



جامعة فهد بن سلطان
FAHAD BIN SULTAN UNIVERSITY

Fahad Bin Sultan University

University Catalogue 2013-14

Fahad Bin Sultan University Catalogue

2013-14



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With Technical Assistance from
The American University of Beirut



جامعة فهد بن سلطان
Fahad Bin Sultan University

Fahad Bin Sultan University

**University Catalogue
2013-2014**



His Majesty King Abdul Aziz Al Saud



King Abdullah bin Abdul Aziz Al Saud
The Custodian of the Two Holy Mosques



His Royal Highness Prince Salman bin Abdul Aziz Al Saud
Crown Prince, Deputy Prime Minister and Defense Minister



His Royal Highness Prince Fahad bin Sultan bin Abdul Aziz Al Saud

Prince of Tabuk Region and Chairman of the Board of Trustees

“When we speak of education in the Kingdom, we speak of building-up the country and its citizen, of promoting the country and modernizing it, and of alleviating the citizen and enabling him, for there is no cause appertaining to man, in heaven or on earth, which is more honorable than education.”

His Royal Highness Prince Fahad bin Sultan bin Abdul Aziz Al Saud

Prince of Tabuk Region and Chairman of the Board of Trustees

Welcome to Fahad Bin Sultan University (FBSU)

At FBSU you will find challenging opportunities for a successful life and a bright future. With a strong commitment to excellence, inspired by the directives of HRH Prince Fahad Bin Sultan, Chairman of the Board of Trustees (BoT), and the technical support of the American University of Beirut (AUB), one of the top Universities in the region, FBSU strives to offer rigorous and stimulating academic programs that pave the way for a life full of growth and success.

As we share the joy and excitement of the new academic year, we are proud to provide you with the FBSU catalog for the academic year 2013-14 as a guide to students, faculty, and staff in their pursuit of excellence during their stay at FBSU, and as a beacon for future generations seeking new horizons of higher education. This catalog manifests essentially the achievements of FBSU and serves a manifold purpose: (i) introduce the administration and faculty members; (ii) highlight the modifications of some of the regulations, policies, procedures, and programs; (iii) announce revised versions for the study plans in the College of Business and Management and the College of Engineering; and (iv) announce the MBA program in the fall term of 2013-14.

The Foundation Year Program (FYP) continues to be a university priority geared to provide new students with the necessary background in English, Math and Information Technology skills to succeed in the chosen academic programs.

The Bridging Year Program (BYP) and the Executive Master in Business Administration (EMBA) have proven to be a successful endeavor and a testimony for the effective and dynamic role of the university in realizing the aspirations of the members of the Tabuk community and the Kingdom at large.

To this end, FBSU is happy to announce that the Ministry of Higher Education (MoHE) has approved the establishment of the of Sciences and Humanities. In addition, the university has submitted an application to MoHE for its first program in English Language. Concurrently, the College of Computing has already completed its proposal for an undergraduate program in Information Technology.

Moreover, during the academic year 2013-14, FBSU will be offering its second graduate program, Master's in Business Administration (MBA), and it will be celebrating the graduation of its first EMBA class.

The next challenge for FBSU is to establish the College of Medical Sciences during the next academic year. The proposed college will start with three undergraduate programs: Medical Lab, Nursing, and Nutrition. The feasibility study of the college is already completed, and the respective proposal is currently undergoing the proper procedure for the MoHE approval.

To further enhance its programs, FBSU has furnished and/or renovated its science and engineering labs (civil, electrical and computer) with high-end equipment that support research and teaching activities. Moreover, during the current year, it will be installing two English labs, one for the male section and another for the female section, and a new up-to-date networking lab.

We are pleased to see a steady high increase in students' enrollment and MoHE students' scholarships indicating a growing interest in our university, its academic programs and achievements thus far. In this respect, we would like to acknowledge the major support that FBSU has been receiving from the MoHE.

Briefly, much is happening at FBSU at a critical time of further improvement and growth. After a decade of its establishment, FBSU continues to be a vigorous and dynamic university that quests confidently for exciting opportunities to be grasped and shared.

Ahmad Nasri, Professor

A/President

Student Responsibility for Catalog Information

FBSU students are responsible for reading the information in this catalog and on the university website (<http://www.fbsu.edu.sa>). Failure to comply with Faculty and University regulations will not exempt students from whatever consequences they may incur. Upon admission to the University, students will be assigned e-mail addresses, whence will be held responsible for checking their emails regularly for official University announcements and information.

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This catalog and relevant updates can also be viewed online at www.fbsu.edu.sa

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جامعة فهد بن سلطان
Fahad Bin Sultan University

Administration

Administration

University Administration 2013-14

- Nasri, Ahmad; Acting President
- Lyzzaik, Abdallah; Acting VP for Academic Affairs, Acting VP for Graduate Studies and Scientific Research
- Al-Balawi, Abdullah; Acting VP for Development
- Al-Sayed, Waad; Assistant to the President for Female Section
- Al-Balawi, Massad; Acting Dean of Student Affairs
- Al Hwaiti, Hajjar; Female Assistant Dean of Student Affairs.
- Saadedin, Daoud; Acting Director of Quality Assurance and Institutional Research
- Hallal, Hicham H.; Assistant to the President for Information Technology
- Bitar, Shaker, Assistant to the President for Administrative Affairs
- Al-Zureiqi, Mohammad; Acting Registrar
- Falah, Ahmad; Interim Director of IT Unit
- Barake, Taha; Acting Director of Facilities
- Jaffal, Rami; Acting Director of Finance
- Al-Atawi, Abdullah; Human Resources Officer

Academic Administration

- Lyzzaik, Abdallah; Ph.D, Acting VP for Academic Affairs, Acting VP for Graduate Studies and Scientific Research
- Bayoud, Hussam; Ph.D, Acting Director, Arts and Sciences Unit
- Al-Sayed, Waad; Ph.D, Female Coordinator, Arts and Sciences Unit
- Tabsh, Ibrahim; Ph.D, Acting Dean, College of Business and Management
- Al-Masri, Lubna; Ph.D, Female Coordinator, College of Business and Management
- El-Fadil, Nazar; Ph.D, Acting Dean, College of Computing
- Haidar, May; Ph.D, Female Coordinator, College of Computing
- Tantawi, Hassan; Ph.D, Acting Dean, College of Engineering
- Btoosh, Mousa; Ph.D, Acting Director, Foundation Year Program
- Abu Atieh, Amani; MA, Female Coordinator, Foundation Year Program

Deanship of Graduate Studies and Scientific Research

- Lyzzaik, Abdallah; Acting VP for Graduate Studies Scientific Research, Acting Dean of Graduate Studies

College of Business & Management

- Tabsh, Ibrahim; Acting Dean, Director of EMBA Program
- Al-Masri, Loubna; Female Coordinator

College of Computing

- El-Fadil, Nazar; Acting Dean
- Mezher, Mohamed; Chairperson, Computer Science Department
- Riman, Chadi; Chairperson, Computer Engineering Department
- Haidar, May; Female Coordinator

College of Engineering

- Tantawi, Hassan; Acting Dean
- Hattamleh, Omar, Chairperson, Civil Engineering Department
- Hallal, Hicham H., Chairperson, Electrical Engineering Department

Arts and Sciences Unit¹

- Bayoud, Hussam; Acting Director
- Al Sayed, Waad; Female Coordinator

Foundation Year Program

- Btoosh, Mousa; Acting Director
- Abu Atieh, Amani; Female Coordinator

Student Affairs

- Al Balawi, Massad; Acting Dean of Student Affairs
- Al-Hwaiti, Hajjar, Female Section, Assistant Dean
- Matar, Jihad; Sports Officer

Admissions and Registration Department

- Al Zureiqi, Mohammad; Acting Registrar
- Abu Al-Hassn, Lama; Female Section, Assistant

¹ Preliminarily approved by the MoHE as the College of Sciences & Humanities

Human Resources Department

- Al-Atawi, Abdullah; Officer
- Al-Nojom, Amro; Payroll
- Ghabban, Alaa; Female Section, Assistant

Finance Department

- Jaffal, Rami; Acting Director
- Al Hazmi, Amnah; Female Section
- Al-Balawi, Nasser, Cashier

Marketing and Public Relations

- Al Balawi, Abdullah, Acting VP
- Al-Balawi, Fahad, Officer
- Ellawand, Mirvat, Female Section, Webmaster
- Khaledi, Sami, Social Media Officer

Purchasing Department

- Qutishat, Ahmad; Administrative Assistant, President Office
- Al Sa`afen, Yousif; Officer

Warehouse

- Al Omrani, Mohammad

Copy & Mail Center

- Fteih, Adnan
- Al Atawi, Nourah; Female Section

Library

- Abed Al-Rahman, Mustapha; Acting Librarian
- Al-Atawi, Ibtissam; Female Section, Coordinator

IT Unit

- Al Falah, Ahmad, Interim Director, System Administrator

- Barakah, Abdullah, Moodle Assistant
- Ellawand , Mirvat, Webmaster, Female Section
- Halfawi, Omar; Database Administrator
- Al-fifi, Mouna; Female Section, Coordinator

Facilities Management Unit

- Barake. Taha; Acting Director
- Ellawand, Mirvat; Female Section, Coordinator

Information Desk

- Daghridi, Mousa
- Dosari, Nourah; Female Section

Transportation Unit

- Al Omrani, Ibrahim; Officer
- Abdel Haq, Nourah; Female Section

Security Unit

- Al Omrani, Abdullah; Officer
- Samti, Fatmah; Officer, Female Section

President's Office

- Al Dosari, Mouhammad; Secretary
- Shehri Haifa, Female Section, Secretary



جامعة فهد بن سلطان
Fahad Bin Sultan University

Academic Calendar 2013-2014

Academic Calendar 2013-2014

Fall Term			
Days	Gregorian	Hijri	Description
Sun -Thu	09/06-22/08/2013	30/08-15/10/1434	Admission notification for Fall 2013-14
Sun – Sat	04-17/08/2013	27/09 - 10/10/1434	Ramadan and Al-Fitr holiday
Sun	25/08/2013	18/10/1434	Faculty report to duty
Sun - Thu	1 – 05-09/2013	25-29/10/1434	Registration period for new students Orientation for new students of Fall 13-14 Payment of fees for Fall 2013-14 for all students
Sun	1/09/2013	25/10/1434	Classes begin
Sun - Thu	1 – 12/09/2013	25/10 -06/11/1434	Drop and Add period
Mo	23/09/2013	17/11/1434	National holiday
Thu - Su	10-20/10/2013	05-15/12/1434	Adha holiday
Mo	21/10/2013	16/12/1434	Classes resume
Sun - Thu	27-31/10/2013	22-26/12/1434	Advising week for Spring 13-14 for continuing students
Sun - Thu	03-07/11/2013	29/12-04/01/1435	Registration week for Spring 13-14 for continuing students
Thu	05/12/2013	02/02/1435	Last day for withdrawal from courses
Sun - Thu	08-12/12/2013	05-09/02/1435	Payment of fees for Spring 2013-14 for continuing students
Sun	15/12/2013	12/02/1435	Orientation sessions for new students of Spring 2013-14
Sun	15/12/2013	12/02/1435	Registration begins for new students of Spring 2013-14
Thu	02/01/2014	1/03/1435	Last day of classes
Sun - Tue	05-14/01/2014	04-13/03/1435	Final examination period
Sun - Thu	12-16/01/2014	11-15/03/1435	Payment of fees for Spring 2013-14 for new students
Thu	16/01/2014	15/03/1435	Registration ends for new students of Spring 13-14
Sun - Sat	19-25/01/2014	18-22/03/1435	In-between semesters break

Spring Term			
Days	Gregorian	Hijri	Description
Sun	26/01/2014	25/03/1435	Classes begin
Sun - Thu	26/01-06/02/2014	25/03- 06/04/1435	Drop and Add period
Sun – Sat	23-29/03/2014	22-28/05/1435	Midterm break
Sun	30/03/2014	29/05/1435	Classes resume
Sun - Thu	06-10/04/2014	06-10/06/1435	Advising week for Summer 2014 and Fall 2014-15
Thu	24/04/2014	24/06/1435	Last day for withdraw from courses
Sun - Thu	27/04-01/05/2014	76/06-02/07/1435	Registration week for Summer2014 and Fall 2014 Payment of fees for Summer 2014 and Fall 2014
Thu	22/05/2014	23/07/1435	Last day of classes
Sun - Tue	25/05-03/06/2014	26/07/- 05/08/1435	Final examination period
Thu	05/06/2014	07/08/1435	Last working day
Summer Term			
Days	Gregorian	Hijri	Description
Sun	08/06/2014	10/08/1435	Training experience begins
Sun	08/06/2014	10/08/1435	Classes begin
Sun - Thu	15-19/06/2014	17-21/08/1435	Drop and Add period
Thu	03/07/2014	06/09/1435	Last day for course withdrawal
Thu	17/07/2014	20/09/1435	Last day of classes Training experience ends
Sun - Tue	20-22/07/2014	23-25/09/1435	Final examination period
Thu	17/07/2014	20/09/1435	Training experience ends
Note: The first date (e.g. 04/12/2013) is Gregorian and the second (e.g. 01/02/1435) is Hijri .			



جامعة فهد بن سلطان
Fahad Bin Sultan University

The University

The University

Background

Based on the principle of integration between private and public sectors in KSA in offering higher education services, the Ministry of Higher Education encourages private higher education in all academic specialties. His Royal Highness Prince Fahad Bin Sultan – Prince of Tabuk Region encouraged investors to start a private university to spread culture and education in the city of Tabuk, which has a distinguished geographical location that serves the region and its surroundings.

FBSU was established in the year 1424 H in the city of Tabuk with one college, the College of Computing. At the beginning of the academic year 1427 – 28 H a branch for girls was added and was followed by the addition of the two colleges of Engineering and Business and Management in 1428 – 29 H. The University is governed by a Board of Trustees chaired by His Royal Highness Prince Fahad Bin Sultan Bin Abdul Aziz. The University continues to receive technical support from the American University of Beirut which offers consulting services on the design of curricula, selection of faculty, and the development of the University bylaws.

Mission

FBSU offers quality academic programs using state-of-the-art facilities, inspires students' learning, helps develop their skills, shapes their attitudes, fosters in them the passion for life-long learning, and installs in them the leadership skills required to compete in the workplace and become leaders while committing to highest ethical and moral standards for the betterment of society.

Vision

FBSU is committed to the educational success of a diverse student body for productive lives in the global marketplace. It will be known for:

1. Promoting educational excellence with a faculty committed to teaching, research, scholarship, and service.
2. Providing innovative, experiential, and design opportunities for students;
3. Improving the quality of life for the communities being served through Business, IT, Engineering, cultural and civic partnerships.
4. Embracing the wide diversity for stakeholders by fostering a workplace where FBSU students, faculty, and staff feel valued.

Academic Services and Facilities

The mission of the Academic Services at FBSU is to ensure that the University's mission and goals, such as academic excellence, community service, and other core educational values, are accomplished. FBSU provides the following facilities:

Library

Library services include print and electronic collections that provide first level resources in engineering, science, mathematics, business, computing, and humanities. The resources provide a good start to complete classroom assignments and projects, explore professional literature, pursue personal learning, and conduct research.

The library includes study areas equipped with PCs connected to the internet. Through the library webpage one can use search engines to access a number of quality information sources electronically in a full-text and full-image format and popular and scholarly journals, encyclopedias and engineering handbooks, standards, catalogs and books held by KSU Library, MOHE Digital library, as well as Proquest Central and Ebrary that offer hundreds of thousands of digital titles in all disciplines. The web address for the Library Webpage is: [http:// www.fbsu.edu.sa](http://www.fbsu.edu.sa)

Lab Facilities

FBSU is totally committed to providing students with a quality lab experience in order to prepare them to succeed in today's technology-based economies. As a vital hands-on component of all technology-based courses, the labs are well integrated into the curriculum giving FBSU graduates the ability to harness technology for the benefit of the institutions they work for.

FBSU also allocates computing and networking facilities to its faculty, staff, and students. These facilities are intended for teaching, learning, research and administration in support of the University's mission.

Learning Assistance Center

The Learning support Center offers academic assistance in the areas of Chemistry, Computer Science, Mathematics, Physics, English, and Business. Faculty members dedicate several hours each week to tutor students and work with them on one-on-one basis on any subject the student needs. Students may also receive personal academic advisement, advice on improving study skills, and workshops/review sessions. The schedule of the center is published at the beginning of each semester.

Deanship of Student Affairs

FBSU is dedicated to the wellbeing and development of students. The Office of Student Affairs oversees student activities, athletics and recreation, counseling and advising, and all other student services. Through this Office, activities and services are provided to enhance, support, and complement the student's personal and educational development. The Office is open from 8 am to 4 pm.

This holistic approach to student education enables the student to learn and practice the values of tolerance, civic and moral responsibility, inclusiveness and excellence in learning and leadership, values that best represent the mission of the University.

Counseling and Advising Center

The Counseling and Advising Center exists within the Office of Student Affairs to guarantee rendering to currently enrolled students a high quality professional service.

The Counseling and Advising Center provides services to students whose personal difficulties and problems interfere with their academic performance. It also assists students in formulating and achieving their educational goals through its psychological services, and assists gifted and talented students to further develop their abilities.

Counseling involves one-on-one discussions with a trained professional counselor who will listen, ask questions, and help explore options about the problems or areas of concern to the student. It is a process of self-discovery and self-knowledge.

The Center's professionally trained counselors exert all possible efforts to assist and support students with emotional concerns in a sensitive, caring, and confidential manner.

Student Activities Office

The Student Activities Office is responsible for organizing and supporting a wide range of student activities. Its mission is to help students reach their full academic potential by collaborating with faculty, staff, and the community to organize extracurricular activities that enrich student life in the University.

Most student activities are organized by officially registered clubs and societies, with elected Officers. These Officers, including club president and club treasurer, play a key role in overseeing the activities and ensuring the financial state of the club. Clubs, societies and student publications are important channels for students to develop their talents. The University's clubs and societies cover a very wide range of student interests which may be in the fields of drama, music, debate, writing, art and so on.

Student organizations should submit by the end of October a tentative yearly plan indicating the number, type and nature of activities planned to take place.

Student Services Office

The activities of this Office include:

- Issuing ID cards to students and maintaining their validity.
- Issuing authenticating medical and official excuses to students, when they are absent from classes or exams.
- Preparation and maintenance of students' monthly stipend payments.
- Communication with parents/guardians of the students in matters related to their academic progress.
- Maintaining and updating the official and complete non-academic records of all students.
- Processing student complaints.



جامعة فهد بن سلطان
Fahad Bin Sultan University

Admission Policies and Procedures

Admission Policies and Procedures

FBSU seeks students with a sound academic record, good personal character, strong interest to serve their communities, and eagerness to serve as professionals in allied fields. Students with the most promising overall profile will be selected to join either the Foundation Year Program (FYP) or any of the academic programs offered in the Colleges of Computing, Business and Management, or Engineering.

University Admission Criteria

Applicants to FBSU must satisfy the following eligibility requirements:

- Hold a Secondary Education Certificate from KSA or any equivalent certificate attained within the past five years.
- Passed the National Skills Exam.
- Be medically fit.
- Hold a good conduct certificate.
- Present a “No-Objection” letter from the employer, if applicable.
- Should not have been dismissed from any academic institution.
- Fulfill program requirements.
- Fulfill other University requirements.

A student who satisfies the above criteria has to take placement tests in English, Mathematics, and Information Technology. Students who fail to achieve the required minimum score on one or more of the placement tests will be required to complete additional remedial work by joining the University’s Foundation Year Program.

Application Process

Applicants are required to fill out an application form available at the Office of Admissions, and submit it with the following documents:

- A certified copy of the Secondary Education Certificate or an equivalent certificate.
- A certified copy of the National Skills Exam results.
- A copy of the Citizenship Card or the Residence Permit (Iqama) for non-Saudis.
- Four colored passport photos.
- “No- Objection” Certificate from employer, if applicable.
- Medical Certificate.
- Good conduct Certificate.
- Non-refundable application fee.

All documents received by the Office of Admissions become the property of FBSU, and thus cannot be returned. Applications for the fall semester are accepted until mid July and applications for the spring semester are accepted until mid December.

Admission Notification

Applicants who are admitted to an academic program or to the Foundation Year Program at FBSU are notified between August 1 and August 15 for the first semester, and between January 1 and January 15 for the second semester. Admitted students will be provided with a pamphlet containing all the necessary guidelines to proceed to the registration and payment processes. Students who have been informed of their initial acceptance but did not register during the registration, their acceptance will be revoked unless the student requested deferred entry.

Duration of Study in an Academic Program

- The minimum study period for a Bachelor degree is four calendar years encompassing eight semesters (two calendar years encompassing four semesters for the diploma).
- The maximum study period allowed for a Bachelor degree is eight calendar years (Four calendar years for a diploma). A student who fails to complete his/her degree program within these specified times must petition the College Administrative Committee for an extension of time.
- A student transferring to a diploma program at FBSU from other recognized institutions of higher learning must register in the final two regular semesters and must complete at least 30 credits at FBSU, of which a minimum of 15 credits must be in his/her major before s/he is allowed to graduate with a diploma. For purposes of this requirement, one summer session shall be considered equivalent to one semester.
- A student transferring to a Bachelor program at FBSU from other recognized institutions of higher learning must register in the final four regular semesters and must complete at least 60 credits at FBSU, of which a minimum of 30 credits must be in his/her major before s/he is allowed to graduate with a Bachelor Degree. For purposes of this requirement, two summer sessions shall be considered equivalent to one regular semester.
- A transfer student from within FBSU must meet the residency requirement of spending a minimum of three semesters in the new College during which s/he completes a minimum of 36 credits, out of which 12 are credits in the major, before s/he graduates with a Bachelor Degree. For purposes of this requirement, two summer sessions shall be considered equivalent to one semester.



جامعة فهد بن سلطان
Fahad Bin Sultan University

Foundation Year Program

Foundation Year Program (FYP)

Officers of the Unit

Acting Director: Mousa A. Btoosh

Associate Professors: Mousa A. Btoosh

Lecturers: Amani Abu Atieh, Mohammad Ass'ad, Instructors: Ahmad Al-Damen, Hamzeh Alawneh, Feda Al-Mograbi, Mohammad Al-Qatawna, Anas Al Sariera, Khalid Kanani, Mohammad Jbara, Jihan Kaiser, Hani Mohammad, Abir Tahsildar, Samar Al-Fanatisah, Waleed Al Dowiri

Assistant Instructors: Mustafa Abdelrahman

Program Overview

The Foundation Year Program at FBSU aims to prepare students to satisfy the university admission requirements. Its purpose is mainly to improve students' English language proficiency, enhance their IT skills, and enrich their math content knowledge. Students who successfully complete the program will be able to join an appropriate academic major.

Vision

To become one of the leading institutes in the KSA and the region by setting standards of excellence in innovative curriculum design, teaching, professional development, and cross-cultural understanding.

Mission

To provide quality instruction in English Language, Math & IT to all students who have chosen FBSU as their academic institution for higher education.

Admission

It is important to note that admission of students to the Foundation Year Program and to FBSU will be usually in the first semester, and possibly in the second semester, but not in the summer. Each student is required to take placement tests in English, IT, and Mathematics to determine the entry level. The tests are designed by the FY Faculty in consultation with the AUB team specifically for this purpose.

Structure

Students joining the Foundation Year Program will be placed in one of two levels in English, IT, and Mathematics based on their performance on the corresponding placement tests. The duration of each level is one semester followed by properly designed proficiency tests.

Duration of the Program

The program could be completed in one or two semesters depending on the entry level of the learner as well as on the skills and content targets as determined by the proficiency tests. It is important, therefore, that all stakeholders realize that it takes time to acquire, reinforce, and build on literacy and content skills. Students who fail to complete the program in two years may be asked to withdraw from the University.

Placement and Promotion in the FYP

All applicants to the Foundation Year Program will be assigned a learning level in each of the three subjects (English, Information Technology, and Mathematics) based on their performance on special tests designed to measure their abilities, skills, and knowledge in these three areas.

In the English program, other specially prepared diagnostic tests may be used to test the mastery level in the various language skills and elements (listening, speaking, reading, writing, grammar, and vocabulary).

Promotion to a higher level in each of the three subjects (English, IT, Mathematics) is not automatic; learners must demonstrate that they have successfully met the instructional objectives set for the current level before moving on to a higher level. The placement test will be administered again to serve as a measurement of progress made by the learners over the period of one semester.

Learner Evaluation

In addition to traditional achievement tests and quizzes, learners will be assessed by alternative forms of assessment that are more formative and qualitative in nature, such as portfolios, focused observations with checklists, self and peer assessment, interviews, projects, oral presentations, and conferences.

Exit from the program will be determined upon achievement of a satisfactory score on well-designed measures of proficiency in the various areas.



جامعة فهد بن سلطان
Fahad Bin Sultan University

Bridging Year Program

Bridging Year Program (BYP)

Program Overview

The Bridging Year Program (BYP) provides opportunities for students who hold a diploma from a two- or three- year technical college to pursue a Bachelor’s degree at Fahad Bin Sultan University. The courses of this Program are designed to bridge the gap between a student’s prior education and the requirements of the third year university courses as seamless as possible. The Program could be completed in two semesters or more depending on the entry level of the student, his/her skills, and the sought program of study. Students who pass the BYP need to spend the third and fourth years of the Bachelor’s degree at FBSU.

The BYP is offered in the following majors:

- College of Computing: Computer Science and Computer Engineering;
- College of Business and Management;
- College of Engineering: Civil and Electrical Engineering.

Mission

The BYP seeks to prepare holders of technical degrees to join FBSU at the third year level of the University programs.

Program Objectives

The BYP aims at developing students' scientific competencies and increasing their opportunities to succeed in their academic courses and future careers. The Program aims at improving students' English language proficiency, IT skills, and natural and basic sciences.

Program Learning Outcomes

The BYP is designed to help students develop a basic set of skills and competencies that will prepare them to better engage their major course of study. Students who successfully complete the BYP will be able to:

1. Effectively utilize the English language essential to their success at the University.
2. Demonstrate the use of mathematical skills to solve various mathematical problems.
3. Apply study skills necessary for success at the college level.

Admission

To be admitted to the BYP, a diploma graduate must:

1. Satisfy University admission criteria; see the “University admission criteria”.

2. Be a graduate of a KSA-accredited academic organization.
3. Have passed the official technical exam administered by the relevant governmental authority in case the Diploma was issued by a private academic institution.
4. Have a High School degree (scientific stream) for admission to the Colleges of Computing and Engineering.

Duration of the Bridging Year Program

The duration of the BYP is normally one or two semesters depending on the entry level of the student, his/her performance, and the sought program of study.



جامعة فهد بن سلطان
Fahad Bin Sultan University

General Academic Information

General Academic Information

Academic Policies

Registration

Academic Advisors

Each student is assigned an academic advisor who assists him/her in registration and selection of courses. The advisor is also involved in counseling on any academic difficulties or problems encountered, and in monitoring the academic progress of advisees.

The academic advisor is a faculty member in the academic division in which the student is enrolled; the advisor of the Foundation year program students is the Director of the Foundation Year Program or anyone he/she authorizes to act on his/her behalf.

Registration Procedures

Course registration can be done through the Office of the Registrar, by the Department to which the student belongs, or through the online registration system by the student himself/herself. A student Identification Number (ID) is necessary for registration. Registration for the Fall semester normally starts two weeks prior to the first day of regular classes of that semester and continues for about one week after classes begin (the exact period is specified in the Academic Calendar), while, registration for the Spring semester takes place in the break between semesters (i.e. between the Fall and Spring semesters). A student must complete his/her own registration in person and pay the tuition fees and other charges during the registration period

Once students have registered for classes in a semester, they may process schedule modifications during the scheduled drop/add period of that semester.

Early Registration

At approximately the middle of the first (fall) semester, early registration is held in each College for the courses to be taken by students during the second (spring) semester; and in the middle of the second semester of each year, students register for both the coming summer session and the first semester of the following academic year.

