

Kingdom of Saudi Arabia
Jazan University
Information Technology and Security



Student Handbook

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1- Message from the Department Head:

Welcome to the Department of Information Technology and security (female campus) in college of computer science and technology at Jazan University.

The department offers a Bachelor's of information technology and security BITS. BITS is, a 135-credit program that immerses students in the latest concepts and practices related to information technology, including but not limited to network security, database concept, information security, data mining and web systems.

Our mission is to educate students who can effectively manage and face challenges of professional life to better serve local as well as national communities. Our graduate students can work in any organization rely on technology such as telecoms, banking and any organization that focus on a technology service or product.

Enjoy your visit and please feel free to contact us for further information.

Dr. Amani Alqarni
Head of
Department of Information Technology and Security

2- Overview:

The department of Information Technology and Security is keen on preparing a highly qualified graduates with excellent experience to be competitors in the labor market.



3- Vision:



Department of information technology and security is driven to provide excellent educational opportunities that are responsive to the needs of our students. The program aims to be distinguished in the field of technical research and innovation programs, which in turn will produce a competitive generation capable of meeting the needs of our society.



4- Mission and Goals:



- To create a flexible environment where all students have the opportunity to succeed.
- To provide high-quality programs that meet the evolving needs of our students, community and region.
- To Improve the practical, cognitive, and leadership skills for the department students.
- To ensure the preeminence of learning by the continuous enhancement in the curriculum
- To encourage the innovative preparation of a high-quality researches in the fields of information technology and security.



5- Female Faculty Members:



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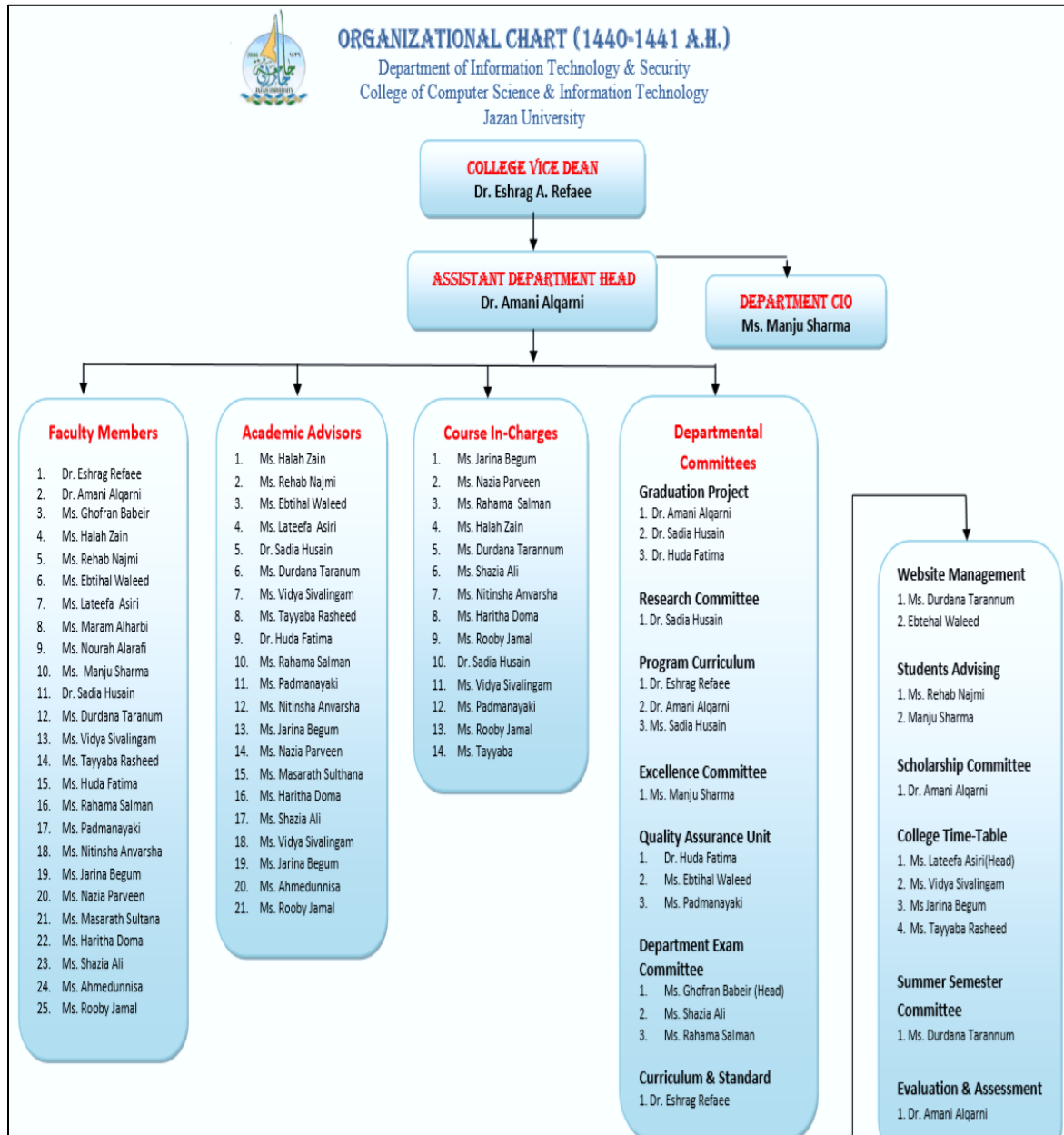
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6- Organizational Chart:



7- Course Descriptions:

ENGL103 - Intensive English 1	6 (6 + 0 + 0)	Prerequisite: None
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MATH100 - Mathematics	3 (3 + 0 + 0)	Prerequisite: None
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COMP101 - Introduction to Computer	3 (3 + 0 + 0)	Prerequisite: None
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This course introduces computer concepts, including fundamental functions and operations of the computer. Topics include identification of hardware components, basic computer operations, security issues, and use of software applications. Upon completion, students should be able to demonstrate an understanding of the role and function of computers and use the computer to solve problems. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural science/mathematics.

ISLM101 - Islamic 1	2 (2 + 0 + 0)	Prerequisite: None
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ENGL104 - Intensive English 2	6 (6 + 0 + 0)	Prerequisite: ENLG103
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MATH102 - Matrices & Algebra	3 (3 + 0 + 0)	Prerequisite: MATH100
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Systems of linear equations; matrix algebra; eigenvalues and eigenvectors; orthogonality and least squares, symmetric matrices and quadratic forms.

COMP011 - Programming I	3 (3 + 0 + 1)	Prerequisite: None
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This course aims at giving the students a broad foundation in the fundamental concepts of object-oriented programming. It presents in a very simple way the basic concepts and principles of the Object Oriented approach such as abstraction and encapsulation principles, classes, objects and the constructor concepts, information hiding principle and the accessors concept, methods, the message passing and the overloading principles. It also introduces the array data structure.

ISLM102 - Islamic 2	2 (2 + 0 + 0)	Prerequisite: None
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MATH206 -Discrete Mathematics **3 (3 + 0 + 1)** **Prerequisite:** MATH102

Logic and methods of proofs. Basic Discrete Structures: Sets, Functions, Recursive definitions, Sequences and Summations. Growth of functions. Integers and Division, Rings & Fields, Applications of Number Theory. Combinatorics: Counting techniques, Permutations and Combinations, Binomial Coefficients, Permutation and Combinations with repetition, Recurrence Relations, Generating Functions. Discrete Structures: Relations, Graphs, Trees and Finite State Machines. Discrete Probability (optional).

PHYS101 - Principle of Physics **4 (4 + 0 + 0)** **Prerequisite:** None

General Physics I is the first of a two semester sequence in General Physics designed to present concepts and applications of the following topics: kinematics, dynamics, gravitation, energy, momentum and heat.

COMP112 - Programming II **3 (3 + 0 + 1)** **Prerequisite:** COMP011

This course continues the coverage of the fundamental concepts of Object Oriented Programming started in Programming I (CSC111). It covers more advanced concepts and topics such as relationships between classes, inheritance, polymorphism, abstract classes, error handling, interfaces, generics and data structures such as linked lists, stacks and queues, graphical user interface.

