELE 103 STRESS MANAGEMENT

Credits: 3 (3,0,0) Prerequisite: None

This course explores the factors and causes of stress. Students study the different theoretical perspectives about stress and learn a variety of practical stress management skills and techniques in coping with stress.

ELE 109 PUBLIC RELATIONS

Credits: 3 (3,0,0) Prerequisite: None

The course examines the basic public relations concepts and processes. The course aim is to enhance student understanding of the media, communications, social sciences and the corporate world. Strategies and tactics on how to build and maintain good reputations and communicate effectively with employees, the media, community groups and others important audiences are discussed and debated.

ELE 110 ENTREPRENEURSHIP

Credits: 3 (3,0,0) Prerequisite: None

The course presents an overview of entrepreneurship. All steps in the entrepreneurship process, from evaluating a business idea through to the launch of a business, are examined. Useful models and frameworks, complemented by practical advice and guidelines, offer students a solid foundation to launch their own businesses while understanding the various risks their startup may face. This course has equips students with a set of lenses through which they can better identify and actively filter new-business opportunities and obtain the skills and confidence to plan and launch their business.

ENG 101 INTENSIVE ENGLISH WRITING

Credits: 3 (3,0,0) Prerequisite: None

This first level college writing course is designed to train students in the basic skills necessary for writing in general. It focuses on writing essays using various rhetorical methods and patterns such as narration, argumentation, persuasion, description, comparison, contrast, problem, solution, etc. Students are required to write essays both in and outside of the classroom.

ENG 103 RESEARCH WRITING TECHNIQUES

Credits: 3 (3,0,0) Prerequisite: ENG 101

This course starts with paraphrase and the synthesis of ideas from several different sources. Library skills follow. Students are familiarized with the University's circulation and reference sections; are schooled on how to locate printed materials using the library online catalog. Other basic research skills taught: writing bibliographies and use of documentation. Students are also instructed in narrowing a topic, annotating sources, formatting and writing a report.

ENG 113 ADVANCED ACADEMIC READING
Credits: 3 (3,0,0) Prerequisite: ENG103

This course is designed to help students acquire the appropriate skills to strengthen their ability to understand complex readings which they encounter in their university programs. Accordingly, the course covers aspects of advanced reading for specific academic purposes, while developing strategies that are necessary for successful reading. Individual skills covered include combining information from various sources, skimming, predicting, dealing with unfamiliar words, inference and text analysis.

ENG 114 INTRODUCTION TO JOURNALISM
Credits: 3 (3,0,0) Prerequisite: ENG103

This course gives an introduction to researching and writing news stories. Students gain additional opportunities to refine their English writing and speaking skills beyond the current courses available at PSU. The ability to write well is a skill that is valued by employers, regardless of profession. Thus, the course imparts an additional marketable skill for those students who complete it. Journalists with expertise in business are currently in-demand in the job market. Consequently, journalism training opens another avenue of possible employment for PSU students whose majors are business-related.

ENG 207 CRITICAL THINKING
Credits: 3 (3,0,0) Prerequisite: ENG103

This course is designed to help students develop their skills in reasoning, analysis, the use of logical arguments to solve real-world problems. The skills taught in this course have broad application in both the academic and professional spheres. Students study and learn reasoning and the nature of arguments, the nature and rules of evidence, how to distinguish false claims from true claims, recognize and avoid logical fallacies and learn how to anticipate and solve problems in complex systems. Class participation and interaction is vital. Emphasis is placed upon practical techniques and application of skills acquired through in-class presentations.

ENG 208 Elementary Spanish
Credits: 3 (3,0,0) Prerequisite: None

Spanish Level 1 is designed to develop some basic communicative skills as well as an understanding of the cultures of Spanish speaking countries. The goal of this course is to develop communicative competence in Spanish: communicate minimally, create sentences, ask and answer basic questions, initiate and respond to simple statements, and maintain conversations about familiar topics.