Early registration is required of all enrolled students who intend to continue their studies at the University during the following terms.

Late Registration

Students who, for a valid reason, are unable to complete formal registration during the designated periods may petition for late registration, which must take place within the drop/add period specified in the academic calendar. A late registration fee of 300SAR will be assessed to students who register after the announced registration period.

Auditing a Course

A student is allowed to audit a course only in his/her last semester before graduation. The audited course must not be a required course for graduation. The student must fill out the "Audit Form". The form requires the signatures of the course instructor and the faculty advisor, and must be submitted to the Registrar's Office during the drop/add period. A course taken for credit may be changed to an Audit course by submitting the Audit Form by the last day for withdrawal specified in the academic calendar.

Course Substitution

If a student is unable to complete the requirements of any program due to the termination of a course or when accrediting new programs that comprise courses the student has not studied, he/she can substitute a maximum of two courses with other equivalent courses, in terms of level, content, and credit hours. The Registrar's Office must be informed of the substitution after the student has obtained the approval of his/her advisor and the Graduation Committee.

Minimum and Maximum Course Load

Course Load: course load is defined as the number of credit-hours for which a student is registered in a regular semester or a summer session. The course load varies from one major to another and is determined as follows:

Regular Semester

The minimum course load limit is 12 credit hours during a regular semester, provided that the total number of credit hours registered by a student in any two consecutive semesters is not less than 24. This condition is relaxed in the last semester before graduation.

The maximum course load is 19 credit hours. However, a student is permitted to register for up to 21 credit hours with the approval of his/her dean, if the student has maintained a minimum cumulative GPA of 4.00 out of 5.00 in all work undertaken during the preceding terms in which he/she earned his/her last 24 credit hours.

Summer Session

The maximum course load in a summer session is 9 credit hours.

Graduation Term

The minimum course load in this case is 1 credit hour, and the maximum is 20 credit hours during a regular semester (respectively 1 and 9 in the summer session). A maximum load of 20 credit hours in the graduation term is allowed provided the student's cumulative GPA of all work undertaken during the preceding terms in which he/she earned his/her last 24 credit hours is not less than 3.00 out of 5.00.

Students on Academic Probation

The minimum course load in such cases is 12 credit hours; the maximum is 13 credit hours in each regular semester.

Adding and Dropping Courses

A student may change his/her schedule by adding or dropping courses, or changing sections only after obtaining the approval of his/her academic advisor.

Adding Courses

Students may add courses with available seats during the drop/add period of each semester. A course add is performed using a “Course Drop/Add Form”, which may be obtained from the Registrar’s Office. The form requires the advisor’s signature, and must be submitted to the Registrar’s Office during the drop/add period of the respective semester.

Important Reminders

1. The course load should not exceed the maximum permissible limit.
2. It is the advisor’s responsibility to ensure added courses do not result in conflicts in the student’s schedule.
3. Regularly scheduled courses cannot be added after the drop/add period.

Dropping Courses

Students may drop courses from their schedule during the drop/add period of each semester. A course drop is performed using “Course Drop/Add Form”, which may be obtained from the Registrar’s Office. The form requires the advisor’s signature, and must be submitted to the Registrar’s Office during the drop/add period of the respective semester.

Important Reminders

1. The course load must remain at or above the minimum allowable limit (12 credits for a regular semester and 1 credit for a summer session).
2. If the course dropped is a co-requisite for another registered course, the two courses should be dropped simultaneously, or continue to be studied together.
3. The process for dropping courses may not be used to officially withdraw from university after the first day of the semester.
4. Non-attendance does not constitute a drop or a withdrawal from a course.
5. Any student receiving a scholarship from FBSU is required to maintain a full- time status of 12-credits load in a regular semester (6 credits in a summer session); otherwise, he/she loses the scholarship.

Changing Sections

If a student wishes to change a section of a registered course, he/she may choose a section that will not create a time conflict with his/her current schedule, and must fill out the “Section Change

Form". The form requires the signatures of the course instructor and the faculty advisor, and must be submitted to the Registrar's Office during the drop/add period.

Duration of the Drop/Add Period

The initial drop/add period normally ends by the second week of the semester. Throughout this period, the dropped courses will not appear on the student's transcript. Courses dropped beyond this period (until the final course drop deadline) will appear as (W) on the student's permanent academic record.

Tuition Adjustments for Drop and Add

Tuitions at FBSU are computed on a semester basis rather than credit-basis. This means regardless of the number of credits for which a student is registered per semester, he/ she pays the same amount of tuition, as long as he/she is taking the minimum number of credits permitted by the University.

Attendance and Withdrawals

Class Attendance

- a. Students are expected to attend all classes, laboratories, or required field work. All missed laboratory or field work must be made up. A student is responsible for the work that is done, and for any announcements that are made, during his/her absence.
- b. Tardiness to classes is not at all tolerated. In cases of tardiness, the following rule applies: Students who are absent for more than 10 minutes of class time are considered as absent.
- c. Students who absent themselves during a semester for more than 25% of the required number of lectures of any course are not allowed to continue the course, denied from sitting for the final examination, and assigned a course grade of DN, which is reported on their transcript. In some cases, the College Council may consider removing a DN grade, provided that the absence does not exceed 50%, and giving the student permission to sit for the final exam on condition that the student presents an excuse, which the College Council deems as valid.

Withdrawal from Courses

- A student who withdraws from, or is forced to drop, a course will receive a grade of "W."
- A student cannot withdraw or be withdrawn from a course after the announced deadline (not later than 10 weeks from the start of the semester or five weeks in the summer term) unless approved by the College Academic Committee.
- A student cannot withdraw or be forced to withdraw from a course if this results in the student being registered for less than 12 credits (in a regular term) without the approval of the College Academic Committee.
- A student can withdraw from only one required course per semester. Students who wish to withdraw from more than one required course must petition the College Academic Committee for permission to do so.

Dropping a Semester

A student may apply to withdraw from the semester latest by the course withdrawal deadline. Application for withdrawal after the course withdrawal deadline announced in the University Calendar needs the approval of the Dean of the College. The student must fill the Withdrawal from Semester form from the Registrar's Office, and the withdrawal is subject to the University's refund policy as stated in the respective section in this catalog.

Dropped semesters are counted as part of the maximum duration of study.

Withdrawal from University

A student may apply to withdraw from the University at any time. The student should fill the Withdrawal from University form that he/she could obtain from the Registrar's Office. The student should note the University's refund policy as stated in the respective section in this catalog.

Postponement and Interruption of Study

A student may apply to take a leave of absence for a maximum of two consecutive semesters or a maximum of three non consecutive semesters during the course of his/her studies. The student must fill the Postponement of Study form that he/she can obtain from the Registrar's Office, otherwise the student will be considered to have taken an unauthorized postponement and thus will be classified as an inactive standing (absent). The postponed and the absent semesters are not included in the maximum period of attaining the degree.

Conditions for Readmission

Students who withdraw from FBSU with a good academic record are granted readmission within a period not exceeding four semesters for one time only, provided that he/she was not on probation prior to the interruption date. Students who wish to return after the four-semester period, or those who were on probation, have to reapply for admission. Their files will be reevaluated based on the admission requirements applicable at the time of reapplication.

Assessment and Examinations

Examinations

Courses are evaluated either by (1) at least three written examinations, or by (2) oral and/or practical examinations, research, term papers and other activities plus at least two written exams. In any case, class work score must not be less than 30% of the final course grade. All examinations, excluding the finals, are scheduled by the instructors. It is recommended that at least one exam be conducted and the results disclosed before the last day of the final course withdrawal deadline so that a student can decide whether to withdraw from the course or not.

Final examinations are scheduled by the Registrar's Office. The schedule indicates the date, time and location of all examinations. The day and time of a final examination should be strictly adhered to. In exceptional cases, with justifiable reasons, a faculty member may request a rescheduling of a final examination with the approval of the Dean of the College.

The duration of a final written examination should not be less than one hour and not more than three hours.

Final Grade Policy

It is expected that:

- At least 60 percent of the total course grade should be allocated to written examinations, with a minimum of 30% assigned to the final exam with emphasis on practical work and projects for the remaining percentage. Any grading scenario that does not meet this policy should be cleared with the dean early in the semester.
- A certain portion of the final grade will be assigned for class participation among other possible course requirements (e.g., term paper, project, homework, etc.).

Conduct of Final Examinations

No student will be allowed to sit for a final examination after the lapse of 30 minutes from the beginning of the examination. Also, no student will be allowed to leave the examination venue less than 30 minutes after the beginning of the examination.

Submission of Final Grades

All final grades must be submitted by the instructor to the Registrar's Office by the deadline specified. The grades through grade rosters must be signed by the course instructor, the department chairperson and the College Dean.

Make-Up Examinations

If a student misses an examination, other than the final, the instructor will make arrangements for a make-up examination if the student submits an approved excuse for his/her absence.

If a student misses a final exam and does not present a valid excuse for his/her absence, he/she will get a grade of zero on that exam. The final grade he/she receives for that course will be calculated on the basis of his/her performance on previous course work.

If the student misses a final examination due to circumstances beyond his/her control, the student may request from the instructor, by means of a petition, a make-up examination before the end of the next semester. The instructor, then, submits his/her report to the College Council. If the petition is accepted, the Dean of the College informs the student in writing of the decision of the College Council and the date of the make-up examination.

Re-grading the Final Exam

A student may request review of the final exam paper by the beginning of the final exams of the following semester at the latest.

Request for a Review of the Final Course Grade

A student, who feels that the grading was unfair, must fill a form and promptly (within the first two weeks after the start of the next semester) discuss the matter with the instructor of the course. If the student and the instructor are unable to arrive at a solution, the student may write a petition to the chairperson of the department offering the course, no later than the end of the fourth week of the

next semester. The department chairperson will investigate through the Academic Committee the student's arguments and may call for a review of the instructor's evaluation of the student based on the student's class work and final examination scores.

Change of Grade

Normally, grades cannot be changed after the submission of the final grades to the Registrar's Office. Under certain circumstances, a written request from the course instructor can be addressed to the registrar explaining the reasons for the change. Such a request for a grade change must be endorsed by the department chairperson and the Dean of the College and approved by the College Council. The Registrar's Office should be informed of the change of grade no later than the beginning of the final examinations for the following semester.

Grading System and Codes

The grading system is as follows:

Grade	Points	Letter Grade	Grade Interpretation
95-100	5.00	A+	Outstanding
90-94	4.75	A	Excellent
85-89	4.50	B+	Superior
80-84	4.00	B	Very Good
75-79	3.50	C+	Above Average
70-74	3.00	C	Good
65-69	2.50	D+	High Pass
60-64	2.00	D	Pass
Below 60	1.0	F	Fail
AU			Audit
DN			Denied
DS			Disciplinary Action
NP			No grade-Pass (Not considered in GPA Calculation)
NF			No grade-Fail (Not considered in GPA Calculation)
IC			Incomplete
IP			In Progress
W			Withdrawn
WF			Withdrawn - Fail
WP			Withdrawn - Pass
T			Transfer

Work In Progress

For courses of a research nature which require more than one semester to complete, the grade of IP (In Progress) is assigned to the student in all terms, where the course is registered, prior to the completion of the designated work. After the completion of the course, the student will be given the grade he/she has earned. In case the work is not completed within the specified time, the Department Council concerned may recommend changing the grade from IP to IC (Incomplete).

Incomplete Work

If the work for a course is not completed by the date on which the semester ends, the following procedures will apply:

- a. To secure permission to complete the work for a course, a student must submit a valid excuse to the instructor and the Department Council at least two weeks before the date of the scheduled final exam of the course.
- b. Incomplete course work will be reported as an “IC” followed by a numerical grade reflecting the evaluation of the student available at the end of the semester. This evaluation is to be based on a grade of zero on all missed work. The student grade will not be included in the calculation of the cumulative or semester GPA.
- c. Students permitted to complete work for a course must do so by the end of the following regular semester. After the incomplete work is done and evaluated by the faculty member, a grade change will be considered by the Department Council and a new grade is reported to the Office of the Registrar.
- d. If no valid excuse is presented and the work, if permitted, is not completed within the time limits specified above, the “IC” will be changed, and the numerical grade available becomes the final grade in the course.
- e. For the purposes of averaging, the numerical grade will not be used, until changed through the procedure set above.
- f. It is the responsibility of the student to find out from his/her instructor the specific dates by which requirements must be fulfilled. The deadline for submission of incomplete grades by the instructor is within 72 hours after a student has completed the course work.

Failing and Repeating Courses

Failing Courses

If a student fails a course, no re-examination will be permitted. A student who fails a required course must repeat the course at the earliest opportunity. A student who fails an elective course is not required to repeat it as long as he/she can achieve the minimum cumulative average and the minimum number of credits required for graduation. However, the grade of the non-repeated course will be included in tallying the cumulative GPA.

Repeating Courses

A student who fails a required course must repeat the course. A student who wishes to improve his/her academic standing may repeat a course for which he/she has previously obtained a ``C'' or a lower grade. Should a student repeat a required course and fail, he/she must repeat the course. A student who fails a course three times may be dismissed from the University. If dismissed, the student may petition the Dean of the College to be granted another chance to pass the course. When a course is repeated, the highest grade is considered in computing the student's cumulative average. All grades are included in the student's transcript.

Academic Standing

A student is considered in good academic standing if he/she attains an overall grade point average of at least 2.0.

Academic Probation

If at the end of any semester, a cumulative grade point average of less than 2.0 is earned, the student will receive a warning and will be placed on probation. The status of academic probation can be revoked after the lapse of one regular semester from the date of the probation if the student achieves a semester and cumulative GPA of 2.0 or above at the end of this semester.

Academic Dismissal

Academic dismissal is the permanent separation of a student from the University. Academic dismissal occurs in one of two cases:

1. A student receives probation in three consecutive semesters. However, the University Council may, upon recommendation of the College Council, grant the student one more chance to raise his/her GPA by repeating some courses;
2. A student, at the end of a semester, has been in a program of study for more than 1.5 times the normal period to complete the study plan of that program, but has not yet completed the graduation. The University Council may grant the student additional time to complete the graduation requirement such that the total time the student spends in a program does not exceed twice the normal completion period.

In exceptional cases, the University Council may grant a student on whom the above conditions apply a final chance to complete program requirements in two extra semesters at most.

Appeal of Academic Dismissal

A letter officially notifying the student of academic dismissal will be mailed to him/her shortly after grades are finalized for the semester. Included with this letter is the form needed to officially appeal the academic standing. A student who wishes to appeal must complete all parts of the form and return it by the specified date. The University Council reviews appeals twice a year, in the beginning of the fall semester and at the end of the spring semester, and notifies the student of the final decision by email or telephone the day after the review meeting. Inquiries regarding academic standings and/or the appeal process should be directed to the University Council.

Dean's Honor List

The Dean's Honor List, published at the end of the fall and spring semesters, honors students for high scholastic achievement. Students who attain a grade point average of 4.25 or better in no fewer than 15 hours of graded university level work and who have completed all work for which they are registered by the end of the semester will be on the Dean's Honor List for that semester.

Transfer

Transfer from Another Recognized University

The transfer of a student from outside the University may be accepted under the following conditions:

1. The student has been enrolled at a recognized university.
2. The student must not have been dismissed from that university for disciplinary reasons.
3. The student must satisfy the transfer provisions as determined by the University Council.
4. If, after his/her transfer, it is discovered that a student had been dismissed from his/her previous university for disciplinary reasons, his/her enrollment will be considered canceled as from the date of acceptance of his/her transfer to the University.

The student file is evaluated by the Department's Equivalency Committee, which forwards its recommendation to the Dean of the College.

A course is deemed equivalent to a course offered at FBSU if it covers 70% of the topics, involves the same components (Lecture, Lab, Tutorial), and has the same number of credits. The student must have attained a passing grade in the transferred courses.

The courses deemed equivalent will be transferred to the student's record but will not be included in the calculation of his/her cumulative GPA. Courses taken as Audit cannot be transferred.

A Student transferring to FBSU must earn at least 60% of his/her credits at FBSU, including the last 60 credits for the Bachelor degree.

Transfer from One College to Another at the University

A student may transfer from one College to another only after spending an entire academic year in his/her current College and meeting the admission requirements of the new College. A transfer application signed by the student and approved by the Dean of the college the student has departed should be sent to the Registrar's Office then to the Admissions Committee of the new College at least one month before the beginning of the new semester. The Admission Committee of the College studies the applications of the students transferring to that College and forwards its recommendations to the Dean.

All transferred credits remain unchanged in the student's record. Grades of transferred courses are preserved as well and do enter in the calculation of the student's GPA.

Transfer from One Major to Another within the College

A student may transfer from one major to another only after spending an entire semester in his/her current major and meeting the admission requirements of the new major. A transfer application signed by the student and approved by the Dean of the College should be sent to the Registrar's

Office at least one month before the beginning of the new semester. The Admission Committee of the College studies the applications of the students transferring and forwards its recommendations to the Dean.

All Transferred credits remain unchanged in the student's record. Grades of transferred courses are preserved as well and do enter in the calculation of the student's GPA.

FBSU Students Visiting Other Institutions

An FBSU student in good academic standing may be allowed to take courses at another institution subject to the following conditions:

- a. The student attains prior approval from his/her college.
- b. The student studies at an accredited university and in the same major.
- c. Courses to be taken are equivalent (a match of at least 70%) to those required for graduation.
- d. The maximum number of credits must not exceed 21 credits of which no more than 9 credits are specialized/core courses. The final year project cannot be taken outside FBSU.
- e. Students cannot normally take a course at another university if it is offered at FBSU during the same semester. Under special circumstances, students may petition the College Council for exemption.
- f. The maximum total number of credits that a student can take at FBSU and outside during a regular semester is 19 credit hours. The maximum is 9 credits for the summer session.
- g. Only courses with passing grades will be recorded in the student's transcripts but will not be used in the calculation of his/her GPA.

A FBSU student in good academic standing, who did not transfer to FBSU from another institution and wishes to study abroad, may spend up to one year and earn up to 30 credits at a foreign university. An FBSU student must spend his/her final year at FBSU.

In all cases the student must register on a full-time basis during his/her last academic year at FBSU and that a student who had spent the last two academic semesters at an external institution is not eligible to receive a FBSU-sponsored scholarship.

All MOHE Rules pertaining to this issue supersede the abovementioned rules in case of conflict.

Graduation

To graduate with a Bachelor Degree, students must satisfactorily complete all graduation requirements of the College they are enrolled in with a cumulative GPA of not less than 2.0. A student must be registered for the semester at the end of which he/she graduates.

Duration of Study in an Academic Program

- The normal study period for a Bachelor degree is four calendar years encompassing eight semesters.
- The maximum study period allowed for a Bachelor degree is eight calendar years. A student who fails to complete his/her degree program within these specified times must petition the College Administrative Committee for an extension of time.

- A student transferring to a diploma program at FBSU from other recognized institutions of higher learning must register in the final two regular semesters and must complete at least 30 credits at FBSU, of which a minimum of 15 credits must be in his/her major before he/she is allowed to graduate with a diploma. For purposes of this requirement, one summer session shall be considered equivalent to one semester.
- A student transferring to a Bachelor program at FBSU from other recognized institutions of higher learning must register in the final four regular semesters and must complete at least 60% of credits at FBSU, of which a minimum of 30 credits must be in his/her major before he/she is allowed to graduate with a Bachelor Degree. For purposes of this requirement, two summer sessions shall be considered equivalent to one regular semester.
- A transfer student from within FBSU must meet the residency requirement of spending a minimum of three semesters in the new College during which he/she completes a minimum of 36 credits, out of which 12 are credits in the major, before he/she graduates with a Bachelor Degree. For purposes of this requirement, two summer sessions shall be considered equivalent to one semester.

General Graduation Grade

The grade stated on the student's graduation diploma depends on his/her GPA at the time of graduation as follows:

GPA	GRADE
At least 4.50	Excellent
At least 3.75 and less than 4.5	Very Good
At least 2.75 and less than 3.75	Good
At least 2.00 and less than 2.75	Pass

Graduation with Honors

To graduate with Honors, students must have earned, in residence at FBSU, no fewer than 60% of study plan required for graduation; must not have failed in any course taken at FBSU or elsewhere; must not have been subjected to any disciplinary action within the University, and must have completed all graduation requirements within the allowed time. Grade Point Averages required for Honors are as follows:

- First Honors rank: Grade Point Average of 4.75 or above
- Second Honors rank: Grade Point Average of at least 4.25 and strictly less than 4.75

Note: Honors read at commencement are based on credit hours and the grade point average posted as of the previous semester and are not official. Official Honors will be awarded upon posting of final grades and completion of the degree, and will be noted on the final transcript and diploma.

Academic Records

Transcript Request

Transcripts will not be issued unless all obligations to the university are cleared. To request a transcript, the student needs to fill, sign, and return a “Transcript Request” Form to the Office of Registrar.

Disclosure of Student Records

The University may disclose routine information without prior written consent from the student like student’s name, degrees received, major field(s) of study, awards received, and participation in officially recognized activities and sports.

The University will disclose other information including academic records only upon receiving written consent of the student except in the cases below:

1. Upon the request from other educational institutions, where the student seeks to enroll and or the Ministry of Higher Education.
2. As necessary to academic Officers, academic advisors, and faculty members within the University.
3. To parents of a dependent student.
4. In compliance with a judicial order.

Academic and Intellectual Freedoms

Freedom in Classroom

Students are responsible for learning the content of the courses in which they enroll though they should be free to take reasoned exemption to the data or views offered in any course of study and reserve judgment about matters of opinion.

Students are responsible for complying with standards of academic performance required by each course in which they are enrolled. Such standards shall be communicated clearly in writing on or before the first meeting of each course. Students should have protection against prejudiced, arbitrary, and unfair academic evaluation.

Freedom of Inquiry and Expression

Students and their official organizations are free to examine and discuss questions and issues of interest to them and to express their opinions whether in public or private.

Such freedom does not, however, permit student groups to disrupt the orderly processes of the educational environment, nor does it permit the expression of ideas in ways which violate civil or criminal laws, blatantly disregard the truth, threaten, demean, or libel others.

In expressing their views, students and their official organizations should make clear that such views are not necessarily those of the University.

Academic Integrity

Academic Integrity and honesty are central components of a student's education. Ethical conduct maintained in an academic context will eventually be taken into student's professional career. Anything less than total commitment to honesty undermines the efforts of the entire academic community. Both students and faculty are responsible for ensuring the academic integrity of the University.

Cheating

Students who use non-permissible written, verbal, or oral assistance, including that obtained from another student during examinations, in course assignments, or on projects, are guilty of cheating. Cheating is essentially fraud. It deceives others and causes them to make an assessment based on the misinterpretation of a student's actual ability, or performance. Cheating is a violation of the university's academic regulations and is subject to disciplinary action.

Plagiarism

Students who fail to credit properly ideas or materials taken from others commit plagiarism. Putting his/her name on a piece of work-any part of which is not yours- constitutes plagiarism, unless that piece is clearly marked and the work from which he/she has borrowed is fully identified. Plagiarism is a violation of the university's academic regulations and is subject to disciplinary action.

Range of Disciplinary Actions

Abusing any of the intellectual freedoms will result in disciplinary actions that correspond to the type of abuse. The possible disciplinary actions are also applicable in other situations as clarified in the student handbook.

Warning

This may be oral or written. It is a statement that the student has inadvertently violated a university regulation. The warning will be documented and recorded. Examples: Attempt to cheat in an exam, littering, and smoking in prohibited areas.

Reprimand

This will be in writing. It is a statement that the student has violated a university regulation. It is intended to communicate most strongly, both the disapproval and the reprimand of the university community. Examples: Inadvertent plagiarism – failure to cite sources appropriately, and inappropriate conduct in examinations.

Dean's Warning

This will be in writing. Only two Dean's warnings are allowed in a student's academic career at the University. It is recommended that any violation of the university regulations after the second Dean's warning results in consideration of suspension. Dean's warnings are normally accompanied by secondary disciplinary actions. Examples: Plagiarism, academic dishonesty, in-class disruption, mental or physical harm, discrimination and harassment.

Suspension

This will be in writing and will form part of the student's permanent record (it will appear on the student's transcript). A student may be suspended for a fixed period of time during which the student may not participate in any academic or other activities at the University. At the end of the suspension period, the student may be readmitted to the university, only upon the recommendation of the University Disciplinary Committee. Examples: Cheating, theft, and vandalism.

Expulsion

This will be in writing and will form part of the student's permanent record (it will appear on the student's transcript). Expulsion denies the student the right to participate in any academic or other activities at the University for an indefinite time. Only under the most unusual circumstances, and upon the recommendation of the University Disciplinary Committee, will an expelled student be readmitted to the University. On the other hand, cases whereby other committees, e.g., the student affairs committee recommend suspension or expulsion of a student, should be referred to the University Disciplinary Committee. Example cases include: Academic dishonesty, possession of dangerous weapons or materials, and endangering public safety.

Note: Any person who maliciously lies to cover up an act sanctioned by the code of conduct will be considered an accessory after the fact and may be subject to disciplinary action.

Student Academic Appeals and Grievance Procedures

These procedures should be used to appeal or resolve disputes concerning an academic grade or other academic decision considered by a student to be arbitrary or contrary to University policy. For the purposes of these procedures, a student is someone holding "active" registration status as the time of the alleged violation.

Appeals Process

The following procedures outline the steps of the academic appeal and/or grievance process. It is recommended but not required that the student first arrange a conference to discuss the appeal or grievance with the faculty member(s) whose action is addressed in the student's appeal or grievance. It is expected that all of the parties involved at each step of the appeals/grievance process will make a good faith effort to resolve the issues.

Step 1: Department Chair. In the event that a student feels he/she has not received satisfaction from his discussion with the faculty involved or in the event that a student prefers not to discuss his/her concerns directly with the involved faculty, the student may arrange a conference to discuss the appeal or grievance with the department chair (or equivalent). If the department chair is the involved faculty member, this step may be skipped.

Step 2: Dean (or equivalent). In the event there is no department chair in the College or academic unit involved, or in the event the involved faculty member is the department/unit chair, or in the event a student still feels aggrieved after consultation with the appropriate department chair, he/she may ask for a review by the appropriate dean (or equivalent). If the involved faculty member is the Dean of the College (or equivalent) this step may be skipped.

Step 3: Student Academic Review Committee. In the event the student is not satisfied with the results of the reviews by the department chair and the dean (or equivalent) he/she may ask for a review committee to be formed. This request shall be in writing to the Coordinator of Academic Affairs Committee.

It is the responsibility of a student to initiate the appeals procedure at each step. If the appeal is pursued through Step 3, it is expected that, unless there are unusual circumstances, the request for a hearing by the Student Academic Review Committee will be submitted within 90 days from the last day of the term in which the alleged violation arose. If the student fails to pursue the matter in the manner provided by this policy, after a conference with the College Dean if applicable, the original academic decision will be final. The student should bring to the various conferences and to the Student Academic Review Committee hearing all evidence on which he/she intends to rely.

Fees and Expenses

Costs to students in tuition and other university fees, are kept at a minimum consistent with the provision of high quality instruction and adequate facilities and equipment. The University reserves the right to change any or all fees at any time without prior notice. Such changes are applicable to students currently registered with the University as well as to new students.

Students are not permitted to enter classes at the beginning of the term until their fees are paid or special arrangements have been made with the Office of the Comptroller.

Payment of Fees

- Each FBSU student must pay all his/her tuitions and other university fees.
- Statements of Fees are available at the Office of the Comptroller or on the FBSU website.
- Under special circumstances, late payment of tuition fees is permitted during a period of no more than five working days after the announced deadline, and is subject to a late payment fee.
- Checks must be issued to the order of the bank concerned using the following format: Pay to the order of (Name of Bank) - Account FBSU.
- Students are expected to meet all financial obligations to the University by the appropriate due date. For any student who fails to promptly meet his/her financial obligations, the University reserves the right to place an encumbrance on the student's record that prevents registration for future semesters and the release of transcripts and diplomas, and also prevents access to other university services. It is each student's responsibility to be informed of all registration and fee payment dates and deadlines.

