الجامعة السعودية الإلكترونية
SAUDI ELECTRONIC UNIVERSITY
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Student Handbook

Bachelor of Science in Information Technology

Information Technology Department

College of Computing and Informatics

Saudi Electronic University

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Handbook contents

Handbook contents 2
About the program 3
Program's mission and goals 4
Reasons for creating the program 5
Program learning outcomes 6
Teaching and learning strategies to achieve program learning outcomes 7
Program admission requirements 8
Duration of study in the program 8
Tuition fees 8
Student rights and support 9
Program facilities and equipment 11
Career opportunities for graduates of the program 13
Program's graduate attributes 14
Study plan structure 15
Program courses 16
Program courses description 18

About the program

Due the increasing demand for Information Technology graduates in the job market and the large investment of the Saudi government in knowledge economy which is based on advanced IT facilities, and due to the need for various specializations relevant to IT field, the Bachelor in IT has been launched to meet these requirements. The program enhances and thus contributes to the National strategic plans for communication and IT needed for localizing IT and satisfying job market demands. The academic plan covers various IT domains and complies with the accreditation criteria and international peer programs.

Program’s mission and goals

Mission:

Prepared well-educated and qualified students with the most current knowledge and skills in the various fields of information technology and to build their lifetime learning and careers, meet the labor market needs and conduct scientific research that contributes to the advancement of society's knowledge, solving community issues and meeting of future challenges in Information Technology.

Goals:

The main goals of the IT program are:

1. Develop a technically proficient workforce capable of carrying out IT solutions to the best practices.
2. Provide students with soft skills and values to effectively communicate and collaborate with others professionally, ethically, legally as well as fulfill the needs of society.
3. Improve students' experience by empowering them with the necessary entrepreneurs’ skills to develop innovative IT solutions and perform scientific research.

In addition, the IT program aims at building cadres able to:

- Apply various and advanced IT solutions to contribute to the work development and assist establishment to realize their targets.
- Properly manage the enterprise IT resources, both physical and human, to the fullest.
- Cope with the rapid development in IT fields, evaluate and adopt useful methods in IT so as to contribute to the development of Saudi institutions.
- Build, manage, and organize digital contents of IT systems in various Saudi institutions.
- Apply problem-solving skills, and analyze problems to determine the necessary IT data to improve the quality.
- Communicate effectively with team members in the institution and contribute to the decision-making processes.
- Adhere by the rules and work standards, professional, ethical, and legal.
- The development of continuing professional education plans.
- Conducting the scientific and practical researches with IT specialists.

Reasons for creating the program

The importance and reasons for creating the Information Technology program:

1. Contribute to achieving the objectives of communication and information technology national strategic plan.
2. Importance of information technology jobs for Saudi institutions and community.
3. The great demand for qualified information technology personnel in the job market.
4. Address the need of the job market expected to increase in the future for information technology specialized worldwide.
5. Lack of Saudi universities offer a bachelor's degree in IT.
6. Contribute in national information technology projects.

Program learning outcomes

On successful completion of the program, students will have:

1. Demonstrate a deep understanding of the main concepts and technologies related to information technology.
2. Realize the evaluation and assessment of tasks performed as IT professionals.
3. Describe and analyze the user needs and computing requirements appropriate to problems' solutions.
4. Apply the concepts, methods, tools and technologies mastered during the academic program.
5. Apply theories in modelling and designing IT systems using cutting edge tools and technologies.
6. Apply analysis, design, implementation, testing and evaluation principles of IT solutions to fit industrial requirements and support techpreneurship.
7. Carry out the assigned tasks with quality of work in accordance with international standards.
8. Communicate effectively, both orally and in written form, using appropriate media.
9. Identify the needs for continuous development of professional, legal and ethical skills with the ability to engage all group members.
10. Function effectively on teamwork projects and activities to accomplish a common goal.

Teaching and learning strategies to achieve program learning outcomes

IT program is based on combining between traditional learning and online learning. All courses are designed to be conducted by using these two methods. The face-to-face learning is a traditional method. The instructor contacts directly with the students. During the face-to-face classes, the instructor explains the main concepts for the students. In virtual classes, the instructor communicates with the students by using Blackboard software. The Blackboard software offers online communication between the instructor and students. The instructor can use class discussion and active learning strategies in virtual and face to face classes. In addition, the college has various labs to support practical sides of the educational operation. Further, the college organizes many competitions periodically and encourages students to participate in outside activities such as workshops and conferences. The Deanship of Admission and Student Affairs provides extracurricular activities for All SEU students according to a plan seeking to achieve the SEU educational goals.

The IT program use several effective teaching strategies to achieve its mission, goals and learning outcomes. The most used teaching strategies are:

1. Group teaching (F2F Lectures)
2. Virtual sessions
3. Class discussions
4. Active learning (group-work case studies and projects)
5. Group based Senior Project 1 and Senior Project 2.
6. Lab sessions

Program admission requirements

- Applicants should have obtained secondary school certificate or equivalent.
- No limited period for obtaining the secondary school certificate is required.
- Admission is granted to applicants who satisfy all admission requirements and is based on the applicant's grades in secondary school.

Duration of study in the program

- 8 semesters, 127 credit hours (41 subjects).