ENG 301 TECHNICAL WRITING
Credits: 3 (3,0,0) Prerequisite: ENG103 for all but CE students

The course introduces the principles and practices of technical writing. The object of the course is cultivating writing skills cued to professional work. Through an array of homework assignments, engaged class discussions and a report project, students obtain proficiency in various aspects of technical writing. Attention is also given to the development of argumentative and analytical skills as well as elements of document design and formatting.

ETHC 301 Business Ethics
Credits: 3 (3,0,0)

This course examines business ethics and their relationship to the social, political, and business environments. The course is built on two major themes; business ethics and corporate social responsibility. Give and take discussions in the class allow nuanced analyses and spirited critiques of environmental and societal problems as they relate to business and direct student attention to the strong need for sound business ethics in addressing business, environmental, and social issues. A major goal of the course is to provide students with a set of parameters to guide ethical decision making skills.

ETHC 303 ETHICAL AND SOCIAL ASPECTS OF COMPUTING
Credits: 3(3,0,0) Prerequisite: CS 210

The course concentrates on the theory and practice of computer and information ethics. It covers the basics of ethical decision-making, and emphasizes group work and presentations. Topics studied in the course include risk and reliability, privacy, info-war, crime, access, business ethics, copyright, patents, and more.

ETHC 305 ETHICAL AND SOCIAL ASPECTS OF ENGINEERING
Credits: 2 (2,0,0) Prerequisite: Junior Level standing

The course discusses why ethics are important to the Engineering profession, gives an overview of professional codes of ethics, describes the rules of professional conduct, locates ethics in the social matrix, underscores the importance of environmental issues, catalogs the value of professional and technical societies in maintaining ethical standards, and provides guidelines for making value-laden decisions as engineers and citizens.

ETHC 351 LEGAL ETHICS
Credits:3 (3-0-0) Prerequisite: None

This course is designed to acquaint the student with the professional codes of conduct and law dealing with the ethical obligations of members of the legal profession. The subjects to be covered include: the regulation of lawyer and legal assistant conduct, confidentiality, conflicts of interest, the handling of client funds, advertising, free-lancing and the unauthorized practice of law, disciplinary proceedings and malpractice.

EUR 101 EUROPEAN LANGUAGE I
Credits: 3 (3,0,0) Prerequisite: Departmental Approval

The course is an elementary course in a major European language. Students learn basic vocabulary and grammar in discourse through listening, speaking, reading and writing. The object is on developing basic communicative ability through short and varied discourse.

EUR 102 EUROPEAN LANGUAGE II
Credits: 3 (3,0,0) Prerequisite: Departmental Approval

This course builds on what was learned in EUR 101. Vocabulary range grows and grammatical competency improves as practice their language skills in situational and topic-based discourse units. Students read short simplified stories and retell them orally and in writing.

HIST 151 HISTORY OF LAW
Credits: 3 (3-0-0) Prerequisite: None

The course surveys the origins and practices of law in the ancient times in Middle East and Mediterranean civilizations (Egypt, Mesopotamia, Greece, Rome) and religious communities (Jewish, Christian and Muslim). Topics covered: political, legal, property, and family systems along with how obligations and contracts were done.

HIST 153 COMPARATIVE POLITICAL SYSTEMS
Credits: 3 (3-0-0) Prerequisite: None

This course begins with a brief review of some of the notable political systems of up to the 20th Century before concentrating on the major political systems of the past century and those of today. Attention is given to understanding how societies and political systems are structured, who (i.e. a person, party, or political system) holds the legitimate use of force, and the relationship of ideology, wealth and the media to the political order.