Up-to-date schedules for registration and payment of fees are available through the Office of the Registrar.

Refund policy

If for justifiable reasons a student withdraws after registration from either the fall or the spring semester, fees are refunded according to the following schedule:

Before the official start of classes	100% of full tuition
During the first week of classes	75% of tuition
During the second week of classes	50% of tuition
During the third week of classes	25% of tuition

No refunds are due after the end of the third week of classes.

Scholarships and Financial Support Program

Objectives

The objective of the Scholarship and the Financial Support Program at FBSU is to help students with strong potential for academic success to pursue post-secondary higher education that would not be possible otherwise. Under this policy, scholarships will be granted to students who meet the established eligibility criteria without any form of discrimination. Scholarships and Financial Support funds come from a variety of sources as outlined below.

Awards

King Abdullah Internal Scholarships Program

Under this program, scholarships are awarded by the Ministry of Higher Education (MoHE) to, but not necessarily all, Saudi students of good academic standing. The primary purpose of this program is to prepare distinguished generations for a knowledge society built upon a knowledge-based economy. Customarily, the University provides its students with the timely and needed support to fulfill the scholarship requirements.

Prince Sultan Scholarships

Under this program, 50 scholarships are awarded to orphans and persons with disabilities. Each scholarship covers 100% of the tuition and fees for one year, renewable for up to four years. Awards are granted to the students who satisfy the following criteria:

- a. Acquired the High school certificate (Thanauia) within five years from the date of application.
- b. Attained a score among the top 50 applicants.
- c. Provide evidence of either being orphan or has a disability for which the university has adequate supporting facilities.
- d. Provide evidence of financial need.
- e. Have exemplary character and a sense of community.
- f. Be the only member of the same family to apply.

Merit Scholarships Program

The aim of the Merit Scholarship Program is to promote academic excellence and create a positive competitive environment among students. Awards recipients are selected on the basis of scholastic abilities as well as character, integrity, leadership, and potential contribution to the community.

The Merit Scholarship Program awards, each year, scholarships to undergraduate students who had spent the last two academic semesters at FBSU and are deemed to have a promising scholastic potential as evidenced by their scholastic achievement. Students are required to apply for financial aid to receive these scholarships. Recipients of any scholarship will not be included in this program. Eligible students for the MoHE scholarship program must have applied to this program and been denied before being considered for the Merit Scholarship Program.

Available scholarships under this program are:

Prince Fahad Bin Sultan Scholarships

Under this program, 25 Scholarships are awarded. Each scholarship covers 100% of the tuition and fees for one year. Awards are granted to Saudi students who satisfy the following criteria:

- a. Maintain a cumulative GPA of 3.75 or higher for third and fourth year students and a cumulative GPA of 4.00 or higher for first and second year students.
- b. Provide evidence of financial need.
- c. Had not violated university rules and policies.
- d. Have maintained exemplary character and a sense of community.
- e. All outstanding fees are paid within university set deadlines.

Students leaving Level II of the Foundation Year Program and entering a regular degree program are eligible to receive the scholarship provided that their Foundation Year Level II Cumulative Average is equivalent to a GPA of 3.75 or above.

Sabih Al-Masri Scholarships

Under this program, 10 scholarships are awarded, 5 for males and 5 for females. Each scholarship covers 100% of the tuition and fees for one year. Awards are granted to students who satisfy the following criteria:

- a. Maintains a cumulative GPA of 3.75 or higher for third and fourth year students and a cumulative GPA of 4.00 or higher for first and second year students.
- b. Had not violated university rules and policies.
- c. Have maintained exemplary character and a sense of community.
- d. All outstanding fees are paid within university set deadlines.

Students leaving Level II of the Foundation Year Program and entering a regular degree program are eligible to receive the scholarship provided that their Foundation Year Level II Cumulative Average is equivalent to 3.75 or above.

Scholastic Achievement Scholarship Program

The purpose of the Scholastic Achievement Scholarship Program is to encourage students at FBSU to maintain and perhaps further their scholastic performance. This type of scholarship may be sponsored by individuals or agencies.

Individual Sponsored Scholarships

Any individual or family may provide a set number of scholarships as an act of philanthropy. The awarding individual sets the amount and the criteria under which the scholarships are awarded.

Institution Sponsored Scholarships

Any private or public institution may provide any number of scholarship awards. The institution sets the criteria under which the scholarships are awarded pending the approval of the University.

Tuition Discount and Fee Waiver Program

Tuition is partially waived for students in undergraduate programs if the students are associated with the university in one of the following ways:

Dependents of University Staff

Up to three dependents (sons, and/or daughters, and/or wives) of University Staff are eligible for 30% discount on their tuition and fees provided that other outstanding fees are paid within university set deadlines.

Siblings

Siblings attending the university are eligible for 10% discount each on their tuition and fees provided that other outstanding fees are paid within university set deadlines.

Full-Payment Discount

Students who pay full tuition for a whole academic year within the university set deadlines will receive a 1000 SAR cash back refund.

Student Employment Program

Objectives

FBSU offers a limited number of packages under the Student Employment Program every term, excluding summer. This form of privilege is a win-win proposition: it provides some help to qualified students who need assistance with college expenses and in return, students are required to work in various campus Offices up to 15 hours per week. Students benefiting from this program can benefit from a tuition waiver to be decided by the University Council.

Eligibility Requirements

To be eligible for FBSU Student Employment Program, a student must demonstrate an evidence of need and should maintain the following average and status requirements:

- a. A minimum cumulative GPA 3.0
- b. A minimum GPA of 3.0 in the student's last full-load term.
- c. Carry a minimum load of 12 credits during the term of employment.

Any student who fails to satisfy the eligibility criteria will not be granted a privilege under this program. Newly admitted students are not eligible for this program during their first term at FBSU.

Application

Students are required to submit in person a Student Employment Application by August 10th, for the Fall Term and by the end of December for the Spring Term.

Students granted employment should coordinate with the Student Affairs Office for their work assignments.

Disqualification

Student Employment privilege will be revoked if the student:

- Does not fulfill his/her duties in a previous contract as required.
- Receives a disciplinary probation as a result of misbehavior.
- Had intentionally presented false evidence or misleading statements in the employment application. Such violations may jeopardize the student's chances of benefiting from the program in the future.



جامعة فهد بن سلطان
Fahad Bin Sultan University

Unit of Arts and Sciences

Unit of Arts & Sciences²

Officers of the Unit

Acting Director:	Husam Bayoud
Professors:	Abdullah Lyzzaik
Assistant Professors:	Haider Abdul Hamid, Waad Al-Sayed, Mahmoud Abu Samha, Husam Bayoud, Imad Ladadwa
Instructors:	Ahmad Mansour, Yazan Muqbel, Adel Al-Balawi, Iman Al-Balawi, Hajar Al-Hwaiti, Mohammad Zaatreh, Awad Al-Shammari ³ , Mohammad Al-Amrani ⁴
Assistant Instructors:	Maryam Al-Hwaiti, Ayat Al-Enezi

Unit Overview

The Arts and Sciences Unit (ASU) is an academic unit that serves the entire student population at FBSU by offering different courses in basic sciences (Chemistry and Physics), Mathematics, English and social and cultural studies (Arabic and Islamic studies).

ASU offers numerous opportunities for interdisciplinary studies. Graduates today live in a world in which the ability to integrate knowledge and skills from a variety of disciplines is increasingly important. The Unit fully recognizes this fact and is constantly working to create opportunities for students to integrate and apply what they learn.

Mission

The Unit has a strong commitment to excellence in the transmission of knowledge and service, providing high quality education in the subject of basic sciences and social and cultural studies, and providing a nurturing and conducive environment to quality teaching and learning in order to meet the needs of all students in the university programs.

Goals/Objectives

ASU is committed to achieve the following goals and objectives:

² Preliminarily approved by the MoHE as the College of Sciences and Humanities

³ Part-time

⁴ Part-time

- Nurturing students to acquire knowledge, skills and attitudes to effectively complete their specific degrees.
- Ensuring that students obtain appropriate scientific foundation for life-long learning.
- Helping students to become critical thinkers and problem solvers when managing challenges in their workplace.
- Developing an intellectually stimulating and caring environment that will facilitate student academic achievement by providing them with the relevant learning resources to enhance their academic development.

Core Values

The core values include:

- Excellence in Teaching and Learning.
- Relevant and Applied Knowledge.
- Development of Critical Thinking.
- Teamwork and Personal Development.
- Scientific Integrity.

Student learning outcomes

Upon successful completion of the Unit courses, students are expected to have:

- The ability to effectively use the English language essential to their success at the university.
- A fundamental understanding of social and cultural studies.
- A fundamental understanding of the basic sciences, particularly the major principles and theories.
- The ability to apply knowledge of mathematics, chemistry, physics and humanities.
- The ability to understand the relationship among disciplines.
- The ability to apply mathematical and/or basic statistical reasoning to analyze data.
- Improved critical thinking and problem-solving skills.

consequents. Students will be provided in the class with opportunities for improving oral expression through debates and discussions. Prerequisite: ENGL 101.

ENGL 203 Advanced Academic English I 3(3, 0, 0)

The emphasis in the course will be placed on the development of effective communication and reasoning skills essential for proper comprehension and critical reading of academic texts. Students will also be enabled to develop other useful skills such as note-taking, summarizing and outlining. Students will be provided with training in the writing of expository and argumentative essays. Prerequisite: ENGL 102.

ENGL 204 Advanced Academic English II 3(3, 0, 0)

The emphasis in the course will be placed on the writing of papers independently researched by the students. Skills that have already been acquired such as comprehension, critical reading of texts, and writing expository essays will be enhanced and put to use in the researching and writing of a paper on a specific topic. Emphasis will be placed on proper referencing and documentation. Oral presentation skills and proficiency in presenting an argument will be tested and refined when students present their papers in class. Prerequisite: ENGL 203

ENGL 206 Technical Writing 3(3, 0, 0)

This course offers students in professional schools training in the writing and presentation of papers related to their fields of study. It includes individual and/or group preparation of reports, term papers, multimedia presentations, and other specialized forms of writing. Prerequisite: ENGL 203.

FREN 101 Basic French 1 3(3, 0, 0)

This course is designed for students who have no or very little knowledge of French. It introduces fundamentals of grammar, pronunciation and vocabulary. The course will also focus on developing students' basic communication skills through classroom drills and language lab work.

MATH 101 Calculus I 3(3, 0, 0)

Calculus of one variable: limits, continuity, differentiation, chain rule, maxima and minima, curve plotting, Roll's theorem, integration by substitution, definite integrals with applications to areas, volumes and arc length, fundamental theorem of integral calculus, exponential and logarithmic functions, trigonometric functions, parametric equations, analytic geometry in space.

MATH 102 Calculus II 3(3, 0, 0)

Methods of integration; inverse trigonometric functions; limits; sequences and series; tests for convergence; Taylor approximations; Taylor series; polar coordinates; complex numbers: Cartesian and polar representation of complex numbers, mathematical operations with complex numbers. Prerequisite: MATH 101.

problems, Monte-Carlo (Simulation) methods. Implementations and analysis of the algorithms are stressed. Projects using MATLAB. Prerequisite: MATH 215.

PHED 101 Physical Education 1 3(3, 0, 0)

This course is designed to promote the students' physical fitness through participation in a variety of individual and team activities including, but not limited to, football, volleyball, basketball and track and field. The course focuses on skills, proficiency, and playing courtesies. Students will learn the importance of being fit; improve their team-working skills and enhance collegial competitiveness, thus leading to healthier lifestyles and balanced personalities.

PHYS 101 General Physics I 3(3, 0, 0)

Measurements, motion in one dimension, vectors, motion in two dimensions, Newton's laws with applications, work and energy, circular motion, linear momentum and collisions, rotation and angular momentum, oscillations, and gravity. Co-requisite MATH 101.

PHYS 101L General Physics I Lab 1(0, 0, 2)

Basic laboratory techniques and methods; taking measurements, data evaluation and report writing with application to selected experiments related to Newtonian mechanics, vibrations, light and optics including density of metals, free fall motion, addition and resolution of vectors, conservation of linear momentum, conservation of energy, simple pendulum, Hook's law, measuring focal length, and index of refraction. Pre- or co-requisite: PHYS 101.

PHYS 102 General Physics II 3(3, 0, 0)

Electrostatics, current, resistance, Ohm's law, Kirchhoff's laws, RC circuits, magnetostatic theory, Ampere's law, Biot-Savart law, Faraday's law, LR circuit, RLC circuits, and a qualitative discussion of Maxwell's equations. Prerequisite: PHYS 101

PHYS 102L General Physics II Lab 1(0, 0, 2)

Basic laboratory techniques and methods; taking measurements, data evaluation and report writing with application to selected experiments in electricity and magnetism including electrostatics, magneto-statics, Coulomb and current balance, DC and AC circuits, linear and nonlinear circuit elements, Kirchhoff's laws, oscilloscope in AC measurements, charge and discharge of a capacitor, filters, damped oscillations, inductors and measurement of magnetic induction fields. Pre- or co-requisite: PHYS 102.

SOCS 101 Islamic Civilization I 3(3, 0, 0)

This course surveys of Arab Islamic civilization tracing its intellectual and cultural development from pre-Islamic times to the present. Emphasis will be placed on the major contributions of Arab Islamic civilization.

SOCS 201 Islamic Civilizations II 3(3, 0, 0)

Islamic civilization; Islamic law & governance, human rights laws, state and human rights in Islam, education, ethics & morality, war, peace, aggression, self-defense theory, sovereignty, life and death, human dignity, etc. Pre-requisite: SOCS 101

SOCS 202 World Civilizations 3(3, 0, 0)

This course surveys of ancient Near Eastern and Medieval Civilizations and world views, starting with Mesopotamia and including the classical Greek and Roman periods up to the beginning of the Renaissance in Europe. Some emphasis is placed on Islamic civilization.

STAT 230 Probability and Statistics 3(3, 0, 0)

This course is intended for engineering and computing students. A course on random variables, laws of probability, probability distributions, expectation and variance, moment generating functions, joint distributions, independence, probability models, Chi-square, Student's t and f distributions, estimation, confidence intervals, the central limit theorem, significance tests, regression. Prerequisite: MATH 201.



جامعة فهد بن سلطان
Fahad Bin Sultan University

College of Business and Management

College of Business and Management

Officers of the College

Acting Dean:	Ibrahim Tabsh
Professors:	Abdallah Lyzzaik
Assistant Professors:	Lubna Al-Masri, Abdul Rahman Beydoun, Saqr Tahat,
Instructor(s):	Suzan Al-Najjar, Ahmad Shariah, Yaser Al Hweiti ⁵

Program Overview

The College of Business and Management grants a four-year Bachelor of Business Administration in generic Business Administration or with a concentration in Management, Marketing, Accounting or Finance. The Bachelor of Business Administration aims to help the students gain an understanding of the social, cultural and economic environments in which they operate. Towards this end, the College is committed to providing superior quality academic education in English, and to continually strive to impart and nurture the highest levels of business knowledge, professionalism, and integrity.

Through its four-year program, the College aspires to provide its students with a dynamic balance between up-to-date business theory and the practical acumen to make meaningful impacts in the region, so as to provide the local and national business community with young managers who are deeply grounded in analytical and soft skill areas such as leadership, decision-making and ethical reasoning.

The College is structured around two departments: the Accounting and Finance Department and the Management, Marketing, and Entrepreneurship Department. Both departments seek to provide high education standards in business management. They aim to build appropriate management skills among students and facilitate their access to the job market. Together with the Fahd Bin Sultan University, their goal is to provide academic support to the business community throughout the kingdom, and to contribute to the welfare of the kingdom through various applied and theoretical research activities.

The College also offers two graduate programs: An MBA Program and an Executive MBA (EMBA).

⁵ Part timer

Vision

The College of Business and Management at FBSU is dedicated to foster managerial talent and prepare graduates with professional competences and commitment to business ethics to serve the business development needs in Tabuk and the rest of KSA.

Mission

The College of Business and Management at FBSU seeks to achieve, maintain and enhance a recognized position as a credible provider of undergraduate, and in time, graduate business education in service of the Tabuk region and the rest of KSA. In pursuit of this goal, the CBM endeavors to strive for academic currency and long-term relevance of its programs. It pledges to uphold the highest ethical principles and to impart to students advanced knowledge tempered with a commitment to life-long learning and professional competence.

Core Values

- Uncompromising pursuit of quality educational services to students in ways that enhance cognitive skills, cultivate personality and help the development of character
- Critical thinking and broad exposure to major global currents
- Life-long learning and investment in self-renewal
- Integrity and adherence to ethical behavior in all ways at all levels
- Community spirit and commitment to social service
- Reinforcement of national identity and cultural authenticity

Philosophy

The philosophy espoused by the College of Business and Management at FBSU is based on the following precepts:

- Each individual student is a major asset and a key responsibility for which we are strictly accountable. Students will be treated at all times with dignity and respect in ways that simultaneously encourage their own unique character as well as their ability to work together as a team.
- While we are deeply committed to providing business graduates of FBSU with the highest feasible level of technical competence, we also expect them to be leaders who can develop other people and stand out as community-spirited pioneers who can combine quality work with a keen sense of social responsibility.
- In all programs we offer, we seek to combine the twin criteria of local relevance and global currency. Our programs are predicated on the principle of combining state-of-the-art know-how and a strategy-focus centered on present and emerging local challenges.
- Integrity is a major requirement to effective business performance. Based on this reality, concern for business ethics looms large in all our programs at all levels.

- A broad-based business education is, in our view, better able to meet the challenges of the 21st century, than a narrowly-focused highly specialized model. Our programs conform to this rule and are based on a broad common case that branches out into specific lines of expertise.
- Constantly operating in the spirit of continuous improvement.

College Objectives

- Providing sound business education to Saudi youth from the Tabuk area and other parts of the Kingdom.
- Producing highly qualified employable graduates who can meet the changing requirements of the labor market at the para-professional, professional and senior professional levels in such areas as Management, Marketing, Accounting, Management Information Systems and related competencies.
- Providing faculty members with the needed facilities and with an international exposure to partner institutions in order for them to develop their academic expertise.
- Building close ties of cooperation with industry within and beyond Tabuk with a view to fostering strategic partnerships, cultivating various programs of cooperation and complementing each other in the interest of better management practices.
- Providing relevant open-ended, customized, function-specific and sector-specific management training programs to private and public organizations in Tabuk and the rest of the Kingdom.
- Building capacity for conducting applied research relevant to the problem-solving needs of various companies and sectors.
- Cooperating with other Business Colleges in KSA and outside to build networks, leverage resources and better fulfill its mission.

Program Standards

The College of Business and Management curriculum was prepared while considering the requirements of the Ministry of Higher Education in the Saudi Kingdom, and the recommendations of the Association to Advance Collegiate Schools of Business (AACSB-International).

The AACSB promotes excellence and continuous improvement for educational organizations. It provides support to administrators and faculty, encourages diversity, and enhances the understanding of the value of management education.

Job Opportunities

The Business Program is committed to providing the local region's residents with meaningful, up-to-date skills and knowledge that will allow them to pursue successful careers and make deep impacts both within the Tabuk province, and across the Gulf region at large. With these objectives in mind, the program is designed around fostering contemporary best practices and skills in line with the job opportunities within Tabuk and the Middle East.

Situated in north-western Saudi Arabia, approximately one hour from the Jordanian border, the region of Tabuk has a population of approximately 800,000. Agriculture has been the most prominent sector in the province, with large agricultural firms such as ASTRA Agricultural Company having significant presence and operations in the region. Tabuk is now beginning to witness marked growth in other business sectors, with the emergence of a number of small banks and services firms. The military is also substantially linked to the Tabuk region through the military base located in the province, with a large segment of Tabuk's inhabitants having some form of personal or professional relation or interaction with the military base.

Given this, graduates from the College's Bachelor Degree are poised to take advantage of numerous job opportunities within the Tabuk province itself, and in the growing Saudi and Gulf markets. As such, the business program aims to provide the residents of Tabuk with relevant business knowledge and practices to cater to these three key areas, and to help promote development, growth and prosperity in the region. Courses target the cultivation of practical business tools to pursue strategic development and integration of the agricultural sector with other prominent sectors in the region, and to allow students to pursue managerial and administrative positions within the growing firms in this sector.

Management, accounting, finance, and entrepreneurship courses within the program cater to the development of these key skills. Similarly, the program will enable students to join the growing financial services industry within Tabuk and become the future leaders within the Gulf's top financial services firms. The program also seeks to add value to students from the army by helping develop management and higher administrative skills through workshops and coursework, and to provide synergistic knowledge and solutions between business and engineering for the military.

Finally, the program was designed with the aim of attracting the best and brightest students from all regions within Saudi Arabia, by providing the highest standards in business education to allow students to capitalize on and continue to drive the phenomenal growth that the region has witnessed in recent years, through dedicated teaching and the provision of the best and most up-to-date business knowledge in the fields of finance, accounting, management, marketing, and business information and decision support systems.

Admissions and Graduation Requirements

- Student admission to the Bachelor of Business Administration is based on the requirements of the national center for evaluation and measurement, the general University admission criteria, as well as specific criteria set by the College of Business and Management. All direct admissions are decided by the University Admissions Committee.
- To graduate with a Bachelor of Business Administration, students must satisfactorily complete 134 credit hours with a cumulative average as decided by the University Council.
- All third year business students are required to fulfill a summer (July and August) internship period of at least eight weeks of specialized work on individual basis. This includes training and practice in an actual service in a technical, business, or governmental establishment under both faculty supervision by a mentor and corporate guidance by a preceptor who will acquaint students with the world of work. The preceptor will also help interns acquire the core values

and basic skills necessary for an understanding of the business world. Interns will be assigned tasks and responsibilities commensurate with their skills and qualifications.

Program of Study

The College of Business & Management Program at FBSU offers a broad range of avenues for study and exploration. In keeping with the traditional interest in business education, students study the credits equivalence of two years in Business Administration to help them understand the basics of the different areas of Business and Management in an organization, in addition to the equivalence of two years of courses of broad education.

The CBM has two departments:

- The Accounting and Finance Department
- The Management, Marketing and Entrepreneurship Department

Both departments contain a cluster of distinct academic business disciplines or concentrations.

In order to cope with these expanding horizons, the Bachelor Program is designed to provide a broad exposure to the advanced literature in business. Students can select an area for intensive study and develop a program that trains them to comprehend and perform cutting-edge knowledge in that field.

Students may undertake advanced courses to more deeply understand strategic management and marketing concepts such as consumer choice processes, the allocation of marketing resources, and product development. They are also exposed to the art and science of human resource management, and communication processes at the industrial levels.

Students who choose to focus on the study of financial analysis and accounting systems will develop their skills in advanced courses related to auditing, corporate finance, investment banking, and financial markets.

Successful students will obtain a Bachelor in Business Administration in generic Business Administration or with a concentration in one of the following areas:

- Management
- Marketing
- Accounting
- Finance

Bachelor Degree

The College grants a Bachelor of Business Administration (BBA) in generic Business Administration or with one of the following areas of concentration:

- Management
- Marketing
- Accounting
- Finance

A concentration in a specific area is obtained if a student takes a minimum of five elective courses in the same area of expertise.

The Bachelor Degree program allows eligible students to develop enhanced knowledge in these areas through a balanced curriculum of required/elective intermediate and advanced courses in specific business track concentrations. The courses offered in the Bachelor Program provide students with more in-depth skills and knowledge in their chosen track area. Alternatively, students may elect to pursue a generic Bachelor Degree.

Program Objectives

- Provide students with a broader knowledge of business environment.
- Provide students with the knowledge and tools required for meaningful and successful careers.
- Prepare students for management responsibilities.
- Prepare students for further studies in graduate schools.
- Provide the educational background for various professional certification examinations such as the Chartered Financial Analyst (CFA), Certified Public Accountants (CPA), Certified Management Accountant, Certified Marketing Analyst, etc.

Learning Objectives

- Strengthen students' understanding of technical and quantitative aspects of management.
- Improve students' ability to focus on appropriate issues and develop proper solutions to problems faced by companies.
- Refine students' oral and written communication skills.
- Expand students' understanding of professional and ethical issues relevant to core business areas such as marketing, financial accounting, economics, information systems, strategic management, and organizational behavior.

Program Requirements

In order to graduate with a Bachelor Degree in Business Administration, students are expected to complete a total of 134 credit hours by the end of their fourth year of studies. These are divided as follows:

1. University Requirements	36 Credits
2. College Requirements	82 Credits
3. Concentration Electives	15 Credits
4. Summer Internship	1 Credit
Total	134 Credits

University Requirements

Students working towards the Bachelor Degree must complete a total of 36 credit hours in University requirements. The 36 credit hours in University general educational requirements for Bachelor program are as follows:

- 6 credits of Arabic: ARAB 101 and ARAB 201
- 9 credits of English communication skills: ENGL 101, ENGL 102, and ENGL 203
- 9 credits of Social and Cultural studies: SOCS 101, SOCS 201, and SOCS 202
- 3 credits of Computing: CSC 100
- 6 credits of Mathematics: MATH 203 (instead of MATH 101) and Math 204
- One 3-credit non-business elective course

College Requirements

A. Accounting and Finance Department

The Accounting and Finance Department requires 30 credits. These are: ACCT 110, ACCT 215, ACCT 321, BUSS 330, ECON 211, ECON 212, FINA 110, FINA 215, FINA 310, and FINA 420.

B. Management, Marketing and Entrepreneurship Department

The Management, Marketing and Entrepreneurship Department requires 52 credits. These are: BUSS 100, BUSS 110, BUSS 200, BUSS 210, BUSS 300, BUSS 400, BUSS 440, BUSS 445, BUSS 460, ENTM 420, DCSN 200, DCSN 305, DCSN 415, MKTG 210, MKTG 320, MNGT 110, MNGT 215, MNGT 428, MNGT 420 and INFO 200.

Declaring a Concentration

A student in the College of Business and Management may select a concentration in his third year of study if his/her cumulative GPA is at least 3.25. In addition, a student wishing to select a concentration in Finance or Accounting must acquire a GPA of at least 3.75 in related courses. A student must complete at least 15 credits in the concentration area in conjunction with the core requirements. Students who finish all “major” requirements are not allowed to declare a concentration. Both the major and concentration requirements shall appear on the transcript.

Concentration Electives

Concentration Electives consist of 15 Credit hours from the list of elective courses of the concentration (each student is expected to choose a concentration at the beginning of the third year or opt for a generic degree). These are:

A. Accounting and Finance Department Electives

- Five elective courses (15-credits) chosen from the following list: ACCT 422, ACCT 425, ACCT 430, ACCT 435, ACCT 445, BUSS 490, FINA 410, FINA 422, FINA 425, FINA 430, FINA 450.

B. Management, Marketing and Entrepreneurship Department

- Five elective courses (15-credits) chosen from the following list: BUSS 490, INFO 400, MKTG 420, MKTG 430, MKTG 435, MKTG 440, MNGT 430, MNGT 440, MNGT 450, MNGT 460.

C. Generic Business Administration Option

Electives: choice of all electives from both the above listed tracks.

Summer Internship

A summer internship in Business (BUSS 346) is required for a two month period in the third year of studies. By the end of their internships, students have to write and submit a report to their advisors who are full-time faculty members.