Tuition fees

- Tuition fees for each accredited unit of study.
- Newly admitted students (initial admission) are required to pay the full semester tuition fees to obtain a final admission.
- The fees below don't include value added tax.
- Summer courses tuition fees: an increase of 50% of the fees for each credit hour.

Program	Tuition Fees per one credit	Total program credits	Total Tuition*
Bachelor of Information Technology	265 Saudi riyals	130	34,450 Saudi riyals

* **Total tuition** = (130) Number of credits * (265) Riyal per credit = 34,450 Saudi Riyals

Student rights and support

The program, through department and college, provides students with assistance, information, referral and support on a range of academic and personal matters which include:

- Faculty members are required to post their contact information as well as office hours on Blackboard.
- All faculty have physical and virtual office hours each week. Students can contact them via email, video conference, messages, or phone. Faculty are also available throughout the week and respond to students.
- Students of the IT program have the right to use the health care provided in the health facilities of Saudi Electronic University.
- Students of the IT program take advantage of the available credit services and facilities such as electronic university books, sports facilities, basements, car parking.
- The on-line Da'am system is available to solve any technical issues students face during lectures and exams.
- The periodic meeting for male and female students is held on a fixed basis at the beginning of each semester, where all students can send direct inquiries and raise inquiries to the Dean of the College of Computing and Informatics.
- Different activities and services were implemented at the Saudi Electronic University and Information Technology department levels to support students during their study journey. For example, the Saudi Electronic University has efficient Student care center portal contains all necessary units the student needs, such as the social counseling unit, Mental Health Support Unit, The academic advising unit, The career counseling and career support unit, The scholarship and aid unit, Talent and Creativity Unit, and the Disabilities Support Unit. This Student care center portal can be reached via https://seu.edu.sa/aasa/en/student-care-center/
- The university seeks to guarantee students' rights and seeks to educate them about their rights and responsibilities. Therefore, the university established two committees to protect students' rights

Sub-Committee for the Protection of Student Rights:

- It considers all educational and administrative grievances and complaints of students, except for administrative matters outside the framework of the college.

Main Committee for Student Rights Protection:

- It considers all students 'grievances and complaints filed against the administrative authorities at the university and grievances coming from the sub-committees.

Special support

- In collaboration with Students Affairs Office, the requirements for special need applicants are provided. Such as elevators between classes' floors, cars' parking and toilets' seats. In addition, the Saudi Electronic University has efficient student care center portal contains all necessary units the student needs, such as the social counseling unit, Mental Health Support Unit, The academic advising unit, The career counseling and career support unit, The scholarship and aid unit, Talent and Creativity Unit, and the Disabilities Support Unit. This student care center portal can be reached via https://seu.edu.sa/aasa/en/student-care-center/

- Moreover, students with special needs are provided with dedicated programs designed to serve them on an individual basis. In addition, there is a specialized psychological and social counseling unit to provide help when needed (Email: pscu@seu.edu.sa).

- Talented and outstanding students receive financial incentives and rewards. The College of Computing and Informatics is challenging talented students through different completions. This contribution aims to spread the spirit of competition among students and motivate them to excel and be creative. The college regularly holds a competition to select the best graduation projects at the level of all university branches and is evaluated by a group of faculty members, as the competition includes educational and applied fields for undergraduate students and Masters. The college also encourages and supports students to participate in local and international conferences and competitions, such as cybersecurity conferences and competitions, programming competitions, and artificial intelligence.

Program facilities and equipment

Different campuses provide modern classrooms with electronic gadgets required for the smooth execution of class hours. The students also avail the opportunities to interact with faculty during visiting hours who are required to be in their allocated office spaces, which are also furnished with all facilities needed for a blended learning environment, including needed hardware and software.

- IT equipment's include:

    1. State of the art computing machines and laptops for faculty members.
    2. 24 hours uninterrupted high-speed Internet provision at all the campuses.
    3. Provision of Saudi Electronic University portal accounts to all the students and faculty members.
    4. Blackboard system as a teaching platform with accounts for all teachers and students to manage their academic activities and conduct virtual sessions.
    5. Attendance, grading, E-mail, and other relevant software.
    6. Access to Saudi Digital Library for all students and faculty alike.

- Blackboard includes full course contents for faculties and students enrolled for any particular course. This includes all needed references.

- Online books are available from WileyPlus, with which the University has a contract.

- The College of Computing and Informatics college also offers hard copies of textbooks to faculty members.

In addition, the Saudi Electronic University has a collection development policy where the librarians communicate with stakeholders to identify strengths and weaknesses to best align the collection with current research and curricular needs. The librarian makes final purchasing decisions with input from the administration, faculty, and students.

The Saudi Electronic University librarian brings new resources to the attention of different stakeholders for consideration, coordinates trials to electronic resources, negotiates site licenses and user agreements, maintains current subscription lists as well as works with select consortia/ Saudi Electronic University to share resources.

The following selection criteria are considered when evaluating resources:

1. Facilitation of online teaching and learning.
2. Provision of relevance to the existing collection's strengths and weaknesses.
3. Restrictions on the number of users, simultaneous users, or access points.
4. Delivery to users in a timely and convenient manner.

5. Affordability, or comparative cost including the cost of acquisition, licensing, maintenance, service, and potential preservation.
6. Availability of technical support and acceptable licensing requirements.