INFS111- Introduction to Information System **3 (3 + 0 + 0)** **Prerequisite:** None

This course is intended to provide a broad introductory understanding of information systems and information technology concepts and careers as well as the impact information technology has on the world, people, and industry. This course is meant to prepare students computer-related courses as well as preparing students for work in industry in the information processing fields. In particular, it aims to introduce the business areas to which computers may be applied; provide an introduction to business information systems; and develop comprehensive knowledge regarding the hardware, software and world wide web.

INFS112 - Management Information Systems **3 (3 + 0 + 0)** **Prerequisite:** INFS111

Fundamentals of Information Systems in Business, Introduction to management information systems, competing with Information Technology, Computer Hardware, Computer Software, Data Resource Management, The Internet worked E-Business Enterprise, Electronic Business and Commerce-Business Decision Support, Developing E-Business Solutions, Security and Challenges of E-Business, Enterprise and Global Management of E-Business Technology.

COMP221 - Algorithms and data structures 1 **3 (3 + 0 + 1)** **Prerequisite:** None

Abstract Data Types; Performance Measurement: Time & Space Complexity, Big-O notation. Basic Data Structures: Lists, Stacks, Queues, Priority Queues. Trees: Recursion, Terminology,

General Trees, Binary Trees, Balanced Search Trees, AVL Trees. Multi-way Trees: the family of B-Trees. Heaps: Min and Max Heap, HeapSort, Priority Queue as a Heap. Hashing Techniques: Hashing Functions, Collision Resolution Strategies. Graphs: Terminology, Graph Traversal Algorithms, Other important graph algorithms, Sorting.

COMP213 - Object Oriented Programming 3 (3 + 0 + 1) Prerequisite: COMP112

An introduction to object-oriented programming in Java; development of algorithms, including use of arrays and other kinds of tables; user interface and file handling. Several central mechanisms of object-oriented programming will be covered, including use of classes, objects and references; cooperating objects created from a few classes; use of Java's class library.

CNET213 - Computer Organization and Architecture 3 (3 + 0 + 1) Prerequisite: None

Introduction to basic computer organization and how the computer works; The Internal organization of the Intel x86-based PCs; Basic Computer Organization [sequential machines, DeMorgan's Law, simplifying circuits using Karnaugh maps, Instruction code, Computer registers, Instruction set, Timing and control]; Register Transfer Language HDL (Hardware Description Language) and Micro-operations; Computer Arithmetic Logic Unit Design. - Hardwired control unit, instruction set, introduction to addressing modes; Central Processing Unit Design [Register organization, Stack organization, Instruction format, Addressing modes, Reduced Instruction set computer]; Overview of Assembly language programming and using Addressing modes.

COMP252- Data Modeling and Simulation 3 (3 + 0 + 1) Prerequisite: None

Introduction to Simulation. Concepts in Discrete-event Simulation (DES). Components of DES. Monte Carlo simulation, the life cycle of a simulation study, input and output data analysis, world views and time control, random number generation, credibility assessment of simulation results, simulation languages, Parallel and Distributed Simulation, applications of simulation using contemporary simulation modeling and support software.

COMP231- Operating Systems 3 (3 + 0 + 1) Prerequisite: None

This is an introductory course in Operating Systems. As such, it is intended to cover many of the concepts related to most of the actual Operating Systems. Although the study of a particular Operating System is out of the scope of this course, nevertheless, we will cover most of the concepts found in any existing Operating System. We will review computer system and operating system structures, processes and threads (concepts of, communication, synchronization and deadlocks), CPU Scheduling, memory management and virtual memory.

INFS221 - Database System 1**3 (3 + 0 + 1)****Prerequisite: INFS111**

This course is intended to give students knowledge and understanding of what a database is, the various types of databases, and why they are valuable assets for decision making, the importance of database design, how modern databases evolved from file systems, the main components of the database system, and the main functions of a database management system (DBMS). Data models and why data models are important, data-modeling building blocks, business rules and integrity constraints and how they influence database design, how the major data models evolved and how data models can be classified by level of abstraction. Focusing on the relational database model and its basic components: relations, operators, data dictionary, and system catalog, how data redundancy is handled, and Relational algebra operations.