Course Coding System

ACCT	Accounting
BUSS	Business
DCSN	Business Decision Support Systems
ECON	Economics
ENTM	Entrepreneurship
FINA	Finance
INFO	Business Information Systems
MNGT	Management
MKTG	Marketing

Study Plan of the BBA Program

(134 Credits)

Year I

First Semester (15 Credit Hours)

Course	Title	Credits	Prerequisites
BUSS 100	Orientation Workshop	0	-
SOCS 101	Islamic Civilizations I	3	-
MNGT 110	Principles of Management	3	-
ENGL 101	Basic Academic English I	3	-
MATH 203	Introduction for Business Mathematics I	3	-
ACCT 110	Financial Accounting	3	-

Total Credits

15

Second Semester (15 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 102	Basic Academic English II	3	ENGL 101
ARAB 101	Basic Academic Arabic	3	-
CSC 100	Introduction to Computing	3	-
BUSS 110	Statistics and Data Analysis	3	MATH 203
FINA 110	Business Finance	3	ACCT 110

Total Credits

15

Year II

Third Semester (17 Credit Hours)

Course	Title	Credits	Prerequisites
BUSS 200	Business Communication Skills	2	
DCSN 200	Managerial Decision Making	3	CSC 100
ACCT 215	Managerial Accounting	3	ACCT 110
ECON 211	Principles of Microeconomics	3	
SOCS 201	Islamic Civilizations II	3	SOCS 101
MKTG 210	Principles of Marketing	3	MNGT 110

Total Credits

17

Fourth Semester (15 Credit Hours)

Course	Title	Credits	Prerequisites
ECON 212	Principles of Macroeconomics	3	ECON 211
FINA 215	Financial Markets and Institutions	3	FINA 110
BUSS 210	Business Law	3	MNGT 110
INFO 200	Management Information Systems	3	MNGT 110, CSC 100
MNGT 215	Organizational Behavior	3	MNGT 110
Total Credits		15	

Year III**Fifth Semester (16 Credit Hours)**

Course	Title	Credits	Prerequisites
BUSS 300	Strategic Career Planning	1	
MATH 204	Introduction for Business Mathematics II	3	MATH 203
ENGL 203	Advanced Academic English I	3	ENGL 102
BUSS 330	Managerial Economics	3	ECON 211
ACCT 321	Intermediate Financial Accounting 1	3	ACCT 110
FINA 310	Islamic Finance and Management	3	FINA 110, MNGT 110
Total Credits		16	

Sixth Semester (18 Credit Hours)

Course	Title	Credits	Prerequisites
MKTG 320	Competitive Marketing Strategies	3	MKTG 210 ELECTIVE
DCSN 305	Operations Management	3	DCSN 200
ARAB 201	Advanced Academic Arabic	3	
ELECTIVE	Business Elective Course	3	Concentration
ELECTIVE	Business Elective Course	3	Concentration
	Non Business Elective Course	3	
Total Credits		18	

Summer Semester (4 Credit Hours)

Course	Title	Credits	Prerequisites
BUSS 346	Internship in Business (two months)	1	
ELECTIVE	Business Elective Course	3	Concentration
Total Credits		4	

Year IV**Seventh Semester (16 Credit Hours)**

Course	Title	Credits	Prerequisites
BUSS 400	Developing Business Plan	2	
FINA 420	Investment Management	3	FINA 215
DCSN 415	Decision Support Systems: Applications in Management	3	DCSN 200
BUSS 445	Business Research Methods	3	BUSS 110
ELECTIVE	Business Elective Course	3	Concentration
MNGT 428	Business Ethics	2	MNGT 110
Total Credits		16	

Eighth Semester (18 Credit Hours)

Course	Title	Credits	Prerequisites
SOCS 202	World Civilizations	3	-
BUSS 440	Strategic Management	3	MNGT 110
ENTM 420	Entrepreneurship and Small Business Management	3	MNGT 215, ACCT110, FINA110, BUSS 400
MNGT 420	Human Resource Management	3	MNGT 110
ELECTIVE	Business Elective Course	3	Concentration
BUSS 460	Graduation Project	3	Concentration
Total Credits		18	

Total Program Credits**134***

* Completion of Bachelor degree in Business Administration or with a Concentration in Accounting, Finance, Management, Marketing.

A concentration in a specific area is obtained if a student takes a minimum of five Elective courses in the same area of expertise.

Recommended Non Business Elective Courses (3 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 204	Advanced Academic English	3	ENGL 203
ENGL 206	Technical Writing	3	ENGL 203
STAT 230	Probability and Statistics	3	MATH 204
FREN 101	Basic French	3	None
PHED 101	Physical Education	3	None
SPTP 495	Special Topics	3	None

Management and Marketing Elective Courses (Required 15 Credit Hours)

Course	Title	Credits	Prerequisites
BUSS 490	Special Topics in Business Administration	3	MNGT 110
MNGT 430	International Business and Management	3	MNGT 110
MNGT 440	Total Quality Management	3	MNGT 110
MNGT 450	Case Studies in Management	3	MNGT 110
MNGT 460	Change Management	3	MNGT 110
MKTG 420	Marketing Research	3	MKTG 210, BUSS 200
MKTG 430	Professional Selling and Sales Management	3	MKTG 420
MKTG 435	Public Relations	3	MKTG 210
MKTG 440	Consumer Behavior	3	MKTG 210
MKTG 450	Logistic Marketing Management	3	MKTG 210
INFO 400	E-Commerce Strategies and Applications	3	INFO 200

Accounting and Finance Elective Courses (Required 15 Credit Hours)

Course	Title	Credits	Prerequisites
ACCT 422	Intermediate Financial Accounting 2	3	ACCT 321
ACCT 425	Cost Accounting	3	ACCT 215
ACCT 430	Auditing	3	ACCT 321
ACCT 435	Accounting Information Systems	3	ACCT 321, INFO 200
ACCT 445	International Accounting	3	ACCT 215
BUSS 490	Special Topics in Business Administration	3	MNGT 110
FINA 410	Financial Planning and Control	3	FINA 110
FINA 422	Valuation Methods	3	FINA 110, FINA 215
FINA 425	Commercial Bank Management	3	FINA 215
FINA 430	International Financial Management	3	FINA 110
FINA 450	Risk Management in Financial Institutions	3	FINA 110

Generic Business Administration Elective Courses (Required 15 Credit Hours)

Course	Title	Credits	Prerequisites
ACCT 422	Intermediate Financial Accounting 2	3	ACCT 321
ACCT 425	Cost Accounting	3	ACCT 215
ACCT 430	Auditing	3	ACCT 321
ACCT 435	Accounting Information Systems	3	ACCT 321, INFO 200
ACCT 445	International Accounting	3	ACCT 215
BUSS 490	Special Topics in Business Administration	3	MNGT 110
FINA 410	Financial Planning and Control	3	FINA 110
FINA 422	Valuation Methods	3	FINA 110, FINA 215
FINA 425	Commercial Bank Management	3	FINA 215
FINA 430	International Financial Management	3	FINA 110
FINA 450	Risk Management in Financial Institutions	3	FINA 110
INFO 400	E-Commerce Strategies and Applications	3	INFO 200
MNGT 430	International Business and Management	3	MNGT 110
MNGT 440	Total Quality Management	3	MNGT 110
MNGT 450	Case Studies in Management	3	MNGT 110
MNGT 460	Change Management	3	MNGT 110
MKTG 420	Marketing Research	3	MKTG 210, BUSS 200
MKTG 430	Professional Selling and Sales Management	3	MKTG 420
MKTG 435	Public Relations	3	MKTG 210
MKTG 440	Consumer Behavior	3	MKTG 210
MKTG 450	Logistic Marketing Management	3	MKTG 210

Course Descriptions

Accounting Courses

ACCT 110 Financial Accounting 3(3, 0, 0)⁶

An introduction to financial accounting that covers the use, interpretation, and analysis of the principal financial statements and other sources of financial information from a national and international perspective.

ACCT 215 Managerial Accounting 3(3,0, 0)

This course covers the use, interpretation, and analysis of management accounting information for management decision-making, planning, and control of operations. The focus is on cost behavior, cost measurement, budgeting, performance measurement and valuation, responsibility accounting, and product costing. Prerequisites ACCT 110.

ACCT 321 Intermediate Financial Accounting 1 3(3,0, 0)

This course covers concepts and standards of external financial reporting, systems to record and prepare financial accounting information, contents and presentation of basic financial statements, and financial reporting issues of assets. Prerequisites: Business third year standing and ACCT 110. Corequisite: ACCT 110.

ACCT 422 Intermediate Financial Accounting 2 3(3, 0, 0)

This course covers concepts of financial reporting related to liabilities, equity, and other selected financial reporting issues and disclosure. Prerequisites: Business third year standing and ACCT 321. Corequisite: ACCT 110.

ACCT 425 Cost Accounting 3(3, 0, 0)

A course on accounting in manufacturing operations; cost concepts and classifications; cost accounting cycle; accounting for materials, labor, and burden; process cost accounting; budgeting; standard costs; cost reports; direct costing and differential cost analysis; cost-volume-profit analysis and gross profit analysis. Prerequisites: Business third year standing and ACCT 215.

ACCT 430 Introduction to Auditing 3(3,0, 0)

As an introduction to auditing and the professional responsibilities of a career in accounting, the course covers a comprehensive study of procedures used in the verification of financial statements. Topics include the legal and ethical responsibilities of accountants; professional auditing standards; international auditing standards; the acquisition, evaluation, and documentation of audit evidence; reports on the results of the engagement, evaluation in internal control, compliance testing, substantive testing, and statistical sampling and auditing EDP. Prerequisites: Senior standing and ACCT 321.

⁶ Credits (Lecture, Tutorial, Lab)

BUSS 300 Strategic Career Planning 1(1, 0, 0)

This course is designed to build awareness of changing career patterns and major personal and professional influences that impact future careers. The course covers issues such as preparation for joining the labor market, basic career guidance, understanding career stages, and practicing self-assessment. Prerequisite: Business third year standing.

BUSS 330 Managerial Economics 3(3, 0, 0)

The main objective of this course is to equip students with the necessary economic theory and techniques and the ability to apply them in order to inform and enhance managerial decision making. Topics covered include: optimization techniques, demand theory and estimation, forecasting and measurement, theory of production and estimation, cost theory and estimation, pricing and output determination under different market structures, game theory, and pricing in practice. Prerequisites: Business third year standing and ECON 211.

BUSS 346 Internship/Practicum 1(1, 0, 0)

A summer period of guided work experience under faculty supervision by a mentor, and corporate guidance by a preceptor is designed to acquaint students with the ground realities and help them acquire core values and basic skills necessary for an understanding of the field operations of a firm. Prerequisites: Business third year standing and FINA 110, MNGT 110, MKTG 210, INFO 200.

BUSS 400 Developing Entrepreneurial Plan 2(2, 0, 0)

This course focuses on starting your own business from inception to IPO, passing through the stages of feasibility study, VC financing, launching, and operating. Prerequisites: Senior standing.

BUSS 440 Strategic Management 3(3, 0, 0)

This capstone course exposes seniors to the strategic management process of local, regional, and multinational corporations. Emphasis is placed on identifying the tools needed for strategic analysis of the firm and the industry, and on comprehending the key strategic issues that managers face in managing corporations. Prerequisites: Senior standing and MNGT 110.

BUSS 445 Business Research Methods 3(3, 0, 0)

The course provides students with an introduction to the main theories and practices in the field of business research. Topics include: business research process; research design and strategies; methods of qualitative and quantitative research; design of experiments including sampling, survey design, data collection, basic data analysis, and research reporting and evaluation. (Pre-requisites: BUSS 110)

BUSS 460 Graduation Project 3(3, 0, 0)

The project requires, among other things, that the student works on a problem faced by one of the local or regional businesses, and recommend a set of possible solutions under the supervision of a faculty mentor in the particular area of concentration. The results of the project are normally presented in a meeting in the presence of representatives from the business subject to the consulting assignment. Prerequisites: Senior standing.

BUSS 490 Graduation Project 3(3, 0, 0)

This is a general course intended to reinforce the student's knowledge in a specific functional area of Business Administration usually not offered in one of the regular core or other elective courses. Through a combination of lectures, case studies and independent reading, the course aims to expand the students' knowledge of the related concepts and applications. Pre-requisite: at least a third year standing.

Decision Systems Courses

DCSN 200 Managerial Decision Making: Models and Techniques 3(3, 0, 0)

This course addresses formulation of models that can be used to analyze complex problems taken from various functional areas of management, including finance, marketing, operations, and human resources. The goal is to understand how business decisions are reached, what tradeoffs are made, and how outcomes depend on the underlying data. A broad range of analytical methods is covered, including linear programming, integer linear programming, decision analysis, decision trees, queues, and Monte Carlo simulation. Software packages like Excel, Tree Plan, and Crystal Ball are used. Prerequisites: CSC 100.

DCSN 305 Operations Management 3(3, 0, 0)

This course offers an overview of the issues involved in how operations managers make strategic decisions to operate a production or service system in order to give the firm a sustainable competitive advantage in a global marketplace. Specific topics covered include operations strategy framework; project management; product design and process management; total quality management; capacity planning; supply chain design; and control of operations. Prerequisites: Business third year standing and DCSN 200.

DCSN 415 Advanced Managerial Decision Making Models 3(3, 0, 0)

This course addresses advanced models from functional areas of management, including finance, marketing, operations, and human resources, through case studies and use of applications software. Prerequisites: Senior standing and DCSN 200.

Economics Courses

Econ 211 Principles of Microeconomics 3(3, 0, 0)

This is an introductory course which presents the general Principles of microeconomics. Topics include supply and demand, market equilibrium, consumer theory, market equilibrium, production, market structures (monopoly and oligopoly), and welfare economics and income distribution.

Econ 212 Principles of Macroeconomics 3(3, 0, 0)

This course deals with principles of economics that apply to an economy as a whole. It includes elements on the determinants of the general price level and national output, consumption, investment, inflation and unemployment. The course introduces the monetary and fiscal policies to promote long-term economic growth. It also provides a basic understanding of the foreign

exchange markets, balance of payments and the effects of currency changes on a country's imports and exports. Prerequisites: ECON 211

Entrepreneurship Courses

ENTM 420 Entrepreneurship and Small Business Management 3(3, 0, 0)

This course covers the management, organization, and operational issues of small business enterprises. This course emphasizes the identification and resolution of managerial problems from the perspective of small business focusing mainly on marketing, finance and HR areas. Prerequisites: Senior standing and ACCT 110, FINA 110, MNGT 215, BUSS 400.

Finance Courses

FINA 110 Business Finance 3(3, 0, 0)

This course teaches the tools that determine and analyze the major decisions a financial manager has to make, including identification of the firm's goals, time value of money, use of discount cash flow models, capital budgeting under certainty, capital structure as it relates to cost of capital, dividend policy, and ethics in finance. Prerequisites: ACCT 110.

FINA 215 Financial Markets and Institutions 3(3, 0, 0)

This course covers analysis of existing financial systems, money and capital markets, banks and non-bank financial intermediaries, term structure of interest rates, and securities markets including the stock and bond exchanges. It introduces the role of risk management in the financial institutions industry. Both quantitative and qualitative measures of risks are emphasized. Prerequisites: FINA 110.

FINA 310 Islamic Finance and Management 3(3, 0, 0)

This course introduces financial institutions, transactions and instruments that comply with Islamic principles. The course focuses on Shariah compliant transactions and instruments such as financial partnerships and profit sharing, asset-backed equity and debt, and Shariah compliant insurance. Further topics include the development of new instruments and practices to offer a broader range of Islamic financial solutions, practical management uses and implications of Islamic finance. Prerequisites: Business third year standing and FINA 110, MNGT 110.

FINA 410 Financial Planning and Control 3(3, 0, 0)

This course focuses on topics such as the financial planner's role and environment, cash flow budgeting, consumer credit, controlling and planning labor and overhead costs, expense and capital expenditure planning, debt management, insurance, taxation and financial planning. The course also covers aspects of personal financial planning, including retirement planning, estate planning and wills, personal bankruptcy and insolvency, and preparation of financial plans. Prerequisites: Senior standing and FINA 110.

MNGT 428 Business Ethics 2(2, 0, 0)

This course covers the topics of instrumental expediency and moral imperatives, ethical dimensions of corporate decision making, intra- and interpersonal ethical conflicts, and limits of individual and corporate responsibility. Prerequisite: Business third year standing & MNGT 110.

MNGT 420 Human Resource Management 3(3, 0, 0)

A course that deals with understanding and managing human capital as a major strategic asset, macro and micro manpower planning, skill surveying, management learning, de-learning and relearning, results-driven performance in the age of virtual organizations and telecommuting, and knowledge workers in a rapidly changing corporate context within a global knowledge economy. Prerequisites: Senior standing and MNGT 110.

MNGT 430 International Business and Management 3(3, 0, 0)

This course examines substantive and stylistic challenges for senior and middle management in international cross continent corporations and conglomerates, standardization and diffusion of authority and operations, mobility and self reinvention, and integration and differentiation. Prerequisites: Senior standing.

MNGT 440 Total Quality Management 3(3, 0, 0)

This course covers an advanced analytical account of TQM as a modern management philosophy and a program for reaching customer satisfaction. It includes a large set of practical applications at different firm levels in sustaining the relationship with customers. Prerequisite: Senior standing.

MNGT 450 Case Studies/Special Topics 3(3, 0, 0)

This course deals with special issues and management concerns that are not covered in regular courses. Students will solve in-depth business case studies covering different strategic management problems and situations. Prerequisite: Senior standing.

MNGT 460 Change Management 3(3, 0, 0)

This course discusses a central paradigm in modern management theory and practice. It reviews various organizational forces that enable and resist change. It includes the change processes at the individual, group, and organizational levels and introduces theories and approaches related to managing changes. Prerequisite: Senior standing.

Management Information Systems Courses

INFO 200 Management Information System 3(3, 0, 0)

This course introduces the IT applications in businesses that raise productivity, create customer value and sustain competitive advantage. The survey of the underlying information technology and information systems (IT/IS) show how business processes and transactions are supported. Prerequisites: MNGT 110, CSC 100.

INFO 400 E-Commerce (EC) Strategies and Applications 3(3, 0, 0)

This course explores strategies and applications in the context of planning an EC initiative or startup. Business models and competitive strategies are used as the framework: (a) for understanding how EC is different from and similar to other businesses; and (b) how to create business value from the combined use of internet technology and the underlying IS/IT. Students/teams outline key items of an EC business plan; write high-level requirements for an E-Commerce initiative/startup; and study cases. Prerequisites: Senior standing.

Marketing Courses

MKTG 210 Principles of Marketing 3(3, 0, 0)

This course presents an overview of marketing activities including marketing inputs in strategic planning, global marketing, marketing research, analysis of buyer behavior, market segmentation and positioning, and development of the marketing mix elements. Prerequisite: MNGT 110.

MKTG 320 Competitive Marketing Strategies 3(3, 0, 0)

This course provides the insight and skills necessary to formulate and implement sound marketing strategies. The process of strategy formulation is divided into three stages; strategic analysis, strategic decision-making, and implementation of strategies. Specific topics include strategic planning, consumer decision-making, life cycle segmentation, product positioning, market response, competitive behavior, new product development, product line management, and the marketing plan. Prerequisites: Senior standing and MKTG 210.

MKTG 420 Marketing Research 3(3, 0, 0)

A course that provides thorough coverage of various marketing research tools along with an applied orientation, including a systematic analysis of the steps comprising the marketing research process, starting with research problem definition and terminating with data collection, analysis, and presentation. Prerequisites: Senior standing and MKTG 210, BUSS 110.

MKTG 430 Professional Selling and Sales Management 3(3, 0, 0)

This course examines sales management functions and strategies, developing the selling function, sales goals and structure, building a sales program, and leading and motivating the sales force. This course also examines the opportunities and problems faced by marketers in contemporary retail formats. The principle issues involved in retailing are explored, including store location and layout, merchandise planning, buying and selling, category management, and coordination of store activities. Overall the course allows students to develop appropriate skills and knowledge for effective and efficient decision making in the contemporary retail environment. Prerequisites: MKTG 420

MKTG 435 Public Relations 3(3, 0, 0)

This course focuses on the communication between an individual or organization and the public to promote stakeholder acceptance and approval. Students explore traditional and emerging components of the public relations process through mass media, as well as the needs of different

types of businesses, such as corporations, non-profit organizations, and government agencies.
Prerequisites: Senior standing and MKTG 210.

MKTG 440 Consumer Behavior 3(3, 0, 0)

This course introduces behavioral science perspective to analyze and predict consumer behavior by focusing on the decision-making processes followed by consumers in different situations.
Prerequisites: Senior standing and MKTG 210.

MKTG 450 Logistics Marketing Management 3(3, 0, 0)

This course examines on the organizational, management and technology issues related to the sales and marketing function. It covers the business approaches that support sales and marketing plans as well as information and knowledge management considerations. It also explores the knowledge linkages between the sales and marketing function and the supply chain functions. Prerequisites: Senior standing and MKTG 210.

MASTER of Business Administration Program (MBA)

Introduction

The economic growth in the Kingdom in general and Tabuk in particular necessitates a cadre of high-quality managers who can contribute effectively to the economic development strategies of the private as well as the public sectors.

The MBA Program at FBSU has been designed to provide an advanced business education for highly motivated Bachelor degree holders, mid-level managers and professionals in order to boost their performance, efficiency, and productivity in a variety of organizational settings. In addition, it has been tailored to build the necessary knowledge and skills for entrepreneurs to launch new businesses or improve existing ones.

Program Objectives

The MBA program at FBSU aims to provide students with the knowledge and skills that enable them to function as successful managers, leaders and entrepreneurs in the dynamic and globalized Saudi economy during the third millennium.

The MBA Program intends to:

- Provide students with an in-depth understanding of the literature in the functional areas of business.
- Develop the managerial capabilities of students on the basis of the core functions and disciplines of business administration.
- Enhance the analytical, organizational, and communication skills of students to become effective managers in a variety of organizational settings.
- Elevate the leadership and decision-making abilities of students to enable them to encounter effectively contemporary challenges in an increasingly complex business environment.

Program Structure

The program is composed of a total of 42 credits to be offered over 4 semesters. This excludes the pre-requisite foundation module (a maximum of 15 credits) that will be offered to compensate for any deficiency in the students' knowledge. The grades of the Foundation module are not included in the cumulative GPA. Students must normally pass these courses with a minimum GPA of 3.75 out of 5 before they can start Core courses.

Students can opt to pursue a general MBA program or a program with a concentration in one of the following areas: Marketing, Human Resource Management, Accounting, Finance, General Management, Management Information Systems or Engineering Management. The latter two are inter-disciplinary in nature and are offered in collaboration with the Colleges of Computing and

Engineering. To earn an MBA with a concentration, the student must pass 12 credits in courses of that concentration.

The degree requirements can be completed in four semesters (21 months of study). The program uses English language as the main medium of instruction.

Program Plan of Study

Pre-MBA Foundation Courses (Credits not counted in GPA)*		Cr	
MBA 400: Introduction to Business Administration & Management		3	
MBA 410: Principles of Economics		3	
MBA 420: Principles of Financial Accounting		3	
MBA 430: Principles of Finance		3	
MBA 440: Principles of Marketing		3	
*A Maximum of 15 credits depending on the background of the Applicant		15	
Semester 1:	Cr	Semester 2:	Cr
MBA 505: Organizational Behavior	3	MBA 525: Managerial Economics	3
MBA 510: Management Info. Systems	3	MBA 530: Marketing Management	3
MBA 515: Quantitative Methods in Business	3	MBA 605: Corporate Finance	3
MBA 520: Managerial Accounting	3	MBA 610: Leadership & Entrep.	3
	12		12
Semester 3:	Cr	Semester 4:	Cr
MBA 615: Research Methods in Business	3	Course in Concentration	3
MBA 620: Strategic Management	3	Course in Concentration	3
Course in Concentration (See Table 2)	3	MBA 690: Final Project in Concentration	3
	9		9
Cumulative Credits		42+15 = 57	

Admission Requirements

For admission, the applicant must satisfy the following:

- A. Hold a Bachelor's degree in any field from an academic institution accredited/ recognized by the KSA's Ministry of Higher Education (MOHE) with a minimum ranking/rating of "Upper Good; 3.5/5 or 2.5/4". However, applicants with a rating of "Good" can be accepted if their GPA in their major of study is at least "Very Good".
- B. Achieve a minimum score of 5.5 on the IELTS exam (about 500 in paper-based TOEFL or 61 in internet-based tests) or a minimum score of 75% on the University English placement exam.
- C. Pass a personal interview with the MBA Admissions Officer.

Applicants with non-business backgrounds are normally required to pass the foundation courses with a minimum GPA of 3.75 out of 5 before starting the core courses.

Work experience gives the applicant an advantage but is not required for admission.

A program accepts candidates on a competitive basis as seats are limited. Criteria for selection include, but are not limited to, competitive GPA, English proficiency, work experience, supportive references and successful personal interview with an Admissions Officer.

Note: Students can also pursue the program on a part-time basis.

Executive Master of Business Administration (EMBA) Program

Background

The Executive MBA Program has been designed to deliver excellence in business education to middle and upper level managers in the private and public sectors.

The rigorous program will enable participants to acquire the conceptual knowledge and improved decision-making skills to improve their on-the-job performance in an increasingly complex business environment.

During the course of study, participants are guided through case analyses and simulations to ensure a quick transfer of skills and knowledge from the seminar room to the workplace with a special attention to the present and future needs of Saudi and foreign firms across the Kingdom. As a result, participants will quickly realize personal and professional benefits and their contributions will be recognized through greater responsibilities, promotions and self-satisfaction.

Program Objectives

FBSU's EMBA program will strive to:

- Enhance the general managerial capabilities of participants by building upon the core functions and disciplines of business administration.
- Develop leaders and entrepreneurs with a clear strategic vision, strong critical analytical skills, a problem-solving orientation and a broad sensitivity to global issues.
- Strengthen the leadership, creative and teamwork skills that would sharpen the participants' competitive edge, and add value to their organizations.

Program Structure

The program is composed of a total of 42 credits divided over 8 semesters. This excludes the pre-requisite foundation module that covers Math and Computer skills, and which is given at the beginning of studies. Lectures are scheduled on weekends twice per month. The degree requirements can be met in 21 months of study. The program uses both Arabic and English languages for instruction.

Table 1. EMBA Program Structure & Plan of Study

Term	Module No.	Course No.	Module & Courses	Course Crs	Module Crs	Term Crs
			Pre-requisite: Basic Math + I.T. Skills	3 + 0		
1	1	Module 1. Foundation & Business Environment			10	10
		1	EMBA 500 - Graduate Studies in Business & EMBA 505 - Contemporary Business Environment	1 2		
		2	EMBA 510 - Business Mathematics & EMBA 515 - Data Analysis	2 1		
		3	EMBA 525 - Managerial Economic Decisions & EMBA 520 - Financial Economics	1 1		
		4	EMBA 530 - Financial Accounting Decisions & EMBA 535 - Managerial Accounting Decisions	1 1		
2	2	Module 2. Business Communication			4	11
		5	EMBA 555 - Information and Communication Technologies & EMBA 560 - Managerial Communication	1 1		
		6	EMBA 565 - Business Negotiations	1		
		7	EMBA 550 - Business-Government Relations	1		
	3	Module 3. Functional Competency			7	
		8	EMBA 600 - Organizational Behavior & EMBA 620 - Change Management	1 1		
		9	EMBA 605 - Strategic Marketing	1		
		10	EMBA 610 - Corporate Finance	1.5		

		11	EMBA 615 - Operations and Production Management & EMBA 660 - Project Management	1 1.5		
3	4	Module 4. Leadership & Entrepreneurship			10	10
		12	EMBA 670 - Management Skills Development	1.5		
		13	EMBA 675 - Leadership Development	1.5		
		14	EMBA 655 - Global Corporate Financial Decisions	1		
		15	EMBA 680 - Leadership And Entrepreneurship Lecture Series	1.5		
		16	EMBA 685 - Entrepreneurship Development & EMBA 690 - Global Entrepreneurship Project	1.5 3		
4	5	Module 5. Strategic Thrust & Application			11	11
		17	EMBA 650 - International Business Decisions & EMBA 699 - Current Business Challenges	1.5 1		
		18	EMBA 700 -Strategic Management Decisions	3		
		19	EMBA 665 - Business Research Methods & EMBA 695 - Management Consulting & EMBA 698 - Business Consulting Project	1.5 1 3		

Admission

Admission to the program is based on a combination of academic and professional criteria. To be admitted to the program, the applicant must satisfy the following conditions:

1. Hold a Bachelor's degree in any field from a KSA-accredited university.
2. Have a cumulative GPA with a minimum rating of "Good".
3. Have at least three years of work experience in a middle or upper management position.