In addition, the Saudi Electronic University has a subscription to the Saudi Digital Library to provide E-books and other publications for all its employees and students, where each Saudi Electronic University's employee or student can access Saudi Digital Library and directly download scientific references. The Saudi Digital Library can be accessed via the available icon on the Saudi Electronic University's homepage or directly from their website.

It is mandatory for all classes to be held in professionally designed classrooms during the face-to-face hour. Each class is equipped with an electronic podium with the facility to record lecture and sound control apart from other features. Each classroom is connected to the Internet. Multimedia support is available in every classroom. In addition, each classroom is equipped with general amenities like air-conditioning, sufficient lighting, and proper sitting arrangements. All classrooms are regularly monitored to ensure that none of the assets is in bad or disorderly shape.

Career opportunities for graduates of the program

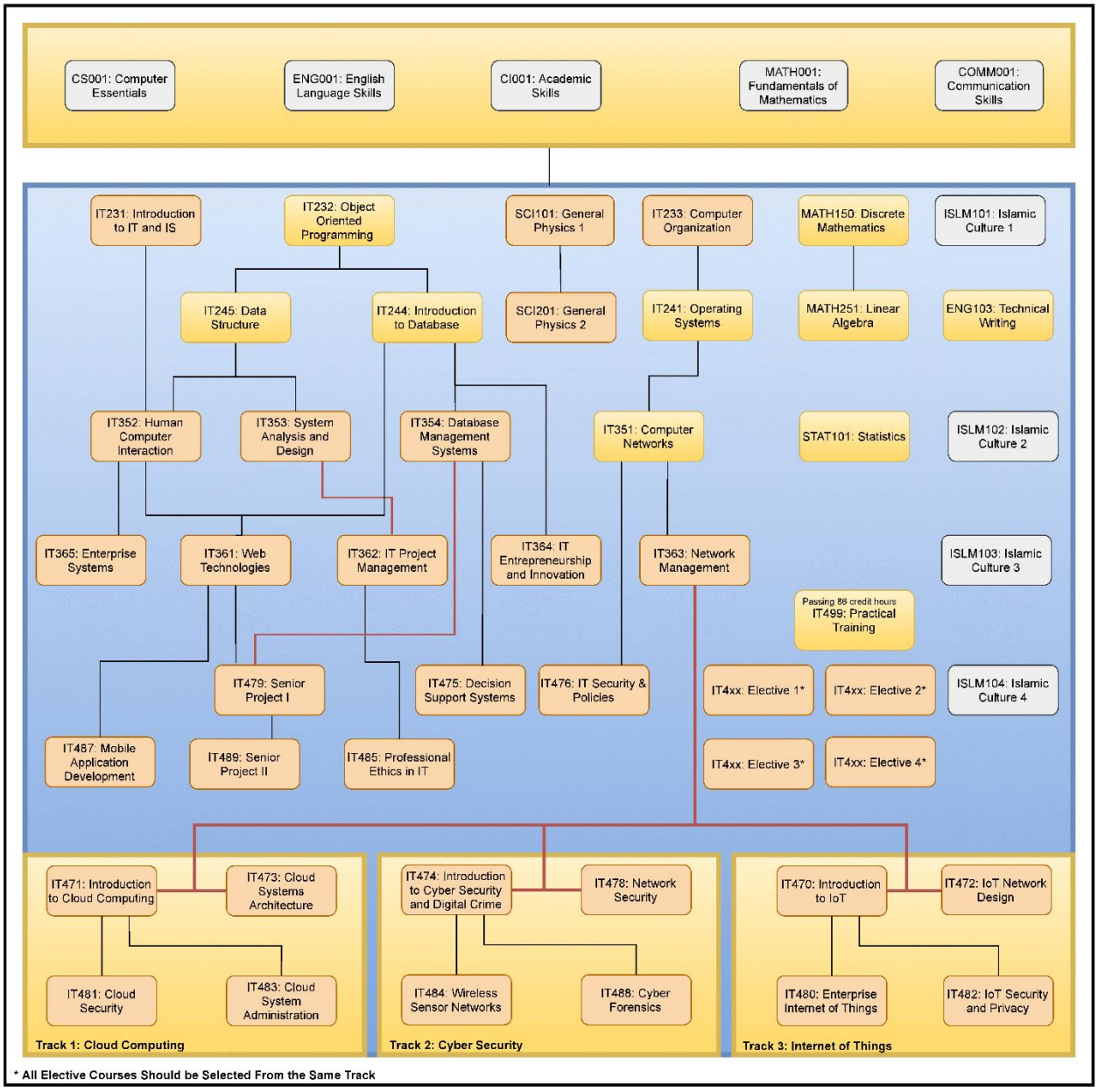
At the end of the program, students will be prepared for the following professions and occupations:

1. Software developer.
2. Assistant database administrator.
3. Computer Network Supervisor.
4. Site supervisor and operator.
5. Technical support specialist.
6. Website developer and programmer.
7. Information systems supervisor.
8. Information technology specialist.
9. Information systems administrator.
10. Computer operator.
11. Computer operator supervisor.
12. Internet of Things specialist (upon completion of the Internet of Things Track).
13. Cloud computing specialist (upon completion of the cloud computing Track).
14. Cyber security specialist (upon completion of the cyber security Track).