HPE 101 NUTRITION FOR HEALTHY EATING AND LIFE
Credits: 1 (1,0,1)

The course will introduce the students to basic nutrition, diet, proper eating habits, reading food labels, and planning meals. It also trains students in fitness exercises, like flexibility, stretching, yoga, and Pilates exercises. *(Equivalent PE courses can be considered in lieu of HPE 101 given the written approval of the PE department).*

HPE 102 CONTEMPORARY WOMEN`S HEALTH
Credits:1 (1,0,1)

The aim of this course is to empower the students to take responsibility for their own health as women living in the 21st century. The course focuses on promoting a healthy life style. The course features an "open gym" allowing students the flexibility to create their own plan and train a minimum of once a week when it suits them in the fitness room. *(Equivalent PE courses can be considered in lieu of HPE 102 given the written approval of the PE department).*

IR 101 INFORMATION RESOURCES
Credits: 3 (3-0-0) Prerequisite: None

This course provides an introduction to techniques of information retrieval and information evaluation. Students completing this course will have the skills needed to locate and critically evaluate information, to think critically about research strategies, and to apply these concepts to undergraduate research using Library resources and the Internet.

MATH 101 FINITE MATHEMATICS
Credits: 3 (3,0,0) Prerequisite: None

The course introduces linear equations and probability theory. Items covered include: linear equations, matrices, set and counting techniques and finance mathematics.

MATH 103 DESCRIPTIVE GEOMETRY
Credits: 3 (3,0,0) Prerequisite: None

The course introduces students to the basics of space geometry, coordinate system and mathematical relationship between lines and points in 3D space.

MATH 111 CALCULUS I
Credits: 3 (3,1,0) Prerequisite: None

This course introduces the students to various topics such as the concept of limits, continuity of functions, the derivative, formulas of differentiation, differentials, extrema and mean value

theorems, and graph sketching/optimization.

MATH 113 CALCULUS II

Credits: 3 (3,1,0) Prerequisite: MATH 111

This course introduces various topics such as the concept of antiderivatives, integrals (definite and indefinite), the fundamental theorem of calculus and applications of definite integrals to find area, volume, arc's length and surface area. Furthermore, the course continues in another direction covering the concept of sequences and infinite series.

MATH 211 BUSINESS CALCULUS

Credits: 3(3,0,0) Prerequisite: MATH 101

The course covers useful calculus functions such as one variable limits and differentiation, applications of Heuristic treatment of the exponential and logarithmic functions, and their properties.

MATH 215 ENGINEERING MATHEMATICS

Credits: 3 (3,1,0) Prerequisite: MATH 113

This course has two parts-the first introduces the students to advanced topics in calculus such as such functions of several variables, double integrals and their applications and triple integrals, the second part deals with elementary topics in linear algebra. Indeed, topics like Vectors in 2- Space and 3-Space, Vector spaces, Inner Produce Spaces and Eigenvalues and Eigenvectors are considered.

MATH 221 NUMERICAL ANALYSIS

Credits: 3 (3,1,0) Prerequisite: MATH 113

The course focuses on a broad range of concepts and tools of numerical analysis. Items covered include: computational methods for nonlinear equations, systems of linear equations, interpolation, numerical differentiation and integration, numerical solution of ordinary differential equations.

MATH 223 LINEAR ALGEBRA

Credits: 3(3,1,0) Prerequisite: MATH 113

The course examines the techniques of linear algebra and utilizes its tools. Topics and instruments include: matrices, determinants, systems of linear equations, Euclidean vector spaces, real vector spaces, inner product spaces of linear equations, Euclidean vector spaces, real vector spaces, inner product spaces, eigenvalues and eigenvectors, linear transformation, applications.

MATH 225 DIFFERENTIAL EQUATIONS

Credits: 3 (3,1,0) Prerequisite: MATH 113

This course introduces students to various topics in the concept of differential equations. Topics include: techniques for solving first order differential equations (separable equations, exact equations, integrating factors); homogeneous and general second order linear equations; higher order linear equations; power series solutions; the Laplace transform and applications in science and engineering; Elementary partial Differential Equations; Laplace's Equation; the Heat Equation; and the wave equation.