4. Achieve a score of at least 5 in the IELTS exam or Pass the University's English Entrance Exam.
5. Pass the interview with the Program Director.

Bridging Program in Business Administration

The bridging program allows students with a two year technical diploma to continue their studies to earn a Bachelor of Science in Business Administration. The program gives credit to up to 40% of equivalent courses previously taken. Placement exams are administered at the beginning of studies to offer compensatory coursework and build a solid foundation to participating students.

Admission Requirements

Admission of Diploma graduates to the Bachelor Program at the College of Business & Management is based on the General University admission requirements. The applicant must, however, be a graduate of a KSA-accredited academic organization and must have passed the official technical exam administered by the relevant governmental authority.

A student applying to the program may first be admitted to the foundation program that may take up to one year to complete based on his/her performance in the English Entrance Exam and in the placement exams.

Program Requirements

In order to graduate with a Bachelor Degree in Business Administration, new students are expected to complete a total of 134 credit hours by the end of their fourth year of academic courses. Diploma graduates are entitled to get exemption from up to 40% of the required credits, depending on their entry qualifications. Hence the program of study can normally be completed in about two years beyond the foundation year program (for a student entering in Bridging English level 2).



جامعة فهد بن سلطان
Fahad Bin Sultan University

College of Computing

College of Computing

Officers of the College

Acting Dean: Nazar El-Fadil

Professors: Ahmad Nasri

Associate Professors: Nazar El-Fadil, Monther Aldwairi,

Assistant Professors: Chadi Riman, Homam Eltaj, May Haidar, Mohamed Mezher, Nisrine Jrad

Lecturers: Faizan Zaidi, Fedaa Farhat, Hiba AbdelHakim, Khaled Abu Hmeidan, Khairi Arafeh, Fahad Al-Balawi, Ahmed Al-Balawi.

Assistant Instructors: Raghad Noufei, Mona Al-fifi

Mission

The College of Computing at Fahad Bin Sultan University is a professional school committed to providing quality programs in the various computing fields, following a liberal arts educational philosophy, and combining theory and practice. The College prepares its graduates to be professionals who take up leading positions in the Kingdom and the region. It also prepares them to be life-long learners, and critical thinkers who respect diversity and ethical standards.

Core Values

- Reinforcement of national identity and cultural authenticity
- Uncompromising pursuit of quality educational services to students in ways that cognitive skills, cultivate personality and help the development of character
- Integrity and adherence to ethical behavior in all ways at all levels
- Life-long learning and investment in self-renewal
- Critical thinking and board exposure to major global currents
- Community spirit and commitment to social service

Objectives

- Provide students with basic foundations in computing to enable them to identify, formulate, and solve computing problems,

- Equip students with basic principles in software and/or hardware and the necessary tools to be able to implement computing solutions,
- Enable students to communicate effectively, think critically, and be life-long learners,
- Instill in students an appreciation of the ethical, social and professional issues in an increasingly diverse and technological society, and
- Prepare students to undertake higher studies in computing or related fields.

Career Opportunities

The College of Computing is committed to providing its students with meaningful, up-to-date skills and knowledge that will allow them to pursue successful careers and make deep impacts both within the Tabuk province, and across the Gulf region at large. With these objectives in mind, the College programs are designed around fostering contemporary best practices and skills in line with the job opportunities for computing professionals within Tabuk, the Kingdom of Saudi Arabia, and the Gulf.

Graduates of the College are poised to take advantage of numerous job opportunities within the Tabuk province itself, and in the growing KSA and Gulf markets. Computing is a broad and diverse field and rivals all other disciplines in its impact on society. The expanding role of computer science and engineering in today's society reflects the variety and scope of this exciting profession. Local as well as regional career opportunities available for computer scientists and engineers include software development companies, computer hardware companies dealing in PCs, workstations, and servers, computer networking companies, consulting offices, telecommunications companies, and internet service providers.

Program Standards

The computing curriculum is designed to comply with the requirements of ABET accreditation and IEEE/ACM guidelines. It includes courses in basic sciences and mathematics, analysis and design, communications skills, and humanities and social sciences. Lab hands-on experience and emphasis on design are important elements that are integrated throughout the curriculum.

Admission Requirements

Admission of students to the CSC and CEN programs at the College of Computing is based on the General University admission requirements in addition to specific criteria set by the College of Computing. All direct admissions are decided by the University Admissions Committee.

Programs of Study

The College of Computing at FBSU offers a broad range of avenues for study and exploration.

Bachelor Degrees Offered

The bachelor degree programs allow eligible students to develop enhanced knowledge in these areas through a balanced curriculum of required/elective intermediate and advanced courses in specific computing concentrations. The courses offered in the bachelor program provide students with more in-depth skills and knowledge in their chosen track area. The College grants the following degrees

- Bachelor of Computer Science.
- Bachelor of Engineering Sciences in Computer Engineering

University Requirements

To complete a bachelor degree program at FBSU, 30 credits of general education are required. The following are the general education requirements:

- 6 credits of Arabic: ARAB 101 and 201
- 9 credits of English communication skills: ENGL 101, 102, and 203
- 9 credits of Social and Cultural studies: SOCS 101, 201, and 202
- 3 credits of Computing essentials: CSC 100
- 3 credits of Mathematics: MATH 101

College Requirements

The College of Computing requires the following 27 credits for the bachelor degree:

- 4 credits of physics: PHYS 101 and PHYS 101 L
- 3 credits of Mathematics: MATH 102
- 3 credits of statistics: STAT 230
- 3 credits of technical English writing: ENGL 206
- 11 credits of computing: CSC 102, CSC 102L, CSC 212, CEN 221, CEN 221L
- 3 credits in computing ethics: CSC 492

Final Year Project

As part of their fourth year, all College of Computing students following the bachelor program are required to carry out a project and submit a technical report. This project is a substantial piece of work that will require creative activity and original thinking. Students in groups, normally three per group, are supervised while working on a project accounting for 4 credits, extending over a full academic year. The project aims to provide students with a transitional experience from the academic world to the professional world. It is designed to serve as a platform on which students in teams engage in a meaningful design experience requiring the solution of engineering design projects. The objectives of the final year project are:

- To allow students to demonstrate a wide range of the skills learned at the College of Computing during their course of study by asking them to deliver a product that has passed through the design, analysis, testing and evaluation stages.
- To encourage multidisciplinary research through the integration of material learned in a number of courses.
- To allow students to develop problem solving, analysis, synthesis and evaluation skills.
- To encourage teamwork.
- To improve students' communication skills by asking them to produce both a professional report and a professional poster and to give an oral presentation on their work.

The project is important for a number of reasons:

- It is the largest single piece of design work that a student does during his/her bachelor degree program.
- It allows students to specialize in a topic that they enjoy.
- It is the work that prospective employers will most likely ask students about during an interview.
- It allows students to show a wide range of the skills learned since the first year.
- Students must demonstrate these skills by delivering a product that has passed through the design, analysis, testing and evaluation stages.

Practical Training/Summer Internship Requirement

All students of College of Computing are required to fulfill a 1-credit hour summer internship period of 8 to 12 weeks. This graduation requirement entails that each student gain practical training experience during the summer prior to graduation with either a company or another academic institution.

COMPUTER SCIENCE PROGRAM (CSC)

The curriculum is designed to grant students the Bachelor of Computer Science degree upon the successful completion of the four-year program.

Program Mission

Computer Science at FBSU is a core high-technology discipline which integrates theoretical and practical education. Through a combination of courses and a final degree project, the computer Science Program provides quality teaching, and prepares students to assume positions in public and private sectors, computer industry, or educational institutions in the Kingdom. The program also offers prospective students opportunities to pursue a higher education in Computer Science.

Learning Outcomes

The Computer Science program at FBSU strives to achieve success by insuring that graduates:

- Have the necessary knowledge in computer science, both theoretical and practical,
- Demonstrate ability to apply computer science skills to analyze problems, design and implement solutions, and verify their correctness,
- Are able to integrate ethical, social and legal concerns in solutions to problems,
- Are able to participate smoothly and effectively in team work as members and leaders to develop and deliver quality solutions,
- Are able to prepare technical reports and conduct professional presentations in the discipline,
- Are able to communicate effectively orally and in writing
- Show evidence of being self-motivated life-long learners.

Degree Requirements

To graduate with a Bachelor of Computer Science, students must satisfactorily complete a four year program consisting of 128 credit hours. The distribution of courses is as follows:

- University Requirements 30 Credits
- College Requirements 27 Credits
- Computer Science Requirements 71 Credits

Total 128 Credits

University Requirements

Students working towards the BCS degree must complete a total of 30 credit hours in University requirements. The 30 credit hours in University general educational requirements for BS programs are as follows:

- 6 credits of Arabic: ARAB 101 and ARAB 201
- 9 credits of English communication skills: ENGL 101, ENGL 102, and ENGL 203
- 9 credits of Social and Cultural studies: SOCS 101, SOCS 201, and SOCS 202
- 3 credits of Computing essentials: CSC 100

- 3 credits of Mathematics: MATH 101

College Requirements

The College of Computing requires students to take the following 27 credits for the bachelor degree⁷:

- 4 credits of physics: PHYS 101 and PHYS 101L
- 3 credits of Mathematics: MATH 102
- 3 credits of statistics: STAT 230
- 3 credits of technical English writing: ENGL 206
- 11 credits of computing: CSC 102, CSC 102L, CSC 212, CEN 221, CEN 221L
- 3 credits in computing ethics: CSC 492

Program requirements

The computer science requirements consist of 71 credits of which 47 credits are from required courses and 24 from elective courses.

The required courses are: CSC 201, CSC 201L, CSC 356, CSC 357, CSC 358, CSC 360, CSC 360L, CSC 371, CSC 371L, CSC 372, CSC 377, CSC 382, CSC 384, CSC 398, CSC 498, CSC 499, MATH 201, MATH 211, MATH 215.

The elective courses include:

- 15 credits of Computer Science electives
- 6 credits of Free Electives
- 3 credits of Science Elective

⁷ For Computing, Computing ethics, final year projects and internship courses needed for the bachelor degree, see details in each program: CSC and CEN

BCS Program Study Plan

(128 Credits)

Year I

First Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 101	Basic Academic English I	3	
MATH 101	Calculus I	3	
CSC 102	Computer Programming I	3	
CSC 102L	Computer Programming I Lab	1	CSC 102
CSC 100	Introduction to Computing	3	
SOCS 101	Islamic Civilization I	3	
Total Credits		16	

Second Semester (17 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 102	Basic Academic English	3	
MATH 102	Calculus II	3	MATH 101
CSC 201	Computer Programming II	3	CSC 102
CSC 201L	Computer Programming II Lab	1	CSC 201
PHYS 101/101L	College Physics I + Lab	3+1	
ARAB 101	Arabic Communication Skills	3	
Total Credits		17	

Year II

Third Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
CSC 212	Algorithms and Data Structure	3	CSC 102
CEN 221	Computer Organization and Assembly Language	3	CSC 212
CEN 221L	Computer Organization and Assembly Language Lab	1	CSC 212, CEN 221
STAT 230	Probability and Statistics	3	MATH 201
MATH 201	Calculus and Analytic Geometry III	3	MATH 102
ENGL 203	Advanced Academic English I	3	ENGL 102
Total Credits		16	

Fourth Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
CSC 356	Design and Analysis of Algorithms	3	CSC 212
CSC 377	Database Systems	3	CSC 356
CSC 371	Introduction to Linux Operating Systems	3	CEN 221
CSC 371L	Introduction to Linux Operating Systems Lab	1	CSC 371
MATH 211	Discrete Mathematics	3	
SOCS 201	Islamic Civilizations II	3	SOCS 101
Total Credits		16	

Year III**Fifth Semester (15 Credit Hours)**

Course	Title	Credits	Prerequisites
CSC 384	Computer Networks	3	CEN 221, CSC 356
CSC 358	Programming Languages	3	CSC 212
MATH215	Linear Algebra and Numerical Techniques	3	MATH 102
CSC 357	Theory of Computation	3	MATH 211, CSC 212
	Computer Science Elective	3	
Total Credits		15	

Sixth Semester (15 Credit Hours)

Course	Title	Credits	Prerequisites
CSC 372	Operating Systems	3	CEN 221+ CSC 356
CSC 382	Software Engineering	3	CEN 221, CSC 358 , CSC 377
ENGL 206	Technical Writing	3	ENGL 203
	Computer Science Elective	3	
	Free elective	3	
Total Credits		15	

Summer Semester (1 Credit Hours)

Course	Title	Credits	Prerequisites
CSC 398	Internship	1	
Total Credits		1	

Year IV**Seventh Semester (17 Credit Hours)**

Course	Title	Credits	Prerequisites
CSC 360	Internet Programming and Web Design	3	CEN 221 + CSC 356
CSC 360L	Internet Programming and Web Design	1	CSC 360
CSC 492	Computing Ethics	3	Senior Standing
CSC 498	Final Year Project I	1	Senior Standing
	Computer Science Elective	3	
	Computer Science Elective	3	
	Free Elective	3	
Total Credits		17	

Eighth Semester (15 Credit Hours)

Course	Title	Credits	Prerequisites
CSC 499	Final Year Project II	3	CSC 498
ARAB 201	Advanced Academic Arabic	3	ARAB 101
SOCS 202	World Civilizations	3	SOCS 101
	Computer Science Elective	3	
	Natural Science Elective	3	
Total Credits		15	

Total Program Credits**128***

*Completion of the Bachelor of Computer Science Degree

Course Description

CSC 100 Introduction to Computing 3(3, 0, 0)⁸

This course is an introduction to computers and their applications. Common applications are considered in word processing, spreadsheets, presentation, and database systems. This course also includes introduction to number systems, concepts of Algorithms, and an introduction to the Internet and the World Wide Web. This course provides an introduction to programming. Prerequisite: None.

CSC 101 Introduction to Computing for Engineers 3(3, 0, 0)

This course includes the following topics: an overview of electrical engineering as a profession; introduction to the use of different CAD tools (e.g., SPICE, MATLAB, LabVIEW and basic laboratory instruments) in areas of Electrical Engineering such as circuits, electromagnetic fields, energy, machines, signal processing, communications, and control.

CSC 102/ELEE 230 Computer Programming I 3(3, 0, 0)

Introduction to computer science with emphasis on problem solving, programming and algorithm design; use of a high-level programming language for solving problems and emphasizing program design and development; topics include basic programming constructs, expressions, conditional statements, loop statements, functions, classes and objects, data types, arrays, and strings. Prerequisite: None.

CSC 102L Computer Programming I Lab 1(0, 0, 2)

Laboratory experiments to cover CSC 102 material. Pre- or co-requisite: CSC 102.

CSC 201 Computer Programming II 3(3, 0, 0)

Introduction to the following object-oriented programming concepts: Object-oriented design; abstraction, encapsulation and information hiding; classes; separation of behavior and implementation; class hierarchies; inheritance; and polymorphism; constructor and accessory concepts; overloading principles. Prerequisite: CSC 102.

CSC 201L Computer Programming II Lab 1(0, 0, 2)

This Lab complements the contents of CSC 201. Pre- or co-requisite: CSC 201.

CSC 212 Algorithms and Data Structures 3(3, 0, 0)

This course covers basic data structures and related algorithms. It includes detailed studies of data structures and data abstraction such as queues, linked lists, hashing techniques, trees, data structure for representing graphs with emphasis on algorithm design and programming techniques in large programs; introduction to program complexity and verification as well as fundamental algorithms and their implementation for sorting, searching, merging, hashing, graph theoretic models, and recursive procedures. Prerequisite: CSC 102.

⁸ Credits (Lecture, Tutorial, Lab)

- CSC 356/CEN 432 Design and Analysis of Algorithms 3(3, 0, 0)**
 Techniques of the design and analysis of efficient algorithms and advanced data structures: asymptotic analysis, divide and conquer, greedy algorithms, dynamic programming, and optimization algorithms. This course includes an introduction to NP-Completeness; application to searching, sorting, graphs, matrices, and set manipulation. Prerequisite: CSC 212.
- CSC 357 Theory of Computation 3(3, 0, 0)**
 Introduction to formal languages and computational models: finite automata, pushdown automata, Turing machines, undecidability, recursive, recursively enumerable functions, and an introduction to Computability and Complexity; applications to compiler design and text processing. Prerequisites: MATH 211 and CSC 212.
- CSC 358 Programming Languages 3(3, 0, 0)**
 Comparative study of the design and implementation of advanced programming language features in imperative, scripting, object-oriented, functional, logic, and visual languages. Formal methods for syntactic and semantic description of imperative programming languages are examined. Statement types, data types, variable binding, method binding, and backtracking mechanisms; functional programming language (Haskell or LISP) or logic programming language (Prolog or LISP) with associated Lab. Prerequisite: CSC 212.
- CSC 360 Internet Programming and Web Design 3(3, 0, 0)**
 Hands-on approach in understanding how medium-sized interactive client/server Web applications are built using different types of integrated Web technologies; implementation of a database-driven website, relevant technologies involved in each tier of the web architectural model; accessibility of Web agents and end-users, Web caching and proxy techniques, and security issues and strategies of Web-based applications; operational concepts of the internet and the web, static and client content, dynamically served content, and n-tiered architecture. Prerequisites: CEN 221 and CSC 356.
- CSC 360L Internet Programming and Web Design Lab 1(0, 0, 2)**
 Laboratory experience to complement CSC 360 material Co requisites: CSC 360
- CSC 371 Introduction to Linux Operating Systems 3(3, 0, 0)**
 Essentials of the Linux Operating Systems and Inter-process Process Communications: Linux graphical environments, terminal interfaces and bash, the file system, file manipulation commands, networking tools, and system administration tools; It also covers programming under Linux with emphasis on concurrency, communications. Hands-on exercises are important to reinforce the lectures. Prerequisite: CEN 221.
- CSC 371L Introduction to Linux Operating Systems Lab 1(0, 0, 2)**
 Lab experience to complement CSC 371. Co-requisite: CSC 371.
- CSC 372/CEN360 Operating Systems 3(2, 0, 0)**
 An overview of operating systems: operating system principles, scheduling and resource management, virtual memory, file systems, concurrent processing and synchronization, Deadlocks,

codes and responsibilities, software piracy, the impact of computers on society, and proliferation of Computers in our World (Education, Medicine, e-government, e-learning. etc.) Prerequisite: Senior standing¹⁴.

CSC 398 Internship/Practicum 1(0, 1, 0)

This is an eight to twelve-week professional training course in computer science. Pre-requisite: Senior standing⁹.

CSC 498 Final Year Project in Computer Science I 1 (0, 1, 0)

A significant teamwork project experience to integrate much of the material learned in lead-up courses including applications of computer science in various domains. This course involves project selection, literature survey, preparation of the necessary materials for the specific project to be accomplished in CSC 499. Prerequisite: Senior standing.

CSC 499 Final Year Project in Computer Science II 3 (0, 3, 0)

Continuation of CSC 399: significant project team experience that integrates material learned in lead-up courses, including applications of computer science in various domains. Prerequisite: CSC 498.

Elective Courses

CSC 262 Introduction to Multimedia Concepts 3(3, 0, 0)

Concepts of multimedia: principles of graphics, sound, video, and animation; scripting techniques; use of contemporary multimedia programs to develop and create an interactive multimedia project. Prerequisite: CSC 212

CSC 351 Discrete Mathematics for Computer Science 3(3, 0, 0)

Survey of logic and set theory, mathematical induction, number theory, relations, functions, algebraic structures, advanced counting and introductory graph theory. Prerequisite: MATH 211, STAT 230, and CSC 212.

CSC 359 Parallel Computing 3(3, 0, 0)

Essentials of parallel computers and associated programming methodology; basic architecture of parallel computers including shared memory, message passing, meshes, and hyper-cubes; basic techniques of parallel computations, portioning and divide-conquer; basic algorithms such as searching algorithms, numerical algorithms, etc. Prerequisites: CEN 221 and CSC 356.

CSC 363/CEN 320/ELEE 422 Computer Architecture 3(3, 1, 0)

A comprehensive understanding of the structure and function of a computer system from architectural and integration viewpoint focusing on two broad architectural perspectives: the internal perspective, which entails the architecture and design integration of the data path logic, control path

⁹ The student has completed 80 or more credits

CSC 487 Computer Security**3(3, 0, 0)**

Principles, mechanisms and implementation of computer security and data protection; Policy, encryption and authentication, access control and integrity models and mechanisms; network security; secure systems; programming and vulnerabilities analysis. Study of an existing operating system. Pre-requisite: Consent of instructor.

CSC 488 System Programming**3(3, 0, 0)**

Components of computer hardware such as processor, data paths and control, and memory design taking into consideration the performance evaluation; Basic principles involved in instruction set architecture and design using assembly coding; advanced techniques in computer organization - pipelining, multiprocessors, multiprocessors on-chip, and network on-chip. Pre-requisite: Consent of instructor.

COMPUTER ENGINEERING PROGRAM (CEN)

The CEN curriculum is a four-year program designed to grant students the Bachelor of Engineering Sciences (BES) degree upon the successful completion of the requirements. The first common year with College of Engineering majors allows students to switch between the engineering majors at the start of the second year of their study.

Mission

The mission of the undergraduate program in Computer Engineering is to impart a basic understanding of computer engineering built on a foundation of mathematics, physical sciences, and technology; to expose students to practical and major design experiences; and to provide students with a global perspective and an awareness of their leadership role in regional development.

Objectives

Graduates of the Bachelor of Engineering Sciences (BES) in CEN program:

1. Possess skills and knowledge that qualify them for professional practice in computer engineering and for admission to reputable graduate programs.
2. Are capable of applying fundamental knowledge, appropriate mathematical principles and computing tools, critical thinking, and best practices in computer engineering analysis and design.
3. Are provided with an educational foundation that fosters creativity, team work, leadership, and communication skills, and prepares them for life-long learning along diverse career paths.
4. Have an appreciation of technical, social, economic, environmental, ethical, and global aspects of engineering practice.

Learning Outcomes

By the time of graduation, students with a BES in CEN will be expected to demonstrate:

- a. Ability to apply knowledge of mathematics, science, and engineering;
- b. Ability to design and conduct experiments, as well as to analyze and interpret data;
- c. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, ethical, health and safety, manufacturability, and sustainability;
- d. Ability to function on multi-disciplinary teams;
- e. Ability to identify, formulate, and solve engineering problems;
- f. An understanding of professional and ethical responsibility;
- g. Ability to communicate effectively;
- h. Attaining a 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. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;
- l. Knowledge of Probability and Statistics;
- m. Knowledge of Discrete Mathematics;
- n. Knowledge of mathematics, basic sciences, computer sciences, and engineering sciences necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components.

Degree Requirement

To graduate with a Bachelor of Engineering Science (BES) in Computer Engineering, students must satisfactorily complete a four year program consisting of 134 credit hours distributed as follows:

• University Requirements	30 Credits
• College Requirements	27 Credits
• Computer Engineering Requirements	77 Credits
Total	134 Credits

University Requirements

Students working towards the BES degrees must complete a total of 30 credit hours in University requirements. The 30 credit hours in University general educational requirements for BS programs are as follows:

- 6 credits of Arabic: ARAB 101 and ARAB 201
- 9 credits of English communication skills: ENGL 101, 102, and 203
- 9 credits of social and cultural studies: SOCS 101, 201, and 202
- 3 credits of computing essentials: CSC 100
- 3 credits of mathematics: MATH 101

College Requirements

The College requirements consist of 27 credits distributed as follows:

- 4 credits of physics: PHYS 101 and PHYS 101L
- 3 credits of Mathematics: MATH 102
- 3 credits of statistics: STAT 230
- 3 credits of technical English writing: ENGL 206
- 11 credits of computing: CSC 102, CSC 102L, CSC 212, CEN 221, CEN 221L
- 3 credits in computing ethics: CSC 492

Program Requirements

The computer engineering program requirements consist of 77 credits. The courses in this group include 63 required credits, 13 elective credits, and 1 credit for internship.

The required courses are:

- 30 credits of Computer Engineering courses: CEN 220, CEN 240, CEN 320, CEN 321, CEN 322L, CEN 330, CEN 340, CEN 350, CEN 360, CEN 498, CEN 499, and CEN 440L.
- 12 credits of Mathematics: MATH 201, 202, 211, 215
- 4 credits of Chemistry: CHEM 101, CHEM 101L
- 10 credits of Electrical Engineering courses: ELEE 210, 210L, 240, 250
- 4 credits of Physics: PHYS 102 and 102L
- 3 credits of Engineering Economy: COEN 300

The elective courses include:

- 9 credits of Computer Engineering electives
- 3 credit hours of Free electives
- 1 credit of lab elective

The internship course:

- 1 credit for internship

BES-CEN Program Study Plan

(134 Credits)

Year I

First Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 101	Basic Academic English I	3	
MATH 101	Calculus I	3	
PHYS 101/101L	College Physics I + Lab	3+1	
CSC 100	Introduction to Computing	3	
SOCS 101	Islamic Civilization I	3	
Total Credits		16	

Second Semester (17 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 102	Basic Academic English II	3	ENGL 101
MATH 102	Calculus II	3	MATH 101
PHYS 102/102L	College Physics II + Lab	3+1	PHYS 101
CHEM 101/101L	College Chemistry + Lab	3+1	
ARAB 101	Basic Academic Arabic	3	
Total Credits		17	

Summer Semester (6 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 203	Advanced Academic English I	3	ENGL 102
SOCS 201	Islamic Civilizations II	3	SOCS 101
Total Credits		6	

Year II

Third Semester (17 Credit Hours)

Course	Title	Credits	Prerequisites
MATH 201	Calculus and Analytic Geometry III	3	MATH 102
MATH 211	Discrete Mathematics	3	
ELEE 210/210L	Electric Circuits I + Lab	3+1	PHYS 102
CEN 220	Logic Design	3	
CSC 102/102L	Computer Programming I and Computer Lab	3+1	
Total Credits		17	

Fourth Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
MATH 202	Differential Equations	3	MATH 201
CEN 221/221L	Computer Organization + Lab	3+1	CSC212 (pre/co)
ELEE 250	Electric Circuits II	3	ELEE 210
CSC 212	Algorithms and Data Structures	3	CSC 102
CEN 240	Digital Communications and Signal Processing	3	ELEE 250 (pre/co)

Total Credits**16****Year III****Fifth Semester (15 Credit Hours)**

Course	Title	Credits	Prerequisites
STAT 230	Probability and Statistics	3	MATH 201
ENGL 206	Technical Writing	3	ENGL 203
CEN 320	Computer Architecture	3	CEN 221
ELEE 240	Electronics	3	ELEE 210
CEN 360	Operating Systems	3	CEN 221, CSC 212

Total Credits**15****Sixth Semester (16 Credit Hours)**

Course	Title	Credits	Prerequisites
COEN 300	Engineering Economy	3	STAT 230
MATH 215	Linear Algebra and Numerical Techniques	3	MATH 201
CEN 321	Embedded Systems	3	CEN 221
CEN 322L	Digital Systems Lab	1	CEN 321 (pre/co)
CEN 330	Software Design	3	CSC 212
CEN 340	Computer Networks	3	CEN 240

Total Credits**16****Summer Semester (1 Credit Hours)**

Course	Title	Credits	Prerequisites
CEN 398	Internship	1	

Total Credits**1**

Year IV

Seventh Semester (14 Credit Hours)

Course	Title	Credits	Prerequisites
CEN 498	Final Year Project I	1	Senior Standing
ARAB 201	Advanced Academic Arabic	3	ARAB 101
CSC 492	Computing Ethics	3	Senior Standing
CEN 350	Digital Integrated Circuits	3	ELEE 240
CEN 440L	Networking Lab	1	CEN 340
	Computer Engineering Elective	3	

Total Credits

14

Eighth Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
CEN 499	Final Year Project II	3	CEN 498
SOCS 202	World Civilizations	3	SOCS 101
	Free Elective	3	
	Computer Engineering Elective	3	
	Computer Engineering Elective	3	
	Lab Elective	1	

Total Credits

16

Total Program Credits

134*

*Completion of the Bachelor of Engineering Sciences in Computer Engineering

CEN 330 Software Design 3(3, 0, 1)

Study of the nature of the program development task when many people, modules and versions are involved in designing, developing and maintaining a large program or system; issues addressed include software design, specification, version control, testing, cost estimation and management; study of software systems in different domains such as database systems and HCI systems are also addressed. Prerequisite: CSC 212.