Program’s graduate attributes

1. Creative and critical thinking
2. Effective communication orally and in written forms
3. Effective teamwork collaboration
4. Commitment to professional ethics
5. Lifelong learning and continuing education

Study plan structure



Program courses

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of study	Type of requirements (Institution, College or Department)
Level 1	ENG001	English language Skills	Required	-	8	Blended	Institute
	CS001	Computer Essentials	Required	-	3	Blended	Institute
	COMM001	Communication Skills	Required	-	2	Blended	Institute
Level 2	ENG001	English language Skills	Required	-	8	Blended	Institute
	MATH001	Fundamentals of Math	Required	-	3	Blended	Institute
	CI001	Academic Skills	Required	-	2	Blended	Institute
Level 3	CS140	Computer Programming I	Required	Pass First Common Year	3	Blended	College
	IT101	Introduction to IT & IS	Required		3	Blended	College
	MATH150	Discrete Mathematics	Required		3	Blended	College
	ENG103	Technical Writing	Required		3	Blended	College
	IT110	Computer Organization	Required		3	Blended	College
	ISLM101	Islamic Culture (1)	Required		2	Blended	Institute
Level 4	CS141	Computer Programming II	Required	CS140	3	Blended	College
	MATH251	Linear Algebra	Required	MATH150	3	Blended	College
	IT242	Software Engineering	Required	CS140	3	Blended	College
	IT241	Operating Systems	Required	IT110	3	Blended	College
	MGT101	Principals of Management	Required	-	3	Blended	College
	ISLM102	Islamic Culture 2	Required	-	2	Blended	Institute
Level 5	IT243	System Analysis and Design	Required	CS141	3	Blended	Program
	IT244	Introduction to Database	Required	CS141	3	Blended	Program
	IT201	Human Computer Interaction	Required	IT101,IT242	3	Blended	Program
	IT210	Computer Networks	Required	IT241	3	Blended	Program
	STAT101	Statistics	Required	-	3	Blended	College

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of study	Type of requirements (Institution, College or Department)
Level 6	IT344	Database Management Systems	Required	IT244	3	Blended	Program
	IT230	Web Technologies	Required	IT201, IT244	3	Blended	Program
	IT270	IT Project Management	Required	IT243	3	Blended	Program
	IT340	Network Management	Required	IT210	3	Blended	Program
	E-COM101	E-Commerce	Required	-	3	Blended	Program
	ISLM103	Islamic Culture 3	Required	-	2	Blended	Program
Summer	IT499	Practical Training	Required	Complete 86 hours	3	Blended	College
Level 7	IT490	Senior Project I	Required	IT230, IT344	2	Blended	Program
	IT440	System Integration	Required	IT243, IT340	3	Blended	Program
	IT342	Enterprise Systems	Required	IT201	3	Blended	Program
	IT446	Data Mining & Data Warehousing	Elective	IT344	3	Blended	Program
	IT448	Mobile Application Development	Elective	IT230	3	Blended	Program
	ISLM104	Islamic Culture 4		-	2	Blended	Institute
Level 8	IT491	Senior Project II	Required	IT490	4	Blended	Program
	IT445	Decision Support Systems	Elective	IT344	3	Blended	Program
	IT441	Multimedia Systems Development	Elective	IT230	3	Blended	Program
	IT407	Professional Issues	Required	IT270	3	Blended	Program
	IT409	IT Security and Policies	Required	IT340	3	Blended	Program

Program courses description

COURSE NAME: **English language Skills**

COURSE CODE: **ENG001**

COURSE DESCRIPTION: The 4 weekly hours of contact time with the English instructors aims to support, compliment and reinforce the student's online learning. The contact hours serves as an essential support component such that students are guided throughout their English studies. In addition, a course textbook has been selected to support the students learning. The Q:Skills series from world famous Oxford University press has been chosen as the official textbook of the course which students purchase from a distributor. The textbook is an e-book which an adaptive book rather than the traditional textbook. The Q:Skills series is one of the leading EFL course textbooks available in the current marketplace. The Q:Skills series (Reading and Writing and Listening and Speaking). Clearly identified learning outcomes focus students on the goal of instruction, while thought-provoking unit questions provide a critical thinking framework. In this regard, the skills of reading, writing, are covered in the first two hours of face two while the listening and speaking book will be covered in the second portion of the face to face class. Therefore, all four skills are covered effectively. Thus, the overall goal of developing the students' ability to communicate as effectively as possible in the English language.

COURSE NAME: **Computer Essentials**

COURSE CODE: **CS001**

COURSE DESCRIPTION: This course is an essential guide to computing concepts and provides the learner with a complete learning solution focusing on the most important, essential, and current concepts of information technology. Students are given a streamlined, concise, relevant approach to the fundamental issues surrounding the world of computing through a balance between theory and applied learning of these important topics.

COURSE NAME: **Communication Skills**

COURSE CODE: **COMM001**

COURSE DESCRIPTION: Defining the nature of communication, its elements, types, characteristics, objectives, efficiency of communication, its obstacles and tools, the relationship between linguistic communication and non-linguistic communication. Topics include: Self-concept, and self-disclosure, the skill of persuasion, personal interviews, the personal capabilities sought by the sectors, CV writing skill and Effective presentation and presentation skill.