PE --- PHYSICAL EDUCATION

Credits: 1 (0,0,2) Prerequisite: None

A wide range of sports and physical activities are offered for students to select from. There are two levels of instruction: beginner and intermediate. Students can only take one PE course

per term, but are encouraged to take PE classes regularly throughout their undergraduate life.

PHY 105 PHYSICS I
Credits: 4 (3,0,2) Prerequisite: None

This course introduces the principles of mechanics, energy, heat, sound and properties of matter. The course covers physics and measurement; motion in one dimension, vectors, motion in two dimensions, laws of motion, circular motion and other applications of Newton's laws; work and energy, potential energy and conservation of energy; temperature, heat and first law of thermodynamics. The emphasis in this course is cultivating an understanding of natural phenomena through direct observation, reasoning and application of this knowledge.

PHY 205 PHYSICS II
Credits: 4 (3,0,2) Prerequisite: PHYS 105

This course goes deeper into a number of areas of physics. Topics include: electric field, electrostatic forces, Gauss's law, electric potential, capacitors and dielectrics, current and resistance, direct current circuits, magnetic fields, sources of magnetic fields, magneto-static forces, waves and optics, Faraday's law, induction, alternating current circuits, the nature of light, reflection, and refraction.

PSY 101 INTRODUCTION TO PSYCHOLOGY
Credits: 3 (3,0,0) Prerequisite: None

This course surveys the various fields of psychology. Topics include learning, cognition, personality, motivation, perception, development, social interaction, and abnormal behavior. Also explored are current approaches to psychology demonstrating how biological, cognitive, and sociocultural approaches to psychology combine to provide a comprehensive view of human behavior.

SCI 101 INTRODUCTION TO PHYSICAL SCIENCE
Credits: 3 (3,0,0) Prerequisite: None

The course is a broad survey of physics, chemistry and earth science. It is designed to enable students to appreciate the role of science in today's society and technology. The fundamental components of space, time, matter, and energy along with scientific methods are explored.

STAT 100 INTRODUCTION TO STATISTICS
Credits: 3 (3,0,0) Prerequisite: None

This course introduces the basic concepts of data analysis and statistical computing, both increasingly used in the humanities and the social sciences. The emphasis is on the practical application of quantitative reasoning, visualization, and data analysis. The goal is to provide students pragmatic tools for assessing statistical data and conducting their own basic statistical analyses. Topics covered include basic descriptive measures, measures of association, sampling, some probability distributions and simple linear regression.

STAT 101 INTRODUCTION TO STATISTICS AND PROBABILITY THEORY
Credits: 3 (3,1,0) Prerequisite: MATH 111 or MATH 101

The course introduces a range of statistical concepts and techniques. Estimations of statistical distributions such as mean, variance, and their applications are examined. Also covered are random variables, frequency distributions, descriptive stats, discrete probability and probability theory.

STAT 271 STATISTICAL ANALYSIS

Credits: 3(3,0,0) Prerequisite: STAT 101

Advanced statistical techniques. Topics include: multiple regression, the analysis of variance, the analysis of covariance, stepwise approach to multiple regression, nonparametric methods, time series analysis, use of index numbers in economic data, classical inference and properties of good estimator (unbiasedness, consistency, efficiency). Students do projects that require use of statistical packages (SAS, SPSS, etc...) throughout the course.

STAT 272 APPLIED STATISTICS FOR ENGINEERS

Credits: 3 (3,0,0) Prerequisite: STAT 101

The course is designed for engineering problem solving and for creation of statistical thinking applied to industrial processes. The course covers: principles of engineering data collection; principles of experimentation; confidence intervals and significance tests; one-, two-, and multi-sample studies; regression analysis; assessing, monitoring and improving processes using statistical methods; process monitoring, control charts, capability analysis, and reliability. Students employ statistical software (e.g. SAS and SPSS) to perform statistical data analysis and experiments and work on team projects involving engineering experimentation and data analysis.

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