CEN 340/ CSC 384/ELEE 431 Computer Networks 3(3, 1, 0)

This course presents the foundations of computer networks. It includes a top-down view of the layered architectural elements of communication systems: Application Layer, Transport Layer, Network Layer, and the Link Layer. In particular, the emphasis is on the Internet protocols, TCP/IP, client/server systems, packet switching, protocol stacks, queuing theory, application protocols, socket programming, remote service calls, reliable transport (Error detection and recovery, multimedia networking with quality of service and multicasting), UDP, and security. Prerequisites: CEN 240/ CEN 221, CSC 356.

CEN 350/ ELEE 442 Digital Integrated Circuits 3(3, 0, 1)

Study of basic methods of digital integrated circuit design; emphasis will be on structured design methodologies for MOS systems with focus on performance considerations and design methodologies for VLSI IC chips; VLSI CAD tools are used to design and simulate a small CMOS chip. Prerequisite: ELEE 240.

CEN 360 Operating Systems 3(3, 0, 1)

A study of the internal design of operating systems; topics include memory management, multiprogramming, virtual memory, paging and segmentation; job and process scheduling; multiprocessor systems; device and file management; thrashing, cache memory. Prerequisites: CEN 221 and CSC 212.

CEN 398 Summer Internship 1(0, 1, 0)

This is an eight to twelve-week professional training course in computer engineering. Prerequisite: Senior standing.

CEN 440L Networking Laboratory 1(0, 0, 2)

This laboratory course covers the technologies and protocols of the Internet. The experiments cover the Internet Protocol (IP), Address Resolution Protocol (ARP), Internet Control Message Protocol (ICMP), User Datagram Protocol (UDP) and Transmission Control Protocol (TCP), the Domain Name System (DNS), routing protocols (RIP, OSPF, BGP), network address translation (NAT), dynamic host configuration (DHCP), network management protocols (SNMP), and IP multicast. Prerequisite: CEN 340.

CEN 498 Final Year Project I 1 (0, 1, 0)

A supervised project in groups of normally three students aimed at providing practical experience in some aspect of computer engineering. Students are expected to complete a literature survey, project

ELEE 250 Electric Circuits II 3(3, 1, 0)

A course on Laplace transform and its use in circuit analysis; s-domain representation; network functions; transient response of RC, RL, and RLC circuits; frequency-selective circuits; Bode plots; two-port networks; ideal op-amp; active filters; circuit simulation using SPICE. Prerequisite: ELEE 210.

Elective Courses

CEN 403 Special Topics in Computer Engineering 3(3,0 ,0)

This course covers contemporary topics of interest to students. Prerequisite: Consent of the instructor.

CEN 410 Computer-Aided Analysis and Design of VLSI Circuits 3(3, 1, 0)

This course covers circuit and logic simulation; timing analysis and verification; testing and fault simulation; logic and high-level synthesis; physical design automation. Prerequisite: CEN 350.

CEN 420/ CSC 385/ ELEE 421 Computer Graphics 3(3, 1, 0)

A course on interactive graphics; graphics hardware; graphical input devices; windowing; clipping; viewports; zooming, geometrical transformations (2D and 3D); data structures; advanced raster display architectures; raster algorithms; special graphics techniques; applications. Prerequisite: CSC 102/ ELEE 230.

CEN 421 Advanced Computer Architecture 3(3, 1, 0)

A course that focuses on the allocation of hardware and software resources in solving large-scale computing problems, with emphasis on the relationships between hardware organization, system programming, and language support in the evolution of advanced computer architectures. Prerequisite: CEN 320.

CEN 422 VLSI for Communications and Signal Processing 3(3,1, 0)

This course introduces concepts in the design and implementation of digital signal processing systems using integrated circuits. The main emphasis is on the architectural exploration, design and optimization of signal processing systems for communications. Algorithm, architecture, and circuit design techniques will be introduced that enable joint optimization across the algorithmic, architectural and circuit domains. Prerequisite: CEN 350.

CEN 423 Reconfigurable Computing 3(3, 1, 0)

A course dealing with the design issues pertaining to the implementation of application specific architectures using the reconfigurable computing paradigm allowing the same circuit to be reused in order to run different applications. Emphasis will be on the systematic design of reconfigurable computing platforms that exploit a high degree of parallelism. Prerequisite: CEN 320.

CEN 424 Digital Systems Testing 3(3, 1, 0)

A course on digital systems testing and testable design; test economics, fault modeling, logic and fault simulation, testability measures, test generation for combinational and sequential circuits, memory test, delay test, scan design, built-in self test, and boundary scan. Prerequisite: CEN 220.

CEN 425 Advanced Embedded Systems 3(3,1, 0)

This course covers embedded hardware and software design; system design process requirements: analysis, specification, hardware/software co-design, testing; Embedded computing platforms: general- and special-purpose processors, hardware accelerators, systems-on-a-chip, intellectual property (IP) core-based design, embedded networks; Software design tools and technologies: CAD tools, compilers, and assemblers. Hardware design tools and technologies: hardware-description languages, high-level synthesis tools, ASIC and FPGA design flows; Real-time operating systems: multiple tasks and processes, context switching, task scheduling, inter-process communication mechanisms. Prerequisite: CEN 321.

CEN 426 Computer System Analysis 3(3, 1, 0)

This course focuses on the development of analytical models of computer systems and application of such models to performance evaluation. Topics covered include scheduling policies, paging algorithms, multi-programmed resource management, and queuing theory. Prerequisite: CEN 320.

CEN 430 Database Systems 3(3, 1, 0)

A course that covers the nature and purposes of database systems and an introduction to data modeling: entity relationship model, relational model with relational algebra, relational calculus and SQL; integrity constraints; file organization and index files; and normalization. Prerequisite: CEN 330.

CEN 431 Distributed and Object Database Systems 3(3, 1,0)

Fragmentation, replication and allocation; strategies used in executing distributed queries subject to given criteria and the commit protocols for managing transactions in a distributed environment; parallel database implementations and the design of object database management systems; designing distributed database systems using a design project that requires the implementation of low level functionality associated with the functions of distributed database system. Prerequisite: CEN 430.

CEN 432 Design and Analysis of Algorithms 3(3, 1, 0)

Sorting algorithms including merge-sort, quick-sort, and counting-sort; median and order statistics algorithms; sorting lower bound; divide-and-conquer design strategy; polynomial and matrix multiplication algorithms; balanced search trees; hash tables; augmenting data structures; number-theoretic algorithms; dynamic programming; greedy algorithms; graph algorithms including graph traversal algorithms and applications, minimum spanning tree, shortest path algorithms; distributed algorithms; introduction to NP-completeness and intractability. Prerequisite: CSC 212.

CEN 433 Advanced Topics in Algorithms 3(3, 1, 0)
General principles of algorithm design and analysis; linear programming; randomized algorithms; advanced graph algorithms; NP completeness; introduction to complexity theory; approximation algorithms; number theoretic algorithms; selected topics. Prerequisite: CEN 432.

CEN 434 Cryptography and Computer Security 3(3, 1, 0)
Overview of encryption and computer security; classical encryption techniques, block ciphers and the data encryption standard, finite fields, advanced encryption standard, confidentiality using symmetric encryption, public-key cryptography, key management, hash and MAC algorithms, digital signatures; authentication applications, intruders, and malicious software. Prerequisite: Senior standing.

CEN 435 Optimizing Compilers 3(3, 1, 0)
This course covers theoretical and practical aspects of building modern optimizing compilers. Topics: intermediate representations, basic blocks and flow graphs, data flow analysis, partial evaluation and redundancy elimination, loop optimizations, register allocation, instruction scheduling, and inter-procedural analysis. Students will implement significant optimizations within the framework of a modern research compiler. Prerequisites: CSC 212 and CEN 320.

CEN 441/ELEE 472 Information Theory 3(3, 1, 0)
This course introduces the field of information theory and its applications to communications theory, computer science, statistics, and probability theory. Covering all the essential topics in information theory, we introduce the basic quantities of entropy, relative entropy, and mutual information, and show how they arise as natural answers to questions of data compression, channel capacity, rate distortion, and hypothesis testing; Shannon's fundamental coding theorem. Prerequisites: STAT 230 and MATH 215. Should be CEN 240

CEN 442/ ELEE 473 Coding Theory 3(3, 1, 0)
This course introduces the theory of error-correcting codes. The course will focus on results of asymptotic or algorithmic significance. Topics include: construction and existence results for error-correcting codes; limitations on the combinatorial performance of error-correcting codes; BCH codes, Reed-Solomon codes; low density parity check codes; algebraic geometric codes; Turbo codes; and decoding algorithms; unique and soft decoding; applications in computer engineering such as: computer storage, compact disk player, satellite communications, bandwidth-limited systems. Prerequisites: STAT 230 and MATH 215.

CEN 447 Queuing Theory 3(3, 1, 0)
Poisson counting and renewal processes; Markov chains and decision theory, branching processes, birth death processes, and semi-Markov processes; simple Markovian queues, networks of queues, general single and multiple-server queues, bounds and approximations. Prerequisite: Senior standing. Should be STAT230, CEN340

- CEN 450 Client-Server Computing 3(3, 1, 0)**
 Internet and intranet technologies; the client-server model of interaction; design and implementation of clients and servers; interactive and concurrent servers; distributed computing; application gateways; design project. Prerequisite: CEN 340.
- CEN 451 Internet Engineering 3(3, 1, 0)**
 Examining major protocols used in Internet: IP, ICMP, TCP, UDP; new technologies introduced on the Internet: IP Multicast, Mobile IP, IPv6, VPNs, and quality of service; routing on the Internet; network security and firewall design; overview of the application protocols: SMTP, HTTP, RTP, and SNMP. Prerequisite: CEN 340.
- CEN 452 Web Server Design and Programming 3(3, 1, 0)**
 Major technologies used in building Web servers. Alternate versions are to be given each year: The Windows-based IIS Server and the Linux-based Apache server. For IIS, ASP.NET along with C# will be used for programming Web servers. For Apache, PHP will be the language of choice. The course starts with a fast track on client programming, the HTTP protocol, SQL database servers, and XML programming. Prerequisite: Senior standing.
- CEN 453 Multimedia and Networking 3(3, 1, 0)**
 Multimedia topics: system requirements, performance requirements, representation and compression; Multimedia networking is emphasized by discussing multicasting, streaming, multimedia networking protocols and quality of service based traffic management protocols; synchronization, VoIP, and Internet2; Multimedia networking applications are designed and implemented as student projects. Prerequisite: CEN 340.
- CEN 454 Pervasive Computing Systems and Applications 3(3, 1, 0)**
 Technologies involved in integrating front-end mobile devices into local and global networks.; emphasis is placed on the programmability and networking of mobile phones, PDAs, and Pocket PCs; hands on experience involve programming in Java2 ME, C/C++ for Palm OS, and .NET Compact Framework for Windows CE; general coverage of underlying technologies and standards: XML, WAP, UMTS, GPRS, Bluetooth, and Jini. Prerequisite: Senior standing.
- CEN 491/ ELEE 451 Digital Signal Processing 3(3, 1, 0)**
 Revision of signals, systems, and transforms; design of Digital Filters: FIR and IIR; sampling and reconstruction of signals; multi-rate signal processing with applications; effects of finite word length; discrete random signals and Spectral Estimation; introduction to 2D signal and image processing. Prerequisite: CEN 240/ELEE 350.
- CEN 493 Neural Networks 3(3, 1, 0)**
 Perceptron, Madeline, back propagation, and adaptive neural networks; transformation by layered networks, statistical neuro-dynamics, associative memory, and neural learning; applications to functional approximations, signal filtering, and pattern classification. Prerequisite: Senior standing.

CEN 494/ ELEE 454 Digital Image Processing

3(3, 1,0)

Two-dimensional signals and systems; image formation and perception; representation, coding, filtering restoration, and enhancements; feature extraction and scene analysis; introduction to computer vision. Prerequisite: CEN 240CEN 491.



جامعة فهد بن سلطان
Fahad Bin Sultan University

College of Engineering

College of Engineering

Officers of the College

Acting Dean:	Hassan Tantawi
Associate Professors:	Omar Hattamleh, Hassan Tantawi
Assistant Professors:	Jihad Baghdadi, Shaker Bitar, Moustapha Doumiati, Hicham H. Hallal, Yazan Issa
Instructors:	Mohammad Akhtar, Yazan Gharaibeh, Omar Otoom, Khalid Al Zaarir
Lab Assistant:	Ayman Al-Qudah

Mission

The mission of the College of Engineering at FBSU is to graduate high quality engineering students and to produce cutting-edge research leading to innovative technology for the benefit of society, locally and globally.

At the college of engineering, we believe in equipping students with the necessary skills to advance the engineering “state of the art” and to become life-long learners, innovators, and professionals capable of being leaders in their chosen careers while being committed to personal integrity and civic responsibility.

Vision

The college of engineering seeks to contribute to the development of the Kingdom of Saudi Arabia and the Gulf region by providing undergraduate education of the highest quality through developing strong programs, enhancing research activities, and disseminating expert engineering culture.

Core Values

The core values that guide the decisions and actions at the college of engineering are:

1. Academic excellence by fostering lifelong excellence in learning, teaching, and research.
2. Collaboration through encouraging teamwork and building partnership across disciplines and with the community.
3. Professionalism and integrity by instilling high engineering ethics and the values of perseverance in industry.

4. Respect, collegiality and civility by appreciating the contribution of everyone at the college and acknowledging his/her indigenous rights and responsibilities.
5. Responsiveness by encouraging feedback from students and faculty members alike
6. Leadership and continuous improvement.

Academic Programs

Currently, the College of Engineering offers the following undergraduate programs:

1. Bachelor in Civil Engineering (BCE)
2. Bachelor in Electrical Engineering (BEE)
3. Bachelor in Mechanical Engineering (BME/ Currently inactive)

Admission Requirements

Applicants to the college of engineering are first admitted to the foundation year program, where they receive a thorough enforcement of their knowledge in mathematics, English, and IT skills. Upon completion of the foundation year program, eligible applicants are selected for admission into the first year of engineering program they choose. Special attention is given to the following factors:

1. Level of proficiency in English
2. Level of proficiency in mathematics and IT skills
3. Academic performance in the subject matters related to engineering

University requirements

Students working towards the Bachelor degrees must complete a total of 30 credit hours in University requirements, which are detailed as follows:

- 6 credit hours of Arabic: ARAB 101 and ARAB 201;
- 9 credit hours of English communication skills: ENGL 101, ENGL 102, and ENGL 203;
- 9 credit hours of social and cultural studies: SOCS 101, SOCS 201, and SOCS 202;
- 3 credit hours of computing for engineers: CSC 101;
- 3 credit hours of mathematics: MATH 101.

College requirements

The College of Engineering requirements for the Bachelor degrees include 41 credit hours detailed as follows:

- 12 credit hours in sciences: PHYS 101/ 101L, PHYS 102/ 102L, and CHEM 101/ 101L;
- 15 credit hours in mathematics and statistics: MATH 102, MATH 201, MATH 202, MATH 215, and STAT 230;
- 3 credit hours in technical writing: ENGL 206;

- 3 credit hours in engineering economy: COEN 300;
- 3 credit hours in engineering ethics: COEN 400.

In addition, Bachelor degree students should complete a 4-credit hour final-year project during the senior year and 1-credit hour, eight-week-minimum internship after they complete their third year.

Program (major) requirements

The specific program requirements for each of the offered programs are shown under the respective department sections. The total number of credit hours required for a Bachelor degree in each of the three programs is:

1. Civil Engineering: 137 credit hours;
2. Electrical Engineering: 134 credit hours;
3. Mechanical Engineering: 135 credit hours.

DEPARTMENT OF CIVIL ENGINEERING

Mission

The mission of the Civil Engineering Department (CE) is to:

- Offer high-quality education that encompasses basic engineering sciences in both the traditional and emerging areas of the discipline;
- Prepare graduates to adapt to global and domestic engineering challenges and changing industry practices;
- Foster student-faculty relationship that enrich teaching and learning;
- Develop scholarship and encourage public service;
- Maintain an academic environment characterized by integrity and respect;
- Prepare graduates for lifelong intellectual and professional development;
- Contribute to economic prosperity of the Kingdom and the region.

Objectives

The Civil Engineering program is designed to achieve the following objectives:

- To impart a sound understanding of the fundamental principles and concepts of civil engineering.
- To develop the mathematical, scientific, and computational skills in formulating and solving civil and environmental engineering problems.
- To cultivate the skills pertinent to the engineering design process, conduct of experiment, analysis and interpretation of data.
- To expose students to real-world problems of multi-disciplinary nature while addressing relevant social, environmental, economical and aesthetic concerns.
- To develop effective teamwork and communication skills and prepare students for leading roles in the profession and the community.

Learning Outcomes

Upon graduation, Bachelor holders in CE will be expected to demonstrate:

- Ability to apply knowledge of Mathematics, science and engineering;
- Ability to identify, formulate and solve engineering problems;
- Ability to conduct experiments, analyze and interpret data;
- Ability to design a system, component or process to meet desired needs;
- Ability to use the techniques, skills and modern tools necessary for engineering practice;
- Ability to appreciate the impact of engineering solutions in local and global contexts;
- Ability to function in a team environment;
- Ability to communicate effectively;

- Ability to understand professional and ethical responsibility;
- Knowledge of contemporary issues;
- Ability to engage in life-long learning;
- Experience in engineering practice or undergraduate research.

Civil Engineering Laboratory Facilities

The Civil Engineering Department is furnished with high quality state-of-art laboratories that support research and teaching activities for Structural, Environmental, Hydrology, Surveying and Highway Engineering Programs.

These laboratories extend over an area exceeding 610 m2 and are manned with highly qualified and well-trained personnel. Furthermore, most of the lab equipments are support advanced computerized data acquisition systems.

The Department hosts the following eight major laboratories:

1. Soil Mechanics Laboratory;
2. Concrete Laboratory;
3. Aggregate Laboratory;
4. Surveying Laboratory;
5. Fluid Mechanics and Hydraulics Laboratory;
6. Asphalt Laboratory;
7. Environmental Engineering Laboratory;
8. Structures Laboratory.

Career Opportunities

As one of the oldest engineering disciplines, Civil Engineering involves planning, designing and executing structural works. The profession deals with a wide variety of engineering tasks including design, supervision and construction activities of public works like roads, bridges, tunnels, buildings, airports, dams, water works, sewage systems, ports etc.; and offers a multitude of challenging career opportunities.

A civil engineer is responsible for planning, designing, constructing and maintaining civil engineering projects. He is required to have a high standard of engineering knowledge as well as supervisory and administrative skills. The planning part of his work involves site investigation, feasibility studies, creating solutions to complications that may occur and the actual designing of structures. He has to work with the guidelines of the local government authority and get his plans approved by them. He may prepare cost estimates and set construction schedules; deal with clients, architects, contractors etc.; and supervise the work according to standards.

Demand for civil engineers has been consistently high during the last decades particularly in the Gulf region where engineers have been involved primarily in large development projects. The emerging construction activity offers ever increasing and expanding opportunities for civil engineers.

The Civil Engineering Department is committed to providing its students with meaningful, up-to-date skills and knowledge that will allow them to pursue successful engineering careers within Tabuk and across the Gulf region.

Curriculum and Program Structure

The curriculum is designed to comply with the requirements of ABET accreditation. It includes courses in basic sciences and mathematics, engineering sciences, engineering design, communication skills, and humanities and social sciences. Lab hands-on experience and emphasis on design are important elements that are integrated throughout the curriculum.

The requirements of the BCE include:

- At least 30 credit hours of mathematics and basic sciences,
- At least 66 credit hours of engineering sciences and engineering design, and
- At least 15 credit hours of social sciences and humanities, excluding language and technical writing courses.

The curriculum is designed to grant students the Bachelor degree upon the successful completion of the four-year program. The first year is shared with all engineering majors in order to allow students to transfer from one major to another without losing any credits earned in the first year.

Final Year Project

As part of their fourth year, students are required to carry out a project and submit a technical report. This project is a substantial piece of work that will require creative activity and original thinking. Students in groups, normally three per group, are supervised while working on a project accounting for four credit hours, extending over a full academic year. The project aims to provide students with a transitional experience from the academic world to the professional world. It is designed to serve as a platform in which CE students in teams engage in a practical design experience requiring the solution of civil engineering design problems.

The objectives of the final year project are:

- To allow students to demonstrate a wide range of the skills learned at the College of Engineering during their course of study by asking them to deliver a complete and original design for a Civil Engineering scheme.
- To encourage work on multidisciplinary projects, where students get to apply material learned in a number of courses.
- To allow students to develop problem solving, analysis, synthesis, evaluation and design skills.
- To encourage teamwork.
- To improve students' communication skills by asking them to produce both a professional report and a professional poster and to give an oral presentation of their work.
- The project is important for a number of reasons:
- It is the largest single piece of design work that a student does during his/her Bachelor degree program.

- It is the work that prospective employers will most likely ask students about during an interview.
- It allows students to show a range of the skills they have learned during their course of study.

Practical Training Internship

All engineering students are required to fulfill a 1-credit hour internship period of 8 to 12 weeks. This graduation requirement entails that each student gains practical training experience during the last summer term, or in the last regular term, prior to graduation with either a company or another academic institution.

Degree Requirements

To graduate with a Bachelor Degree in Civil Engineering (BCE), students must satisfactorily complete 137 credit hours. The distribution of courses in the proposed study plan is as follows:

University requirements

The University requirements for the Bachelor degree in CE total 30 credit hours and are distributed as follows:

- 6 credit hours of Arabic: ARAB 101 and ARAB 201;
- 9 credit hours of English communication skills: ENGL 101, ENGL 102, and ENGL 203;
- 9 credit hours of social and cultural studies: SOCS 101, SOCS 201, and SOCS 202;
- 3 credit hours of computing for engineers: CSC 101;
- 3 credit hours of mathematics: MATH 101.

College requirements

The College of Engineering requirements for the Bachelor degree in CE total 41 and are distributed as follows:

- 12 credit hours in basic sciences: PHYS 101/ 101L, PHYS 102/ 102L, and CHEM 101/ 101L;
- 15 credit hours in mathematics: MATH 102, MATH 201, MATH 202, MATH 215, and STAT 230;
- 3 credit hours in technical writing: ENGL 206;
- 3 credit hours in engineering economy: COEN 300;
- 3 credit hours in engineering ethics: COEN 400;
- 4 credit hour final-year project during the senior year: CIVE 401 and CIVE 402;
- 1 credit hour internship (CIVE 400) after completing 41 credits of College requirements.

Program requirements

The program requirements for the BCE total 66 credit hours and are distributed as follows:

- 51 credit hours for the courses: CIVE 210, CIVE 211, CIVE 220, CIVE 220L, CIVE 240, CIVE 240L, CIVE 250, CIVE 260, CIVE 310, CIVE 320, CIVE 330, CIVE 330L, CIVE 340, CIVE 351, CIVE 360, CIVE 460, and CIVE 480; ELEE 230; MECH 200 and MECH 211;
- Four 3-credit hour electives from Civil Engineering;
- One 3-credit hour free elective Course.

Study Plan for the BCE Degree

(137Credit Hours)

Year I

First Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 101	Basic Academic English I	3	-
MATH 101	Calculus I	3	-
PHYS 101/101L	College Physics I + Lab	3+1	MATH 101 (co)-
CSC 101	Introduction to Computing for Engineers	3	-
SOCS 101	Islamic Civilization I	3	-

Total Credits 16

Second Semester (17 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 102	Basic Academic English II	3	ENGL 101
MATH 102	Calculus II	3	MATH 101
PHYS 102/102L	College Physics II + Lab	3+1	PHYS 101
CHEM 101/101L	College Chemistry + Lab	3+1	-
ARAB101	Basic Academic Arabic	3	-

Total Credits 17

Summer Semester I (6 Credit Hours)

Course	Title	Credits	Prerequisites
SOCS 201	Islamic Civilizations II	3	SOCS 101
SOCS 202	World Civilizations	3	

Total Credits 6

Year II

Third Semester (18 Credit Hours)

Course	Title	Credits	Prerequisites
MATH 201	Calculus & Analytic Geometry III	3	MATH 102
CIVE 210	Statics	3	MATH 102
MECH 211	Thermodynamics	2	
CIVE 260	Spatial Measurements	2	
CIVE 250	Environmental Engineering	3	CHEM 101
ENGL 203	Advanced Academic English I	3	ENGL 102
MECH 200	Engineering Graphics	2	

Total Credits 18

Fourth Semester (17 Credit Hours)

Course	Title	Credits	Prerequisites
MATH 202	Differential Equations	3	MATH 201
CIVE 211	Structural Mechanics	3	CIVE 210
CIVE 220/220L	Engineering Materials + Lab	3+1	
CIVE 240/240L	Fluid Mechanics +LAB	3+1	MECH 211
STAT 230	Probability and Statistics	3	MATH 201
Total Credits		17	

Year III**Fifth Semester (18 Credit Hours)**

Course	Title	Credits	Prerequisites
MATH 215	Linear Algebra and Numerical Techniques	3	MATH 102
ENGL 206	Technical Writing	3	ENGL 203
CIVE 310	Structural Analysis	3	CIVE 211
CIVE 340	Engineering Hydrology	3	CIVE 240
CIVE 351	Water and Wastewater Treatment and Laboratory	3	CIVE 250
ELEE 230	Programming for Engineers	3	CSC 101
Total Credits		18	

Sixth Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
ARAB 201	Advanced Academic Arabic	3	ARAB 101
COEN 300	Engineering Economy	3	STAT 230
CIVE 320	Concrete I	3	CIVE 211
CIVE 330/330L	Geotechnical Engineering + LAB	3+1	CIVE 211
CIVE 360	Transportation Engineering	3	CIVE 260
ARAB 201	Advanced Academic Arabic	3	ARAB 101
Total Credits		16	

Summer Semester II (1 Credit Hours)

Course	Title	Credits	Prerequisites
CIVE 400	Internship for ELEE Students	1	
Total Credits		1	

Year IV

Seventh Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
CIVE 401	Final Year Project I	1	
CIVE 480	Construction Management	3	COEN 300
CIVE 460	Highway Engineering	3	CIVE 360
CIVE Elective		3	
CIVE Elective		3	
Free Elective		3	

Total Credits

16

Eighth Semester (12 Credit Hours)

Course	Title	Credits	Prerequisites
CIVE 402	Final Year Project II	3	CIVE 401
COEN 400	Engineering Ethics	3	
CIVE Elective		3	
CIVE Elective		3	

Total Credits

12

Total Program Credits

137*

*Completion of Bachelor degree in Civil Engineering

CIVE 400 Internship for CE Students (1cr.)

An eight- to twelve-week professional training course in Civil Engineering. Prerequisite: Senior standing and ENGL 206.

CIVE 401 Final Year Project I (1 cr.)

A chosen design topic of wide range of civil engineering application including structural, geotechnical, transportation, highway, material, hydrologic, water resources and environment and preparation of a detailed execution program for CIVE 402, through Define the project, State the objectives, Complete a literature survey, Set project specifications and master plan, Select a design method or experimental matrix. Prerequisite: Senior standing and ENGL 206.

CIVE 402 Final Year Project II (3 crs.)

A supervised project in groups of normally three students aimed at providing practical design experience in a civil engineering application. Prerequisite: CIVE 401.

CIVE 460 Highway Engineering 3(3, 0, 0)

A course that examines road vehicle performance; principles of geometric design and highways; horizontal and vertical alignment; earthwork; intersections and interchanges; parking facilities; basic traffic models; queuing theory and traffic analysis; travel demand forecasting. Prerequisite: CIVE 360.