COURSE NAME: **English language Skills**

COURSE CODE: **ENG001**

COURSE DESCRIPTION: The 4 weekly hours of contact time with the English instructors aims to support, compliment and reinforce the student's online learning. The contact hours serves as an essential support component such that students are guided throughout their English studies. In addition, a course textbook has been selected to support the students learning. The Q:Skills series from world famous Oxford University press has been chosen as the official textbook of the course which students purchase from a distributor. The textbook is an e-book which an adaptive book rather than the traditional textbook. The Q:Skills series is one of the leading EFL course textbooks available in the current marketplace. The Q:Skills series (Reading and Writing and Listening and Speaking). Clearly identified learning outcomes focus students on the goal of instruction, while thought-provoking unit questions provide a critical thinking framework. In this regard, the skills of reading, writing, are covered in the first two hours of face two while the listening and speaking book will be covered in the second portion of the face to face class. Therefore, all four skills are covered effectively. Thus, the overall goal of developing the students' ability to communicate as effectively as possible in the English language.

COURSE NAME: **Fundamentals of Math**

COURSE CODE: **MATH001**

COURSE DESCRIPTION: This course will address the outcomes of introductory and intermediate algebra. Topics include: basic algebraic properties, integers, simplifying and factoring polynomials, solving and graphing linear equations and inequalities, solving systems of equations in two and three variables, functions, rational expressions, quadratic and rational equations and inequalities, absolute value, graphing systems of equations and inequalities, and other selected topics. Applications will be emphasized, and numeric, algebraic, and graphical modes will be used.

COURSE NAME: **Academic Skills**

COURSE CODE: **CI001**

COURSE DESCRIPTION: This course aims to help the student manage himself, his abilities and potentials in a way that leads him to success, excellence and creativity, acquiring a number of strategies, research tools, learning tools, thinking positively and soundly, and using a series of real and effective strategic tools that help him acquire knowledge, organize it and quickly recall it, prepare and present scientific research. The course also aims to enhance self-learning tools and strategies, patterns and methods, as well as learning tools and strategies in e-learning environments.

COURSE NAME: **Computer Programming I**

COURSE CODE: **CS140**

COURSE DESCRIPTION: This course is to introduce the students to the principles of computer analysis of problems, design of algorithms, programming and testing using the Java programming language. Topics include problem analysis, basics of Programming, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging.

COURSE NAME: **Introduction to IT & IS**

COURSE CODE: **IT101**

COURSE DESCRIPTION: This course is an introductory course in information technology and information systems technology. The purpose of this course is to familiarize students with application of IT systems in various professional spectrums in the form of Information systems. Topics include basic hardware, software, data and overview of use of information technology in organizations. This course also provides an understanding of information systems and outlines the concepts of how IS can provide for competitive advantage. The course will also discuss about the management challenges facing organization today and how its affect to business and society.

COURSE NAME: **Discrete Mathematics**

COURSE CODE: **MATH150**

COURSE DESCRIPTION: This course introduces students to fundamental algebraic, logical and combinatorial concepts in mathematics. Topics include Boolean Logic, Predicate Logic, sets, mapping, relations, elementary counting principles, algorithm & proof techniques, graphs, and recursions.

COURSE NAME: **Technical Writing**

COURSE CODE: **ENG103**

COURSE DESCRIPTION: This course offers a general overview on principles and procedure of technical writing; attention to analyzing audience and purpose, organizing information, designing graphic aids, and writing such specialized forms as abstracts, instructions, and proposals. Students systematize and organize knowledge in ways that will help them in all of their courses. The course also emphasizes the elements of good writing style, appropriate grammar and mechanics, clarify of language and logical and cohesive development.

COURSE NAME: **Computer Organization**

COURSE CODE: **IT110**

COURSE DESCRIPTION: This course offers a comprehensive understanding of the structure of computational systems. This course deals with the nature of computer hardware. The course will cover the structure of current computer systems at the level of functional organization, representation of data and programs, the design of the memory hierarchy, and the design of the I/O system. This course also will introduce basic assembly language.

COURSE NAME: **Islamic Culture (1)**

COURSE CODE: **ISLM101**

COURSE DESCRIPTION: The Islamic culture course is one of the compulsory university requirements for all Saudi Electronic University students, as it is studied at one of the student's academic levels according to the vision of the college to which the student belongs, and it is taught by a member of the Islamic Studies Department

- The course covers topics including:
- Defining culture and its terminology
- Islamic culture, its inception, and its approach
- Sources of Islamic culture science
- Topics of Islamic culture science
- Pillars of Islamic culture
- The six pillars of faith
- Follow the six pillars of faith
- Components of major cultures
- Islamic and other cultures
- Challenges facing Islamic culture
- Follow the challenges facing Islamic culture

COURSE NAME: **Computer Programming II**

COURSE CODE: **CS141**

COURSE DESCRIPTION: This course is the logical extension of Computer programming 1. In this course, students will be taught to work on complex data structures and algorithms. Major focus of this course is to prepare the transition from conventional functional programming to more relevant object oriented programming. Topic includes Concepts of object oriented (OO) programming: data abstraction, encapsulation, inheritance, and polymorphism. Also includes key data structures including stacks, queues, linked lists, binary trees, recursion and examples using some fundamental algorithms of computer science. Java programming languages will be used.

COURSE NAME: **Linear Algebra**

COURSE CODE: **MATH251**

COURSE DESCRIPTION: Topics include systems of linear equations, their applications, and solutions. Matrices, vectors, elementary operations on vectors, linear independence, spanning sets, and bases. Eigenvalues, eigen-vectors, and eigenspaces will be discussed. Example applications will be given, especially, in IT systems.