CIVE 480 Construction Management 3(3, 0, 0)

A course on organizing for construction projects; pre-construction activities; bidding and contracts; fundamentals of construction planning, monitoring, and control; application of construction control tools: CPM, materials management, operations analysis, and quality control. Prerequisite: COEN 300.

Elective Courses

Elective Courses - *General*

CIVE 403 Special Topics in Civil Engineering 3(3, 0, 0)

Any selected topic in the state-of-the-art in Civil Engineering. Prerequisite: discretion of advisor.

CIVE 470 Introduction to Geographic Information Systems 3(3, 0, 0)

An introductory course on Geographic Information Systems (GIS) and their applications in the planning and engineering fields, alternatives in computer-based graphics, data concepts and tools, network data management and planning applications, and implementation issues. Prerequisite: CIVE 260

CIVE 481 Specifications and Cost Estimation 3(3, 0, 0)

A course on the structure of construction documents and their interrelationships, bidding requirements; general and particular contract conditions; administrative and procedural requirements

for construction; technical specifications; construction cost estimations process; unit rates determination. Prerequisite: discretion of adviser.

Elective Courses - *Structural*

CIVE 410 Structural Analysis II 3(3, 0, 0)

A course on the solution of statically indeterminate structures by flexibility (force) and stiffness methods for plane and space trusses and frames introduction to the direct stiffness method; influence lines for indeterminate structures; computer applications. Prerequisite: CIVE 310.

CIVE 411 Bridges 3(3, 0, 0)

A course that discusses types of bridges; influence lines; loads and their distribution on bridges; serviceability of bridges; methods of design of bridge deck, superstructure, and substructure. Prerequisites: CIVE 310 and CIVE 320.

CIVE 412 Steel Design 3(3, 0, 0)

A course that examines loads on structures; philosophies of design: LRFD versus ASD; behavior, analysis, and design (according to AISC) of tension members, bolted connections, welded connections, compression members, and beams. Prerequisite: CIVE 310.

CIVE 420 Concrete II 3(3, 0, 0)

A course that builds upon Concrete I and covers continuous beams; wall footings, concentrically and eccentrically loaded single column footings, and combined footings; staircases; bearing walls; cantilever retaining walls; two-way slabs. Prerequisite: CIVE 320.

CIVE 421 Special Topics in Concrete 3(3, 0, 0)

A course that reviews reinforced concrete design; wind load on structures; seismic design of structures; design of shear walls; brackets, corbels, and deep girders; torsion in concrete members; circular, rectangular, and elevated water tanks; spherical, conoidal, and ellipsoidal domes. Prerequisite: CIVE 420.

CIVE 422 Pre-Stressed Concrete 3(3, 0, 0)

A course on materials characteristics; prestress losses; working strength design procedures; composite construction; ultimate flexural strength and behavior; shear design; continuous pre-stressed concrete members. Prerequisite: CIVE 420.

Elective Courses - *Geotechnics*

CIVE 423 Strength and Rehabilitation of Concrete Structural Systems 3(3, 0, 0)

A course on assessment of structural deficiency using analytical and field test methods; strengthening materials; strengthening of structural members in flexure, shear, and axial load; upgrading of gravity load-designed members for earthquake load resistance. Prerequisite: CIVE 320.

CIVE 445 Coastal Engineering 3(3, 0, 0)

A course on small-amplitude wave theory, finite-amplitude wave theory, conoidal waves, solitary wave theory, wave refraction, diffraction, and reflection, wave forces, and design of maritime structures (e.g., breakwaters). Prerequisite: CIVE 240.

CIVE 446 Transport Phenomena in Surface and Subsurface Waters 3(3, 0, 0)

A course on advection, diffusion, and dispersion of pollutants; transport in rivers and estuaries; transport in groundwater; numerical modeling; design of wastewater discharge system. Prerequisite: CIVE 240 and CIVE 250.

CIVE 447 Water Resources Systems: Planning and Management 3(3, 0, 0)

A course that introduces the main concepts and principles of water resources planning and management; logical steps in engineering planning and decision making; water resources systems analysis, modeling, simulation, and optimization; economic and financial analysis; flood protection and reservoir operation; and water resources management case studies. Prerequisite: Senior Standing.

CIVE 448 GIS for Water Resources and Environmental Engineering 3(3, 0, 0)

A course that introduces the concepts and principles of Geographic Information Systems (GIS) from the perspective of water resources and environmental engineering. It provides coverage of state-of-the-art GIS methods and tools, specifically targeting water resources and environmental applications including: spatial and terrain analysis, geo-statistical analysis, watershed delineation and identification of river networks, representation of groundwater and aquifer systems, time series analysis, and development of GIS integrated water and environmental models. Prerequisite: Senior Standing.

Elective Courses – *Environmental*

CIVE 450 Methods of Environmental Sampling and Analysis 3(3, 0, 0)

A course on sampling techniques and instrumental methods in environmental sciences; determination of pollutants in water, air, and soil; analytical techniques; adaptation of procedures to specific matrices; case studies. Prerequisite: CIVE 250.

CIVE 451 Environmental Chemistry and Microbiology 3(3, 0, 0)

A course that deals with organic, inorganic, and physical chemistry; chemical equilibrium; reaction kinetics; acidity, alkalinity; composition, morphology, and classification of microorganisms; energy, metabolism, and synthesis; growth, decay, and kinetics; biological water quality indicators. Prerequisite: CHEM 101.

CIVE 452 Environmental Management and Decision Making 3(3, 0, 0)

A course that deals with mathematical programming techniques, multi-objective optimization, and the generation of alternatives, as these are used in environmental systems analysis and management; as well as introducing how considerations such as economics, uncertainty, equity, and other sociopolitical parameters may influence environmental management and decision-making. Prerequisite: Senior Standing and CIVE 250.

DEPARTMENT OF ELECTRICAL ENGINEERING

Mission

The mission of the Department of Electrical Engineering is to provide undergraduate students with quality education based on a thorough foundation in electrical engineering, mathematics, physical sciences, and technology; to guarantee students an exposure to major research and practical design experiences in electrical engineering; and to enrich the students' academic experience with global perspective and awareness of their leadership role in regional development.

Program Objectives

The Department of Electrical Engineering offers an undergraduate program in Electrical Engineering that has the following main objectives:

1. Provide students with knowledge of the fundamental prerequisites in theory, design, and basic science for a career in electrical engineering.
2. Develop in students a range of skills based on theoretical and practical knowledge as well as specialized training in electrical engineering.
3. Develop in students a professional approach to engineering based on strong communication skills, teamwork, responsibility, and high ethics.
4. Equip students with proper tools to address open research problems in electrical engineering and to explore opportunities to apply the acquired knowledge in industrial settings.

Learning Outcomes

Students who graduate from the Department of Electrical Engineering are expected to possess:

- a) a good command of engineering fundamentals in mathematics and physical sciences necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components,
- b) knowledge of advanced engineering mathematics, probability and statistics, and physics concepts,
- c) the ability to analyze and interpret data to conduct experiments and complete design projects in electrical engineering,
- d) the ability to work in teams,
- e) the ability to identify, formulate, and solve engineering problems,
- f) the ability to communicate effectively,
- g) the ability to engage in life-long learning and to approach research related problems in electrical engineering,
- h) knowledge of contemporary issues in electrical engineering along with the ability to use the techniques, skills, and modern engineering tools necessary for engineering practice,
- i) a clear understanding of the impact of engineering solutions in a global, economic, environmental, and social context, and
- j) the ability to initiate and complete a design project in electrical engineering taking into account realistic constraints including technical, economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

Electrical Engineering Laboratories

In conformance with its mission and educational objectives, the Department of Electrical Engineering provides practical and advanced hands-on experience for students through state-of-the-art instructional and research laboratories including:

1. Circuits Laboratory: to introduce students to fundamental circuit analysis and measurement equipment including simulation based analysis of circuits using packages like PSPICE.
2. Digital Systems Laboratory: to offer students the proper environment, with electronic equipment, computers, and software, to design, implement, and test microprocessor and microcontroller systems.
3. Electronics Laboratory: to allow students to apply classroom instruction and to investigate electronic systems at a component level and perform fundamental tests to understand the principles operating electronic components and devices.
4. Computer-based Laboratories: to allow students an exposure to simulation based analysis of control, electronics, power, and communication systems using the MATLAB software.

Career Opportunities

Modern electrical engineering is a broad and diverse field that rivals all engineering disciplines in its impact on society. The expanding role of electrical engineering in today's society reflects the variety and scope of this exciting profession. Local as well as regional career opportunities now available for electrical engineers span communications companies; hardware companies; consulting offices; design and implementation of electronic systems; electric power industry; biomedical equipment companies; radio and television broadcasting; control and manufacturing; electrical power generation, transmission and distribution; and industrial automation companies.

The Department of Electrical Engineering is committed to provide its students with meaningful, up-to-date skills and knowledge that allow them to pursue successful engineering careers and make deep impacts in their workplace. With these objectives in mind, the Electrical Engineering program is designed around fostering contemporary best practices and skills in line with the job opportunities for electrical engineers primarily within Tabuk and the Gulf region.

Consequently, graduates of the Department of Electrical Engineering are poised to take advantage of numerous job opportunities within the Tabuk province, and in the growing Saudi and Gulf markets.

Curriculum and Program Structure

The curriculum of the Electrical Engineering program is designed to comply with the requirements of major international accreditation bodies including NCAAA and ABET. It includes courses in basic sciences and mathematics, engineering sciences, engineering design, communications skills, and humanities and social sciences. In addition, Lab hands-on experience with emphasis on design is an important element that is integrated throughout the curriculum.

The Electrical Engineering program requirements include:

- 36 credit hours of mathematics and basic sciences,

- 67 credit hours of engineering sciences and engineering design,
- 15 credit hours of social sciences and humanities,
- 12 credit hours of English language and technical writing skills,
- 3 credit hours in engineering ethics, and
- 1 credit hour in practical training.

The curriculum is designed to grant students a Bachelor degree in Electrical Engineering (BEE) upon the successful completion of the four-year program. The first year is shared with all engineering majors, which allows students to transfer from one major to another without losing any credits earned in the first year.

Final Year Project

As part of the fourth year, students are required to carry out a design project in electrical engineering and submit a technical report. The project is a substantial piece of work that will require creative activity, original thinking, and extensive teamwork to complete the usual four phases of projects: initiation, analysis, design and implementation. Approved projects account for four credit hours and extend over a full academic year. Throughout the phases of the project, students work in groups under the supervision of a faculty member. The project aims to provide students with a transitional experience from the academic world to the professional world. It is designed to serve as a platform in which teams of Electrical Engineering students engage in a meaningful design experience requiring the solution of significant and practical engineering design problems. The objectives of the final year project are:

- Allow students to demonstrate a wide range of the skills learned at the College of Engineering during their course of study by asking them to deliver a product that has passed through the design, analysis, testing and evaluation stages.
- Encourage multidisciplinary research through the integration of material learned in a number of courses.
- Allow students to develop problem solving, analysis, synthesis and evaluation skills.
- Encourage teamwork and interaction between students.
- Improve students' communication skills by asking them to produce both a professional report and a professional poster and to give an oral presentation on their work.
- The project is important for a number of reasons:
 - It is the largest single piece of design work that a student does during his/her BE degree.
 - It allows students to specialize in a topic that they enjoy.
 - It is the work that prospective employers will most likely ask students about during interviews.
 - It allows students to show a wide range of the skills learned since the first year.
- Students must demonstrate these skills by delivering a product that has passed through the design, analysis, testing and evaluation stages.

Practical Training/ Internship

All engineering students are required to fulfill a 1-credit hour internship period of 8 to 12 weeks. This graduation requirement entails that each senior student (one who has completed around 80%

of the total credit requirement) gains practical training experience during the summer term prior to graduation, or in the graduation semester, with either a company or an academic institution while involved in a practical experience.

Degree Requirements

To graduate with a Bachelor in Electrical Engineering, students must satisfactorily complete 134 credit hours. The distribution of courses is as follows:

University requirements

A total of 30 credit hours of general educational requirements:

- 6 credits of Arabic language: ARAB 101 and 201
- 9 credits of English communication skills: ENGL 101, 102, and 203
- 9 credits of social and cultural studies: SOCS 101, 201, and 202
- 3 credits of computing basics for engineers: CSC 101
- 3 credits of mathematics: MATH 101

College requirements

Students in the Electrical Engineering department are required to complete a total of 41 credit hours in college requirements distributed as follows:

- 12 credits in physics and chemistry: PHYS 101/101L, PHYS 102/102L, and CHEM 101/101L,
- 15 credits in mathematics: MATH 102, 201, 202, 215, and STAT 230,
- 3 credits in technical writing: ENGL 206,
- 3 credits in engineering ethics: COEN 400, and
- 3 credits in engineering economy: COEN 300.

In addition, Electrical Engineering students should also complete a 4-credit hour final-year project during the senior year (ELEE 498 and 499) and a 1-credit hour internship (ELEE 400).

Program requirements

Electrical Engineering students must complete 63 credit hours in program requirements including the following courses: MECH 210, Math 225, ELEE 210, ELEE 220, ELEE 230, ELEE 240, ELEE 250, ELEE 250L, ELEE 290, ELEE 290L, ELEE 340, ELEE 340L, ELEE 350, ELEE 360, ELEE 380, ELEE 380L, ELEE 390, ELEE 399L, and ELEE 470.

In addition, Electrical Engineering students must take five 3-credit hour electives and 1 one-credit hour elective lab. The accepted electives include:

- 1 course in the area of Electric Machines and Power Systems,
- 1 course in the area of Electromagnetism,
- 2 courses in any Electrical Engineering subject or approved subjects from other departments,
- 1 one-credit hour Electrical Engineering elective laboratory, and
- 1 free elective course in any approved non Electrical Engineering discipline.

Study Plan for the BEE Degree

(134 Credit Hours)

Year I

First Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 101	Basic Academic English I	3	-
MATH 101	Calculus I	3	-
PHYS 101/101L	College Physics I + Lab	3+1	-
CSC 101	Introduction to Computing for Engineers	3	-
SOCS 101	Islamic Civilization I	3	-

Total Credits **16**

Second Semester (17 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 102	Basic Academic English II	3	ENGL 101
MATH 102	Calculus II	3	MATH 101
PHYS 102/102L	College Physics II + Lab	3+1	PHYS 101
CHEM 101/101L	College Chemistry + Lab	3+1	-
ARAB101	Basic Academic Arabic	3	-

Total Credits **17**

Summer Semester I (6 Credit Hours)

Course	Title	Credits	Prerequisites
ENGL 203	Advanced Academic English	3	ENGL 102
SOCS 201	Islamic Civilizations II	3	SOCS 101

Total Credits **6**

Year II

Third Semester (15 Credit Hours)

Course	Title	Credits	Prerequisites
MATH 201	Calculus and Analytic Geometry III	3	MATH 102
MECH 210	Thermodynamics	3	PHYS 102
ELEE 210	Electric Circuits I	3	PHYS 102
ELEE220/CEN220	Logic Design	3	CSC 101
ELEE230/CSC102	Programming for Engineers	3	CSC 101

Total Credits **15**

Fourth Semester (17 Credit Hours)

Course	Title	Credits	Prerequisites
MATH 202	Differential Equations	3	MATH 201
ELEE 240	Electronics	3	ELEE 210
ELEE 250	Electric Circuits II	3	ELEE 210
ELEE 250L	Electric Circuits Lab	1	ELEE 250
ELEE 290	Digital Systems	3	ELEE 220
ELEE 290 L	Digital Systems Lab	1	ELEE 290
STAT 230	Probability and Statistics	3	MATH 201
Total Credits		17	

Year III**Fifth Semester (16 Credit Hours)**

Course	Title	Credits	Prerequisites
ELEE350/CEN240	Signals and Systems	3	MATH 202
ELEE 340L	Electronics Lab	1	ELEE 240
ELEE 360	Electric Machines	3	ELEE 250
COEN 300	Engineering Economy	3	STAT 230
MATH 215	Linear Algebra	3	MATH 201
ENGL 206	Technical Writing	3	ENGL 203
Total Credits		16	

Sixth Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
MATH 225	Differential Equations	3	MATH 215
ELEE 340	Electronic Circuits	3	ELEE 240
ELEE 38	Electronics	3	ELEE 350
ELEE 390	Electromagnetic Field Theory	3	PHYS 102 + MATH 215
ELEE 399L	MATLAB for Engineers	1	MATH 225 + ELEE 230
ARAB 201	Advanced Academic Arabic	3	ARAB 101
Total Credits		16	

Summer Semester II (1 Credit Hours)

Course	Title	Credits	Prerequisites
ELEE 400	Internship for BEE Students	1	ENGL 206
Total Credits		1	

Year IV

Seventh Semester (14 Credit Hours)

Course	Title	Credits	Prerequisites
ELEE 498	Final Year Project I	1	ENGL 206
ELEE 470	Communication Systems	3	ELEE 350 + STAT 230
ELEE 480L	Control Systems Lab	1	ELEE 380
COEN400/CSC 492	Engineering Ethics	3	ENGL 206
ELEE Elective	Machines and Power Systems	3	ELEE 360
ELEE Elective	General ELEE Elective	3	-
Total Credits		14	

Eighth Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
ELEE 499	Final Year Project II	3	ELEE 498
SOCS 202	World Civilizations	3	-
Free Elective		3	-
ELEE Elective	General ELEE Elective	3	-
ELEE Elective	Electromagnetism	3	ELEE 390
ELEE Elective Lab		1	-
Total Credits		16	

Total Program Credits

134*

*Completion of Bachelor degree in Electrical Engineering.

Course Descriptions

ELEE 210 Electric Circuits I 3(3, 0, 0)

A course on fundamentals of electric circuits; basic elements and laws; independent and dependent sources; techniques of circuit analysis: nodal and mesh analysis; circuit theorems: linearity, superposition, source transformation, Thevenin and Norton equivalents; inductors and capacitors. Prerequisite: CSC 101 and PHYS 102.

ELEE 220 Logic Design 3(3, 0, 0)

Number systems and codes, Boolean algebra; combinational circuit design; minimization methods; sequential logic design principles; latches and flip-flops, design of sequential circuits using flip flops, counters and registers; introduction to VHDL. Pre-requisite: CSC 101.

ELEE 230 Programming for Engineers 3(3, 0, 0)

This course introduces the basic concepts and principles of structured and object oriented programming in a high level language. The course also covers basic data types, control structures, methods, arrays, conditional statements, loop statements, functions, classes and objects, recursion, pointers and strings. The course is offered in a computer laboratory. Pre-requisite: CSC 101.

ELEE 240 Electronics 3(3, 0, 0)

A course on semiconductors; semiconductor devices including PN junctions, diodes, Bipolar junction transistors (BJT), MOS field effect transistors (MOSFET), operational amplifiers (OP-AMPS); device characteristics; diode and transistor circuits. The course covers fundamental skills in analysis of electronic circuits: DC biasing, AC small signal analysis, and circuit simulation. Pre-requisite: ELEE 210.

ELEE 250 Electric Circuits II 3(3, 0, 0)

A course on analysis of one-phase AC circuits under steady-state; AC power calculations and power factor correction; transient response of RL, RC and RLC circuits; ideal transformers. Prerequisite: ELEE 210.

ELEE 250L Electric Circuits Laboratory 1(0, 0, 2)

A laboratory course that covers the use of laboratory instruments; passive electronic components; voltage-divider circuits; sources and Thevenin's theorem; RC lead-lag networks, series resonance, and transformers. This lab course also introduces circuit simulation using PSPICE. Co-requisite: ELEE 250.

ELEE 290 Digital Systems 3(3, 0, 0)

Microprocessor and Microcontroller design and applications: internal architecture, programming, interfacing techniques, and performance evaluation. The course includes a design project. Prerequisite: ELEE 220 and ELEE 230.

ELEE 400 Internship for ELEE Students (1 Cr)

This is an eight to twelve-week professional training course in electrical engineering. This course is open for students with senior standing (who have completed around 80% of the total credit requirement) to gain practical training experience during the summer prior to graduation, or during graduation semester, with either a company or an academic institution while involved in a practical experience. Prerequisite: Senior standing and ENGL 206.

ELEE 470 Communication Systems 3(3, 0, 0)

This is an introductory course on modern communication systems. The course covers the following main topics: fundamentals of analog and digital modulation methods; analog to digital conversion and pulse coded modulation; transmission and reception of digital signals; introduction to noise modeling and the effects of channel noise on the performance of analog and digital communication systems. Prerequisites: ELEE 350 and STAT 230.

ELEE 480L Control Lab 1(0, 0, 2)

A laboratory course that covers analysis of linear systems; second order systems; effects of poles and zeros on the transient response; effect of gain on response and stability; compensation implementation. Pre-requisite: ELEE 380.

ELEE 498 Final Year Project I 1(1, 0, 0)

This course is intended to provide students with practical experience in a wide range of electrical engineering applications including electronics, power, control, computer, and communications. Students learn how to initiate a project in an engineering discipline by completing the main tasks: define the project, state the objectives, complete a literature survey, set project specifications, and select a design method. Prerequisite: Senior standing and ENGL 206.

ELEE 499 Final Year Project II 3(0, 3, 0)

Students work in groups to complete the project initiated in ELEE 401 under the supervision of an instructor. The course is offered either in lecture style with covered subjects including: design and implementation issues related to projects, progress evaluation, change management, and closure; or as individual groups supervised by different instructors. Prerequisite: ELEE 498.

ELEE 423 Embedded Systems Design 3(3, 0, 0)

This is a course on embedded hardware and software design. The system design process: requirements analysis, specification, hardware/software co-design, testing; Embedded computing platforms: general- and special-purpose processors, hardware accelerators, systems-on-a-chip, intellectual property (IP) core-based design, embedded networks; Software design tools and technologies: CAD tools, compilers, and assemblers. Hardware design tools and technologies: hardware-description languages, high-level synthesis tools, ASIC and FPGA design flows; Real-time operating systems: multiple tasks and processes, context switching, task scheduling, inter-process communication mechanisms; Low-power computing: circuit, architecture, and application techniques; System reliability and fault tolerance. Prerequisites: ELEE 290.

ELEE 431/CEN 340/CSC 384 Computer Networks 3(3, 0, 0)

A course that outlines data communications; wide area networks; circuit and packet switching; routing; congestion control; local area networks; communications architecture and protocols; internetworking. Prerequisites: ELEE 350 and STAT 230.

ELEE 441 Analog Integrated Circuits 3(3, 0, 0)

A course on the design of analog integrated circuits with an emphasis on MOS circuits; op-amp design; feedback and stability; applications of analog integrated circuits such as filtering and A/D conversion; comparison with bipolar circuits; extensive use of SPICE for circuit simulation. Prerequisite: ELEE 340.

ELEE 442 Digital Integrated Circuits 3(3, 0, 0)

A course on digital electronic circuits; models, current equations, and parasitic of CMOS transistors for digital design; study of CMOS inverter and logic gates, including analysis, design, simulation, layout, and verification; advanced circuit styles; sequential circuits; advanced topics: semiconductor memories, power grid, clocking strategies, data-path building blocks, deep-submicron design issues, interconnect. Prerequisite: ELEE 290 and ELEE 340.

ELEE 451 Digital Signal Processing 3(3, 0, 0)

Review of signals, systems, and transforms; design of Digital Filters: FIR and IIR; sampling and reconstruction of signals; multi-rate signal processing with applications; effects of finite word length; discrete random signals and Spectral Estimation; introduction to 2D signal and image processing. Prerequisite: ELEE 350.

ELEE 454 Digital Image Processing 3(3, 0, 0)

A course on two-dimensional signals and systems; image formation and perception; representation, coding, filtering restoration, and enhancements; feature extraction and scene analysis; introduction to computer vision. Prerequisite: ELEE 350.

ELEE 455 Adaptive Filtering 3(3, 0, 0)

A course that examines the fundamentals of adaptive filter analysis and design, with emphasis on applications in linear and decision-feedback equalization, beam forming, channel estimation and

tracking, noise and echo cancellation, source separation, and blind equalization; stochastic gradient algorithms (LMS-type) and recursive least-squares algorithms (RLS-type). Prerequisite: ELEE 350.

ELEE 471 Wireless Communications 3(3, 0, 0)

A course on wireless channel models; performance of digital modulation schemes in wireless channels; diversity techniques; channel coding and interleaving in fading channels; adaptive equalization in wireless channels; multiple access techniques; fundamentals of cellular communications; current wireless communication systems. Prerequisite: ELEE 370.

ELEE 472 Information Theory 3(3, 0, 0)

This course introduces the field of information theory and its applications to communications theory, computer science, statistics, and probability theory. Covering all the essential topics in information theory, we introduce the basic quantities of entropy, relative entropy, and mutual information, and show how they arise as natural answers to questions of data compression, channel capacity, rate distortion, and hypothesis testing. Prerequisite: Senior standing.

ELEE 473 Coding Theory 3(3, 0, 0)

This course introduces the theory of error-correcting codes. The course will focus on results of asymptotic or algorithmic significance. Topics include: construction and existence results for error-correcting codes; limitations on the combinatorial performance of error-correcting codes; low density parity check codes; algebraic geometric codes; Turbo codes; and decoding algorithms. Prerequisite: Senior standing.

ELEE 475 Stochastic Processes, Detection, and Estimation 3(3, 0, 0)

This is a course on types of random processes, series representation, and filtering; hypothesis testing and parameter estimation from a probabilistic point of view; extension to detection and estimation of known signals in white and non-white noise; prediction and filtering problems. Prerequisites: STAT 230 and ELEE 350.

ELEE 481 Control System Analysis and Design 3(3, 0, 0)

This course outlines state-space models of discrete and continuous, linear and nonlinear systems; controllability; observability; minimality; Eigenvector and transforms analysis of linear time invariant multi-input multi-output systems; pole shifting; computer control; design of state feedback controllers and observers. Prerequisite: ELEE 380.

ELEE 482 Robotics 3(3, 0, 0)

A course that examines robot manipulators: kinematics, control, programming, task planning, and effect of load; design of robot controllers: path tracking, force feedback control, real-time computation issues; a set of laboratory experiments and a design project. Prerequisite: ELEE 380.

ELEE 483 Optimal Control 3(3, 0, 0)

A course on optimization theory and performance measures; calculus of variations; the maximum principle; dynamic programming; numerical techniques; LQR control systems. Prerequisite: ELEE 380.

measurements in the lab using network and spectrum analyzers. Prerequisites: ELEE 340 and ELEE 390.

ELEE 474 RF and Microwave Communication Systems 3(3, 0, 0)

A course that introduces students to hardware components, system parameters, and architectures of RF and microwave wireless systems; focus on the design of a radio system for transmission and reception of information: types of receivers and transmitters, matching techniques, antenna types in wireless systems, RF and microwave radio components, receiver and transmitter RF system parameters, and radio links; basic modulation and demodulation schemes and multiple-access techniques used in present RF systems, including an overview of different RF and microwave point-to-point, mobile, and satellite communications systems. Prerequisites: ELEE 340 and ELEE 390.

ELEE 491 Antenna Theory and Design 3(3, 0, 0)

This course covers radiation systems, wire antennas, aperture antennas, arrays, input impedance, microstrip antennas, dielectric antennas, antennas in material layers. Prerequisite: ELEE 390.

Electives - Biomedical Engineering

ELEE 411 Biomedical Instrumentation 3(3, 0, 0)

This course introduces general instrumentation configuration, living cells, and performance of instrumentation systems; types and characteristics of transducers; sources and characteristics of bioelectric signals and electrodes; cardiovascular system, measurements, and diagnostic equipment; patient care and monitoring.