COURSE NAME: **Software Engineering**

COURSE CODE: **IT242**

COURSE DESCRIPTION: Software engineering as an academic discipline is responsible for educating the IT practitioners in skills required to develop, operate and maintain software in systematic, orderly and successful manner. This course covers the fundamentals of software engineering, including understanding system requirements, finding appropriate engineering compromises, effective methods of design, coding, and testing, team software development, and the application of engineering tools.

COURSE NAME: **Operating Systems**

COURSE CODE: **IT241**

COURSE DESCRIPTION: The aim of this course is to familiarize students with principles, architecture and working of a standard operating system. After completing this course, students will appreciate the significance of operating system on program efficiency, synchronization, multi-tasking and other related topics. Topics include: Computer and operating system structures, Process and thread management, Process synchronization and communication, Memory management, Virtual memory, File system, I/O subsystem and device management and Selected examples in networking, protection and security.

COURSE NAME: **Principals of Management**

COURSE CODE: **MGT101**

COURSE DESCRIPTION: This course provides an overview of the field of management by combining management theories & practices. It emphasizes the development and application of competencies required for effective leadership, including planning, motivating, organizational control & decision making. Further, it places emphasis on change management, current domestic and global business issues with regard to sustainability & ethics. The course includes practices in conflict resolution and mediation, fostering improvement of working relationships, through the use of activities that integrate emotional intelligence and communication skills, leading to the creation of a productive work environment.

COURSE NAME: **Islamic Culture (2)**

COURSE CODE: **ISLM102**

COURSE DESCRIPTION: The course of ethics and professional ethics in Islam is one of the compulsory university requirements for all students of the Saudi Electronic University.

In its units, the course deals with several topics, including:

- Defining ethics, its divisions, its status in Islam, and the importance of studying it.
- Foundations of good morals.
- Characteristics of morality in Islam.
- Morals for non-Muslims.
- Means of acquiring morals.
- Congenital responsibility.
- Pictures of the morals of the Prophet, may God bless him and grant him peace.
- Integrity, honesty and anti-corruption.
- The concept of professional ethics.
- The role of professional ethics in work and production.

- The overall ethics of the profession.
- Some contemporary professions charters.

COURSE NAME: **System Analysis and Design**

COURSE CODE: **IT243**

COURSE DESCRIPTION: This course introduces the fundamental principles of problem analysis and software design to the students of college. In this regard the focus is on object-oriented approaches for modelling software requirements and leading to software design. The course is designed to integrate theoretical concepts of system analysis and design with practical examples and case studies so as to teach both the theory and the practice of this subject. In this course students will understand about practical techniques of software requirements, analysis, design, architecture and associate concepts. The object-oriented software industry over the last few years has gone through the process of standardizing visual modeling notations. The students will get familiarity with UML, Unified Modeling language, a modeling language for specifying, visualizing, constructing, and documenting, is the product of this effort. UML unifies the notations that currently exist in the industry.

COURSE NAME: **Introduction to Database**

COURSE CODE: **IT244**

COURSE DESCRIPTION: The course familiarizes students with significance of maintaining a computer based database using DBMS and its potential advantages to the organization. The students at the completion of this course will be able to understand the principal database concepts and develop a simple database for a small organization using standard DBMS. In this course, students should study the following topics: Basic concepts in database systems and architectures; Entity-Relationship model, Data models (including basics of Relational model & SQL), Database Design (Database dependencies and Normalization), Database implementation.

COURSE NAME: **Human Computer Interaction**

COURSE CODE: **IT201**

COURSE DESCRIPTION: This course provides an introduction to the field of Human computer Interaction (HCI). Therefore, the course provides an overview about the fundamental components of an interactive system which include the human, the computer system itself and the nature of the interaction. It presents also different interaction models, frameworks and styles. Moreover, it includes the interaction design process and highlights

the range of design rules that can help to increase the usability of software products. In addition, it includes the evaluation techniques under two broad headings: expert analysis and user participation. Furthermore, it discusses how to design a system to be universally accessible, regardless of age, gender cultural background or ability.

COURSE NAME: **Computer Networks**

COURSE CODE: **IT210**

COURSE DESCRIPTION: Fundamental concepts in the design and implementation of computer communication networks and their protocols. This course provides students with hands on experience in most state of the art networking tools, technologies, standards and protocols. This includes layered network architectures, applications, transport, congestion, routing, data link protocols, local area networks. An emphasis will be placed on the protocols used in the Internet.

COURSE NAME: **Statistics**

COURSE CODE: **STAT101**

COURSE DESCRIPTION: This course introduces the student to statistics with business applications. The course covers both descriptive and inferential statistics. Topics included are: measures of central tendency; measures of dispersion; graphical displays of data; linear regression; basic probability concepts; binomial and normal probability distributions; confidence intervals; and hypothesis testing of mean, proportion for one or two populations. The course also covers ANOVA and hypothesis tests for Goodness of Fit. These topics will be covered using a basic knowledge of algebra and Microsoft Excel.

COURSE NAME: **Database Management Systems**

COURSE CODE: **IT344**

COURSE DESCRIPTION: After the course of database, this course is intended to make the students practically proficient with using standard state of the art database management systems for development of organizational databases. In this course, students would study the following topics: DBMS architecture and administration; centralized and client-server approaches, system catalogue and data dictionary, transaction management; concepts, characteristics, and processing, recovery techniques, concurrency control techniques, DB security, object-oriented databases.

COURSE NAME: **Web Technologies**

COURSE CODE: **IT230**

COURSE DESCRIPTION: In this course students will be familiarized with web application development including both client side as well as server-side development and database connectivity. Topics such as Introduction to the Internet, World Wide Web, World Wide Web Consortium (W3C), standard mark-up language and services of the Internet. Topics include creating web pages, search engines, FTP, and other related topics. Students will get descriptions of client side and servicer side programming. Upon completion, students should be able to deploy a hand-coded web site created with mark-up language, and effectively use and understand the function of search engines.

COURSE NAME: **IT Project Management**

COURSE CODE: **IT270**

COURSE DESCRIPTION: This course is mainly designed to prepare students with the knowledge to be IT project managers with project management skills needed to better manage IT projects. Built along the IT project management lifecycle, this course covers detailed topics of the basic concepts of IT project management, including initiating, planning, controlling, executing, and closing projects. The course also shows how IT projects should be managed, from inception to post implementation review. This course will help improve management skills and abilities to define the project scope, create a workable project plan, and manage within the budget and schedule.

COURSE NAME: **Network Management**

COURSE CODE: **IT340**

COURSE DESCRIPTION: This course addresses how to manage complex high speed computer networks running a high-volume mix of data, voice, and video protocols. This course prepares the graduating students to assume positions of network administrators in medium to large organizations. We study performance-tuning options and monitoring techniques. The course covers both large local-area networks and Internet service-provider networks. Special focus will be on network management applications with focus on performance optimization, fault management, and security management. Also, hardware-oriented management protocols such as SNMP, tools for managing software applications, and policy-based routing protocols such as BGP will be covered. Will also cover Advanced IP configuration using iproute2 package, how to tune networks for real-time traffic such as RTP and VOIP, and network-management tools such as OpenNMS and GroundWork. There will be a programming project involving development of a network-monitoring tool, preferably using Java.

COURSE NAME: **E-Commerce**

COURSE CODE: **E-COM101**

COURSE DESCRIPTION: This course provides an overview of electronic commerce in business and technology. It is designed to familiarize students with electronic commerce concepts, the foundation for understanding how to create electronic commerce business, the use of technology to ease the electronic commerce processes, looking at the security threats and solutions with the electronic commerce environment, and the differences between

e-payment methods used in electronic commerce businesses. The course will provide, also, students with information related to basic concepts of consumer behavior and purchasing decisions. Students take advantages in learning digital marketing and targeting specific audiences with the campaigns. Learning activities include group projects, and application exercises. Face to Face (F2F) and Virtual (online) classes will each be held once per week.

COURSE NAME: **Islamic Culture (3)**

COURSE CODE: **ISLM103**

COURSE DESCRIPTION: The course of the economic system in Islam and its issues is one of the compulsory requirements of the university for all students of the Saudi Electronic University.

The course covers topics including:

- The concept of economic issues and the importance of studying them.
- Insurance: its definition, pillars, characteristics and ruling.
- Stock Exchange: its definition, divisions, role, objectives and Shariah ruling.
- Money laundering: its concept, forms, rulings and effects.
- Privatization: Concept, Forms, Objectives and Controls.
- Ijarah sukuk: definition, characteristics, objectives and rulings.
- Economic globalization: its meaning, objectives, tools, economic effects, and policies of economic globalization organizations.
- Electronic banking transactions: electronic sales, electronic documentary credit, electronic commercial papers, electronic bank transfer and the risks of electronic transactions.
- Economic integration: its concept, factors, advantages, stages and requirements.
- Economic inflation: its concept, types, causes, effects, and ways to overcome it

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COURSE NAME: **Practical Training**

COURSE CODE: **IT499**

COURSE DESCRIPTION: A summer period of 8 weeks spent as a trainee in industry, business, or government agencies for the purpose of familiarizing the student with the real job world and enabling him to apply and relate his academic knowledge to a real work environment.

COURSE NAME: **Senior Project I**

COURSE CODE: **IT490**

COURSE DESCRIPTION: This course will equip undergraduate Information Technologies students with the basic skills to conduct researches in the field of Information Technologies. The course aims to introduce the required techniques for conducting a research, implementing systems, writing technical reports and the skills for presenting the work for audiences. This course will particularly focus on topics which are related to the field of information technologies. The course will also provide guidance to the students in selecting their projects, understanding the research process as well as the tools needed to support implementing the system and writing its documentation. The course discusses other issues including research methods that are normally used in researches such as experiments, survey, interview and simulations, understanding the importance of literature review, preparing visual presentations and other ethical issues such as plagiarism.

COURSE NAME: **System Integration**

COURSE CODE: **IT440**

COURSE DESCRIPTION: In information technology, systems integration is the process of linking together different computing systems and software applications physically or functionally to act as a coordinated whole. Variety of techniques related to integration will be covered such as computer networking, enterprise application integration, business process management and manual programming. Various methods of integration including Vertical Integration, Horizontal Integration, Star Integration and Common Data Format Integration (using Enterprise application integration, EAI) will be covered.