ELEE 412 Biomedical Signal and Image Processing 3(3, 0, 0)

A course that introduces the fundamentals of digital signal processing as implemented in biomedical applications. It provides a concise treatment of the tools utilized to describe deterministic and random signals as the basis of analyzing biological signals: data acquisition; imaging; de-noising and filtering; feature extraction; modeling. The course is tightly coupled with a practical component as it looks at and assigns several laboratory projects. Examples include the auditory system, speech generation, electrocardiogram, neuronal circuits, and medical imaging. Students should have reasonable software skills in Matlab. Prerequisite: ELEE 350.

DEPARTMENT OF MECHANICAL ENGINEERING

Mission

The mission of the undergraduate program in Mechanical Engineering (ME) is to instill in students an understanding of the fundamentals of mechanical engineering, to integrate classroom theory and practical hands-on design projects, to emphasize the process of learning and critical thinking, to develop in students the skills that are necessary to become lifelong learners, and to enlighten them of their leadership role in regional development.

Program Objectives

The objectives of the Bachelor of Mechanical Engineering (BME) program are to produce graduates who will:

- be equipped with a broad educational background in Mechanical Engineering needed to become leaders in industry and the public sector;
- correctly apply gained knowledge, work well with other people, effectively communicate technical information and ideas with the public, their peers, customers, and employers;
- understand the need for life-long learning, the importance of community and professional involvement, are aware of cultural, societal, and professional issues;
- successfully pursue advanced studies.

Learning Outcomes

Each student receiving a bachelor degree from the ME Department will be expected to demonstrate:

- Ability to apply knowledge of mathematics, science and engineering;
- Ability to design a system, component, or process to meet desired needs;
- Ability to develop, conduct and analyze experiments or tests and interpret data that may aid in the design process;
- Ability to identify, formulate and solve engineering problems;
- Ability to use computer-based techniques and modern engineering tools necessary for engineering practice;
- Understanding the importance of functioning on multi-disciplinary teams in the pursuit of a goal;
- Realization of the professional and ethical responsibilities of a practicing engineer;
- Ability to communicate effectively;
- Broad education necessary to understand the impact of engineering solutions in a global and societal context and increase the appreciation of the “non-technical” world;
- Awareness of the business environment in which engineering is practiced and other contemporary issues;
- Awareness and necessity of life-long learning experiences such as graduate studies or continuing education.

Job Opportunities

The Mechanical Engineering Department is committed to providing its students with meaningful, up-to-date skills and knowledge that will allow them to pursue successful engineering careers and make deep impacts both within the Tabuk province and across the Gulf region at large. With these objectives in mind, the ME program is designed around fostering contemporary best practices and skills in line with the job opportunities for mechanical engineers within Tabuk and the Gulf.

Mechanical systems are part of our everyday life, whether it is the car we drive, the plane we fly, the lift we use, or the products we handle. The fields that are part of mechanical engineering are numerous and cover a very large spectrum. This means that the mechanical engineering student has a challenging program to cover, but it also means that the opportunities offered to mechanical engineers are as wide and diverse.

Mechanical engineers are concerned with the planning, design, construction, implementation and operation of mechanical and related systems in a wide variety of situations. Other disciplines including biomechanics, environment protection and many other vital and emerging fields frequently rely on the expertise of mechanical engineers. Mechanical engineers work in a variety of areas including research and development, design, operations, maintenance, quality assurance, bioengineering, transportation (especially automotive and aerospace), energy, heating, ventilating, refrigeration and air conditioning, environmental and life-support systems, chemical, food production, materials processing, automated manufacturing and construction, heavy and precision machinery, robotics, and mechatronics. A wide spectrum of career opportunities is open to them. Because of the very broad nature of their discipline, mechanical engineers are usually in high demand. Beyond working for private enterprise, some graduates may work in government and non-government organizations, others may choose to pursue graduate studies or start their own business.

Curriculum and Program Structure

The curriculum is designed to comply with the requirements of ABET accreditation. It includes courses in basic sciences and mathematics, engineering sciences, engineering design, communications skills, and humanities and social sciences. Lab hands-on experience and emphasis on design are important elements that are integrated throughout the curriculum.

The requirements of the BME include:

- 30 credit hours of mathematics and basic sciences,
- 67 credit hours of engineering sciences and engineering design, and
- 15 credit hours of social sciences and humanities, excluding language and technical writing courses.

The curriculum is designed to allow students to receive the Bachelor of Engineering degree upon the successful completion of the four-year program. The first common year with other engineering majors allows students to switch between the engineering majors at the start of the second year of their study.

Final Year Project

As part of their fourth year, students are required to carry out a project and submit a technical report. This project is a substantial piece of work that will require creative activity and original thinking.

Students in groups, normally three per group, are supervised while working on a project accounting for four credit hours, extending over a full academic year. The project aims to provide students with a transitional experience from the academic world to the professional world. It is designed to serve as a platform in which ME students in teams engage in a meaningful design experience requiring the solution of engineering design projects. The objectives of the final year project are:

- To allow students to demonstrate a wide range of the skills learned at the College of Engineering during their course of study by asking them to deliver a product that has passed through the design, analysis, testing and evaluation stages.
- To encourage multidisciplinary research through the integration of material learned in a number of courses.
- To allow students to develop problem solving, analysis, synthesis and evaluation skills.
- To encourage teamwork.
- To improve students' communication skills by asking them to produce both a professional report and a professional poster and to give an oral presentation on their work.

The project is important for a number of reasons:

- It is the largest single piece of design work that a student does during his/her BE degree program.
- It allows students to specialize in a topic that they enjoy.
- It is the work that prospective employers will most likely ask students about during an interview.
- It allows students to show a wide range of the skills learned since the first year.
- Students must demonstrate these skills by delivering a product that has passed through the design, analysis, manufacturing, testing and evaluation stages.

Practical Training/Summer Internship

All engineering students are required to fulfill a 1-credit hour internship period of 8 to 12 weeks. This graduation requirement entails that each senior student (one who has completed around 80% of the total credit requirement) gains practical training experience during the summer term prior to graduation, or in the graduation semester, with either a company or an academic institution while involved in a practical experience.

Degree Requirements

To graduate with a BME, a student must satisfactorily complete 135 credit hours. The distribution of courses is as follows:

University Requirements

The University requirements for the BME total 30 credit hours and are distributed as follows:

- 6 credits of Arabic: ARAB 101 and ARAB 201;
- 9 credits of English communication skills: ENGL 101, ENGL 102, and ENGL 203;

- 9 credits of social and cultural studies: SOCS 101, SOCS 201, and SOCS 202;
- 3 credits of computing essentials: CSC 101;
- 3 credits of mathematics: MATH 101.

College Requirements

The College requirements for the BME degree total 41 credit hours and are distributed as follows:

- 12 credit hours in physics and chemistry: PHYS 101/ 101L, PHYS 102/ 102L, and CHEM 101/ 101L;
- 15 credit hours in mathematics: MATH 102, MATH 201, MATH 202, MATH 215, and STAT 230;
- 3 credit hours in technical writing: ENGL 206;
- 3 credit hours in engineering ethics: COEN 400;
- 3 credit hours in engineering economy: COEN 300.

The BME students must also complete a 4-credit hour final-year project during the senior year (MECH 401 and 402), and a 1-credit hour internship (MECH 400).

Program Requirements

The program requirements for the BME degree in ME total 63 credit hours and are distributed as follows:

- 51 credit for the following courses: CIVE 210; ELEE 210, ELEE 210 L, ELEE 230, and ELEE 260; MECH 200, MECH 210, MECH 220, MECH 230, MECH 231, MECH 320, MECH 330, MECH 331, MECH 340, MECH 341, MECH 350, MECH 360, MECH 361, MECH 490, MECH 491, and MECH 441;
- Four 3-credit hour electives from the ME Department and approved courses from other departments.

Fourth Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
MATH 202	Differential Equations	3	MATH 201
MECH 220	Dynamics	3	MATH 201 + CIVE 210
MECH 230	Engineering Materials	3	
MECH 231	Strength of Materials	3	CIVE 210
ELEE 260	Electromechanical Devices	3	ELEE 210
MECH 200	Engineering Graphics	2	D. of adviser

Total Credits**16****Year III****Fifth Semester (16 Credit Hours)**

Course	Title	Credits	Prerequisites
STAT 230	Probability and Statistics	3	MATH 201
ENGL 206	Technical Writing	3	ENGL 203
MECH 320	Kinematics of Mechanical Systems	3	MECH 220
MECH 331	Materials Lab	1	MECH 230
MECH 341	Fluid Mechanics	3	MECH 220
MECH 350	Instrumentation and Measurements	3	MECH 341

Total Credits**16****Sixth Semester (16 Credit Hours)**

Course	Title	Credits	Prerequisites
COEN 300	Engineering Economy	3	STAT 230
MATH 215	Linear Algebra and Numerical Techniques	3	MATH 201
MECH 330	Mechanical Design	3	MECH 200, 230, 231
MECH 342	Heat Transfer	1	MECH 341
MECH 360	Manufacturing Processes I	3	MECH 230
MECH 361	Manufacturing Processes Lab	3	MECH 361 (co)

Total Credits**16****Summer Semester II (1 Credit Hours)**

Course	Title	Credits	Prerequisites
MECH 400	Internship for BME Students	1	

Total Credits**1**

Year IV

Seventh Semester (14 Credit Hours)

Course	Title	Credits	Prerequisites
MECH 401	Final Year Project I	1	Senior Standing
ARAB 201	Advanced Academic Arabic	3	ARAB 101
MECH 490	System Dynamics and Control	3	MECH 220 + ELEE 210
MECH 491	System Dynamics and Control Lab	1	MECH 350 + MECH 490
ME Elective	Mechanical Engineering Elective	3	-
ME Elective	Mechanical Engineering Elective	3	-
Total Credits		14	

Eighth Semester (16 Credit Hours)

Course	Title	Credits	Prerequisites
MECH 402	Final Year Project II	3	MEC 401
SOCS 202	World Civilizations	3	-
COEN 400	Engineering Ethics	3	-
MECH 411	Thermal-Fluid Systems Lab	1	MECH 342
ME Elective	Mechanical Engineering Elective	3	-
ME Elective	Mechanical Engineering Elective	3	-
Total Credits		16	

Total Program Credits

135*

*Completion of Bachelor degree in Mechanical Engineering.

MECH 320 Kinematics of Mechanical Systems 3(3, 0, 0)

A course that deals with the mechanization of motion, kinematics analysis of linkage mechanisms, synthesis of cam-follower mechanisms, gear terminology and types of gears, analysis and synthesis of gear trains, force analysis, and introduction to linkage synthesis; computer aided project. Prerequisite: MECH 220.

MECH 330 Mechanical Design 3(3, 0, 0)

A course covering the analytical tools needed for the mechanical design of various machine components for rigidity and strength. The course covers the design of machine elements such as screws and joints, bearings, gears, shafts, and mechanisms. The course offers practice in skills needed for machine design such as estimation, drawing, and experimentation. The course deals with failures theories that result from static and variable loading. Applications are covered through case studies and a team project. Prerequisites: MECH 200, MECH 230 and MECH 231.

MECH 331 Materials Lab 1(0, 0, 2)

A laboratory course consisting of standard metallurgical and mechanical characterization tests on metals. Stress-strain plots, derived properties, fracture toughness, crystallography, hardness, and other properties. Ceramic flexure testing: Weibull plots. Polymers: stress-strain plots and derived properties, impact properties, creep, and relaxation. Prerequisite: MECH 230.

MECH 341 Fluid Mechanics 3(3, 0, 0)

An introductory course on fluid behavior emphasizing conservation of mass, momentum, and energy and dimensional analysis; study of fluid motion in terms of the velocity field, fluid acceleration, the pressure field, and the viscous effects; applications of Bernoulli's equation, Navier-Stokes, and modeling; flow in ducts, potential flows, and boundary layer flows. Prerequisite: MECH 220.

MECH 342 Heat Transfer 3(3, 0, 0)

A course investigating steady and transient heat conduction; extended surfaces; numerical simulations of conduction in one and two-dimensional problems; external and internal forced convection of laminar and turbulent flows; natural convection; heat exchanger principles; thermal radiation, view factors and radiation exchange between diffuse and gray surfaces as well as the use of computer packages in problem solving. Prerequisite: MECH 341.

MECH 350 Instrumentation and Measurements 3(2, 0, 2)

This course introduces general concepts of measurement systems; classification of sensors and sensor types; interfacing concepts; data acquisition, manipulation, transmission, and recording; introduction to LabVIEW; applications; team project on design, and implementation of a measuring device. Pre- or co-requisite: MECH 341.

MECH 360 Manufacturing Processes I 3(3, 0, 0)

A course on material removal processes, processes both traditional and non-traditional. Assembly processes such as welding, brazing, soldering, and fastening are also covered with an emphasis on process capabilities and limitations, relative cost, and guidelines for process selection. This course

Elective Courses

MECH 430 Product Design and Development 3(3, 1, 0)

This course covers modern tools and methods for product design and development. Teams of students conceive, design, and prototype a new physical product. Topics include identifying customer needs, product planning, product specifications, concept generation, industrial design, product architecture, product development economics, and design-for-manufacturing. Prerequisites: MECH 320 and MECH 330.

MECH 431 Manufacturing Processes II 3(2, 0, 2)

A course on heat treatments, deformation, phase-change, and particulate consolidation processing of metals; fabrication processing of non-metallic engineering materials such as ceramics, polymers, and composites; emphasis on process capabilities and limitations, relative cost, and guidelines for process selection; the behavior of materials under processing conditions; design for manufacturing guidelines. This course emphasizes hands-on training exercises. Prerequisite: MECH 230.

MECH 432 Mechanical CAD/CAE/CAM 3(2, 0, 2)

This course seeks to expose the senior ME students to the realm of computer-aided design (CAD), computer-aided engineering (CAE), and computer-aided manufacturing (CAM); geometric modeling; numerical control; dimensioning and tolerancing; statistical tolerancing; process selection; metrology. Prerequisites: MECH 200, MECH 330, and MECH 360.

MECH 433 Mechatronics System Design 3(2, 0, 2)

A course that discusses mechatronics; data; numbering systems, architecture of microcontrollers, assembly language programming, A/D and D/A conversion; parallel I/O, programmable timer operation, interfacing sensors and actuators, applications; a team project on design and implementation of a mechatronic system. Prerequisites: MECH 350.

MECH 434 Mechanical Vibrations 3(3, 0, 0)

A course on free and forced response of non-damped and damped system; damping vibration absorption; response of discrete multi-degree of freedom systems; modal analysis; vibration measurement, case studies, vibration analysis with Matlab and Simulink. Prerequisite: MECH 220.

MECH 435 Dynamics and Applications 3(3, 0, 0)

This course examines the dynamics of particles and rigid bodies moving in three dimensions. Topics include Lagrange's equations of motion for particles, rotations of rigid bodies, Euler angles and parameters, kinematics of rigid bodies, and the Newton-Euler equations of motion for rigid bodies. The course material will be illustrated with real-world examples such as gyroscopes, spinning tops, vehicles, and satellites. Applications of the material range from vehicle navigation to celestial mechanics, numerical simulations, and animations. Prerequisites: MECH 220.

MECH 436 Intermediate Mechanics of Materials 3(3, 0, 0)

Review of energy methods, Betti's reciprocal theorem; bending of beams of asymmetrical cross-section; shear center and torsion of thin-walled sections; membrane stresses in axisymmetric shells; axisymmetric bending of circular plates; elastic, thermoelastic analysis of axisymmetric thick cylinders and rotating discs; bending of rectangular and circular plates, including asymmetric problems; beams on elastic foundations; axisymmetric bending of cylindrical shells; Analysis of torsion: non-circulation sections. Prerequisites: MECH 231.

MECH 440 Thermodynamics II 3(3, 0, 0)

A course investigating the availability and work potential of systems; irreversibility; second law efficiency; availability; gas mixtures, air-conditioning; chemical reactions; high speed flow, nozzles and diffusers, environmental, economic, and social implications. Prerequisite: MECH 210.

MECH 442 Modeling and Design of Thermal Systems 3(3, 0, 0)

This course covers analysis, modeling, and design of engineered systems involving applications of thermodynamics, economics, heat transfer, and fluid flow; selection of components in fluid- and energy-processing systems to meet system performance requirements; system simulation and optimization techniques; use of modern computational tools to model thermal performance characteristics of components and systems. Prerequisite: MECH 342.

MECH 443 Intermediate Fluid Mechanics 3(3, 0, 0)

A course that deals with potential flow and boundary layer analysis; lift and drag; flow separation; the use of computational techniques to solve boundary layer problems; viscous internal channel flow and lubrication theory; one-dimensional compressible flow in nozzles and ducts; normal shock waves and channel flow with friction or heat transfer; fluid machinery including pumps and hydraulic turbines. Prerequisites: MECH 342.

MECH 444 Internal Combustion Engines 3(3,0, 0)

This course examines the fundamentals of internal combustion engine design and operation, with emphasis on fluid/thermal processes. Topics include analysis of the respiration, combustion, and pollutant formation processes; heat transfer and friction phenomena; engine types and performance parameters; thermo-chemistry of fuel-air mixtures; the use of engine cycle models for performance predictions; and social implications of motorization. Prerequisites: MECH 210 and MECH 350.

MECH 445 Air Conditioning 3(3, 0, 0)

A course on human thermal comfort and indoor air quality; solar radiation; heating and cooling load calculations in buildings; air conditioning systems; air and water distribution systems; computer-based calculations. Prerequisite: MECH 342.

MECH 446 Gas Turbines 3(3, 0, 0)

A course that introduces the thermodynamic and aerodynamic theory forming the basis of gas turbine design: shaft power cycles; gas turbine cycles for aircraft propulsion; turbofan and turbojet engines; design and analysis of centrifugal and axial flow compressors and turbines. Prerequisite: MECH 341.

MECH 447 Steam Turbines 3(3, 0, 0)

A course that deals with impulse and reaction steam turbines, steam turbine cycles, flow of steam in nozzles, design aspects of turbines stage losses and efficiency, velocity diagrams; and impulse and reaction blading velocities; nucleation, condensation, and two-phase phenomena in flowing steam; boiler room and its various equipment; the complete steam power plants; governors, electric generator, and power transmission lines. Prerequisite: MECH 341.

MECH 448 Aerodynamics 3(3, 0, 0)

A course on theoretical and empirical methods for calculating the loads on airfoils and finite wings by application of classical potential theory, thin airfoil approximations, lifting line theory, and panel methods; wings and airplanes; application of linearized supersonic flow to supersonic airfoils; performance and constraint analysis; longitudinal stability and control. Prerequisite: MECH 341.

MECH 449 Compressible Flow 3(3, 0, 0)

This course covers general one-dimensional flow of a perfect gas homenergetic and homentropic flow in nozzles and constant area ducts, normal shock waves, and one-dimensional unsteady gas flow. Prerequisite: MECH 341 and MATH 202.

MECH 450 Refrigeration 3(3, 0, 0)

This course covers fundamental concepts and principles of mechanical vapor compression refrigeration cycles; gas cycle refrigeration; ultra-low- temperature refrigeration, cold storage refrigeration; functions and specifications of refrigeration equipment, applications. Prerequisite: MECH 210 and MECH 342.

MECH 451 Solar Energy 3(3, 0, 0)

This course discusses the fundamentals of solar radiation, collectors and concentrators, energy storage, estimation and conversion formulas for solar radiation. Prerequisite: MECH 342.

MECH 460 Finite Element Methods in Mechanical Engineering 3(3, 0, 0)

A course on the classification of machine components; displacement-based formulation; line elements and their applications in design of mechanical systems; isoparametric formulation; plane stress, plane strain, axi-symmetric, and solid elements and their applications; modeling considerations and error analysis; introduction to ALGOR general formulation and Galerkin approach; and analysis of field problems. Prerequisites: MATH 215, MECH 330, and MECH 342.

MECH 461 Mechanical Engineering Analysis 3(3, 0, 0)

A course dealing with the application of numerical techniques to the solution of a variety of mechanical engineering problems involving systems of linear or non-linear algebraic equations, systems of ordinary differential equations of the initial and boundary value types, systems of ordinary differential equations, and partial differential equations of the parabolic, elliptic, and hyperbolic types. Engineering applications are introduced through a number of case study problems. Prerequisite: MATH 202, MECH 220, and MECH 231.

MECH 499 Special Topics in Mechanical Engineering 3(3, 0, 0)

Any selected topic in the state-of-the-art in Mechanical Engineering. Prerequisite: discretion of advisor.



جامعة فهد بن سلطان
Fahad Bin Sultan University

Engineering Bridging Program

ENGINEERING BRIDGING PROGRAM

Overview

The Bridging Program at the College of Engineering prepares students who hold Technical diplomas from two-year or three-year Technical Colleges to pursue a Bachelor of Science in Engineering at FBSU.

The duration of the Bridging Program ranges between two and three years after the bridging preparatory year. The bridging year consists of two components in two semesters. The first component covers intensive instruction in English (12 Credit Hours) and Bridging Math. In addition, the student is allowed to take a moderate academic load mainly in basic sciences and humanities for the purpose of raising the students' skills level in these subjects, facilitate their integration in the university programs, and enhance their conditions for success.

The level of a student is assessed by the placement tests. According to his performance on the English and Math tests, a student shall follow one of the following three study tracts:

1. Student's score is above 75%, the student would be exempted from the Bridging English courses and can start directly the academic courses
2. Score between 50 and 75%, the student would be enrolled in the Bridging English level 2 (BENG 2: 9 Contact Weekly Hours), which would take one full semester to complete.
3. Score below 50% the student must take the full Bridging year.

The College of Engineering offers the Bridging Program in the following majors:

- Civil Engineering
- Electrical Engineering

Program Requirements

The specific program requirements are shown under the respective department section. The total number of credit hours required in each of the majors depends on the number of credit hours transferred from his/her study at the technical college.

Program Graduation requirements

Students graduate from the Engineering Bridging program when they satisfactorily complete 137 credit hours for a Bachelor in Civil Engineering and 134 for a Bachelor in Electrical Engineering.



جامعة فهد بن سلطان
Fahad Bin Sultan University

Faculty List

Faculty List

Abdelrahman, Mustafa; Assistant Instructor, Librarian, BA English Language and Literature, Assiout University, Egypt, 1990.

Abu Atieh, Amani; Instructor, MA Translation, University of Jordan, 2002.

Abu Humaidan, Khaled; Instructor, MS Applied Computer Science, Free University of Brussels, Belgium, 2001.

Abu Samha, Mahmoud; Assistant Professor, Ph.D. Chemistry, University of Bergen, 2006.

Akhtar, Mohammad; MS Civil Engineering, Aligarh Muslim University, India, 2011.

Al-Alawneh, Hamzeh; Instructor, MA English Methodology, Mutah University, 2007.

Al-Atawi, Noura; Assistant Instructor, B.S. Computer Science, Fahad Bin Sultan University, 2013.

Al-Balawi, Abdullah; MS Information Technology, Rochester Institute of Technology, USA, 2001.

Al-Balawi, Adel; Instructor, MA Arabic Language, Mutah, Jordan, 2008.

Al-Balawi, Ahmad; Instructor, MA Computer Science, New Haven University, USA, 2012.

Albalawi, Fahad; Instructor, MA Computer Science, University of New Brunswick, Canada, 2012.

Al-Balawi, Iman; Instructor, MA Linguistics, University of Mutah, Jordan, 2010.

Al-Damen, Ahmad; Instructor, MA Applied Linguistics & TESOL, Ohio State University, USA, 2010.

Al-Dowiri, Waleed; Instructor, MA English Literature, Yarmouk University, Jordan, 2012.

Al-Fanatisah, Samar; Instructor, MA English Methodology, Mutah University, Jordan, 2006.

Al-Fifi, Mona; Assistant Instructor, B.S. Computer Science, Fahad Bin Sultan University, 2013.

Al-Huwaiti, Hajar; Instructor, MS Chemical science, New South Wales University, 2013.

Al-Huwiti, Maryam; Assistant Instructor, B.S. Computer Science, Fahad Bin Sultan University, 2012.

Al Hussein, Jareer; Assistant Professor, Ph.D. Education, University of Jordan, Jordan, 2007.

Al-Masri, Lubna; Assistant Professor, Business & Management, Exeter University, UK, 2011.

Al-Mograbi, Fedaa; Instructor, MA Applied Linguistics, University of Mutah, Jordan, 2009.

Al-Najjar, Suzan; Instructor, MA Business, Yarmouk University, Jordan, 2011.

Al-Nefaie, Raghada; Assistant Instructor, B.S. Computer Science, Fahad Bin Sultan University, 2012.

Al-Qudah, Ayman; Lab Assistant, B.E Engineering, Al-Balqa`a Applied University, Jordan, 2010.

Al-Qatawna, Mohammad; Instructor, MA Applied Linguistics & TESOL, Anglia Ruskin University, UK, 2012.

Al-Shammari, Awwad, MA Arabic Language, Mutah University, 2009.

Al-Sayed, Waad; Assistant Professor, Ph.D. Mathematics, University of Francois Rabelais, France, 2008.

Al-Senawi, Hiba; Instructor, MS Commuter Science, Al Balqaa University, Jordan, 2010.

Al-Tahat, Saqer; Assistant Professor, Ph.D. Accounting, Utara University, Malaysia, 2010.

Al-Taj, Homam; Assistant Professor, Ph.D. Network Resource Management, Sains University, Malaysia, 2011.

Al-Zaarir, Khalid, Instructor, MSc Electrical Engineering, Yarmouk University, 2012.

Arafeh, Khairi; Instructor, MS Computer Science, Uppsala University, Sweden, 2010.

Ass`ad, Mohammad; Instructor, MA English Language, University of Jordan, Jordan

Barake, Taha; Instructor, MS Electrical and Computer Engineering, Virginia Tech, USA, 1997.

Baghdadi, Jihad; Assistant Professor, Ph.D. Science in Electrical Engineering, Virginia, USA, 1998.

Bayoud, Husam; Assistant Professor, Ph.D. Mathematics, University of Jordan, Jordan, 2007.

Beydoun, Abdul Rahman; Assistant Professor, Ph.D. Business Administration, Florida International University, USA, 2012.

Bitar, Shaker; Assistant Professor, Ph.D. Civil Engineering, University of Manchester, UK, 1995.

Btoosh, Mousa; Associate Professor, Ph.D. Linguistics, University of Texas, USA, 2004.

Doumiati, Moustapha; Assistant Professor, Ph.D. Technology of Science and Information, University of Technology of Compiegne, France, 2010.

El-Fadil, Nazar; Associate Professor, Ph.D. Electrical and Computer Engineering, University of Technology, Malaysia, 2002.

Farhat, Fedaa; Instructor, ME Electrical and Computer Engineering, American University of Beirut, Lebanon, 1998.

Gharaibeh, Yazen, Instructor, Electrical Engineering, New Jersey Institute of Technology, USA, 2010.

Haidar, Abdulhameed; Assistant Professor, Ph.D. Mathematics, Tours University, France, 2010.

Haidar, May; Assistant Professor, Ph.D. Computer Science, University of Montreal, Canada, 2007.

Hallal, Hicham H.; Assistant Professor, Ph.D. Electrical and Computer Engineering, McGill University, Canada, 2007.

Hattamleh, Omar; Associate Professor, Ph.D. Civil Engineering, Washington State University, USA, 2003.

Issa, Yazan; Assistant Professor, Ph.D. Civil Engineering, King Fahd University of Petroleum and Minerals, KSA, 2012.

Jihan, Kaiser; Instructor, MA English Literature, N.S.P. Orissa, India, 2008.

Jrad, Nesrine; Assistant Professor, Ph.D. Technology of Sciences Systems, Troyes University of Technology, France, 2010.

Jbara, Mohammad; Instructor, MA Linguistics, University Utara Malaysia, Malaysia, 2012.

Kanani, Khalid; Instructor, MA Applied Linguistics, Jordan University of Science and Technology, Jordan, 2012.

Ladadwa, Imad; Assistant Professor, Ph.D. Physics, Bergen University, Norway, 2001.

Lyzzaik, Abdallah; Professor, Ph.D. Mathematics, University of Cincinnati, USA, 1977.

Mansour, Ahmad; Instructor, MS Mathematics, Toledo University, USA, 1985.

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