COURSE NAME: **Enterprise Systems**

COURSE CODE: **IT342**

COURSE DESCRIPTION: Enterprise systems are a category of information systems which have been heavily adopted in practice since the 1990s. Enterprise systems are

usually based on packaged software products, they drive for cross-functional integration and require organization-wide resources for their implementation. This course is designed to provide a comprehensive insight into theoretical foundations, concepts, tools and current practice of enterprise systems. The course will familiarize students with basic concepts of Enterprise systems. The students will gain good experience and knowledge of working with major types of enterprise systems such as ERP systems, CRM systems, Enterprise portals etc. They will learn about major modules, integration issues, data communication and other related topics.

COURSE NAME: **Data Mining & Data Warehousing**

COURSE CODE: **IT446**

COURSE DESCRIPTION: Data Mining and data warehousing are two of the most valuable knowledge areas emerging in recent times. This course will familiarize the students with the techniques most commonly employed in the analysis of large volumes of data, in the extraction of knowledge from this data, and in making decisions based on the knowledge acquired. Students will also gain knowledge about the problems related to data mining that are not yet resolved satisfactorily at present and, therefore, are open research areas so that students can potentially work on those and find niche in this area of expertise. Major areas of data mining covered in this course include Data mining architectures, Data Integration, Data Warehousing, Data classification, Regression, Clustering, Correlation and several others. Students will learn how to manage heterogeneous data in a data warehouse, OLAP techniques etc.

COURSE NAME: **Mobile Application Development**

COURSE CODE: **IT448**

COURSE DESCRIPTION: The evolution of computing and IT technologies in the domain of wireless computing has spawned a new horizon of opportunities in the form of mobile smartphone applications. These application provide users with flexibility, mobility and enhanced usability features. The future of IT applications can only be secured by developing their mobile and smartphone versions. This course is aimed at providing students with basic and fundamental knowledge concept of mobile computing. This includes the major techniques involved, and networks & systems issues for the design and implementation of mobile computing systems and applications. This course also provides an opportunity for students to understand the key components and technologies involved and to gain hands-on experiences in building mobile applications. Students will gain knowledge about mobile IP, mobility management, location estimation, location-aware computing, user experience and other topics.

COURSE NAME: **Islamic Culture (4)**

COURSE CODE: **ISLM104**

COURSE DESCRIPTION: The Social System and Human Rights in Islam course is one of the university's compulsory requirements for all Saudi Electronic University students.

In its units, the course deals with several topics, including:

- The concept of society: its definition, the human being in Islam, the foundations of building society and Islam's care for it, the characteristics of the Islamic society, strengthening social ties.
- The family in Islam: its definition, its status, its importance, the foundations of building a family, marriage and its purposes, the rights of spouses, the rights of parents, children and relatives, the status and rights of women in Islam.
- Suspicions about the family system in Islam and the response to them: polygamy, veiling, women's inheritance, women's blood money, divorce, birth control.

COURSE NAME: **Senior Project II**

COURSE CODE: **IT491**

COURSE DESCRIPTION: This a continuation of the graduation project started in IS 490. The focus will be in this part on low-level design, implementation, testing and quality assurance as well as management of the project. The outcome of this project must be a significant information system, employing knowledge gained from courses through the curriculum. Students must deliver the code, a final report and must do a presentation of their work as well as a demo.

COURSE NAME: **Decision Support Systems**

COURSE CODE: **IT445**

COURSE DESCRIPTION: Decision support systems are playing key role in today's organizations in taking effective and useful decisions while insulating organizations from effects of wrong decisions. The course is devoted to introduce decision support systems; show their relationship to other computer-based information systems, demonstrate DSS development approaches, and show students how to utilize DSS capacities to support different types of decisions. The topics covered in the course include but not limited to Introduction to decision support systems; DSS components; Decision making and DSS; DSS software and hardware; developing DSS; DSS models

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COURSE NAME: **Multimedia Systems Development**

COURSE CODE: **IT441**

COURSE DESCRIPTION: The nature of data being employed by organizations for executing their business operations has become very heterogeneous. Today data is multi-dimensional including text, audio, visual and other types. The systems working with traditional database concepts are quickly becoming obsolete being replaces by multimedia systems capable of handling various kind of media. Multimedia data has become an indispensable part of our daily life and modern research projects. It's also one of the critical links in the ongoing unification of computing and communications. In this course, students will be introduced to principles and current technologies of multimedia systems, multimedia standards, and gain hands-on experience in this area. Issues in effectively representing, processing, and retrieving multimedia data such as sound and music, graphics, image and video, will be addressed. Major topics include multimedia application design, data processing and presentation, compression and decompression standards and content-based multimedia retrieval, multimedia Development, Scanning process and Professional issues related to multimedia systems.

COURSE NAME: **Professional Issues**

COURSE CODE: **IT407**

COURSE DESCRIPTION: This course provides an introduction to the field of professional issues which relates to social and ethical issues in computing. This course will cover the major social and ethical issues in computing, including the history of computing, impact of computers on society, and the computer professional codes of ethics.

COURSE NAME: **IT Security and Policies**

COURSE CODE: **IT409**

COURSE DESCRIPTION: This course introduces the concepts and issues related to securing information systems and the development of policies to implement information security controls. Topics include the historical view of networking and security, security issues, trends, security resources, and the role of policy, people, and processes in information security. Upon completion, students should be able to identify information security risks, create an information security policy, and identify processes to implement and enforce policy.