INFS231 - System Analysis and Design**3 (3 + 0 + 1)****Prerequisite: INFS111**

Primary aim of this course is to introduce methods to effectively and efficiently organize and manage a project. It focuses the key concepts, techniques, and methodologies relevant to the process of developing information systems (IS). It provides an overview of the system development life cycle covering information gathering and reporting activities from the analysis phase through the maintenance and support phase. The course introduces the classical and structural tools/techniques for describing processes, data flows, data structures, file and database design, input/output design and program specifications. Students will be trained on some software tools such as: System architects, Visio, ARCHITECT, and Visio Modeler.

INFS241- Internet Technology**3 (3 + 0 + 1)****Prerequisite: None**

An overview of Internet technologies (definitions, evolutions, examples, and, applications). Publishing and browsing technologies. Internet tools. TCP/IP and Client/server architectures. WWW, HTTP and HTML for text, images, links and forms. Web-based applications development: client-side scripting, server-side scripting and the MVC design approach. WEB site development. Security and privacy.

INFS314 - Knowledge Based Systems**3 (3 + 0 + 1)****Prerequisite: None**

The Course introduces the fundamentals of Knowledge-Based Systems. Key topics include Introduction to Knowledge-Based Systems. Applications, Advantages and Limitations of knowledge-Based Systems. Knowledge-Based Systems Architecture. Developing Knowledge-Based Systems, Knowledge Acquisition, Knowledge Representation. Methods of Inference and reasoning. Knowledge Management: Elements, Process, Tools and Technologies, Roles and Responsibilities of Knowledge Management. Introduction to Fuzzy Logic, Fuzzy Sets, Operations and Fuzzy functions. Agent-Based Systems and Expert Systems. Knowledge-Based Systems Development Life Cycle.

COMP324 - Information System Privacy **3 (3 + 0 + 1)** **Prerequisite: COMP231**

This course focuses on the large scale implementation of information systems security with emphasis on current threats and vulnerabilities. Students will identify key elements that enable these cyber security threats and apply security controls that can mitigate the risk associated with these threats. Students will protect systems and networks from threats. This course will explore methods, tools, and techniques that intruders use to exploit vulnerabilities in systems. The student will apply the elements of information assurance and computer security from risk assessment to public key encryption. Additionally awareness training, countermeasures and safeguards and continuity of operations are taught.

INFS323- Data mining and warehousing **3 (3 + 0 + 1)** **Prerequisite: INFS221**

An overview of data warehousing and data mining concepts included cycles of business intelligent system architecture, data mining methodology, measurements of the effectiveness of extracted knowledge and its applications. It provides some background knowledge of data mining to the students to understand the roles in data mining and data ware housing like machine learning, pattern recognition, database technology, knowledge based systems, artificial intelligence, high performance computing and data visualization. It will discuss planning of logical and physical design, implementation, maintenance and evolution of data warehouse systems. The course introduces various data mining techniques for data preprocessing, mining frequent patterns, associations, correlations, data classification, and cluster analysis. Students will be trained on some software tools such as: SPSS, Weka, Matlab, Oracle, DBMiner e.t.c.

COMP241 - Artificial Intelligence **3 (3 + 0 + 1)** **Prerequisite: COMP112**

Introduction to AI. Agents and intelligent agents. Knowledge representation (semantic networks, frames, propositional and high-order logics). Resolution and basic inference rules. Problem spaces and searching techniques (Blind Search: Depth-First Search, Breadth-First Search, Depth-Limited Search, Iterative Deepening Search; Heuristic Search: Greedy Search, A*-Search, Hill Climbing). Constraint Satisfaction Problems. Some of the following applications: Game Playing, Machine Learning, Natural Language Processing, Expert Systems.

CNET331 - Computer Networks **3 (3 + 0 + 1)** **Prerequisite: None**

The course aims at giving the students the sufficient knowledge to understand the mechanisms that govern modern computer networks, with a focus on the Internet. It covers the following topics: Overview (computer networks uses, layered architecture). The Data Link Layer (error control, flow control, LANs, Ethernet). The Network Layer (routing algorithms, IP). The Transport Layer (congestion, TCP, UDP, sockets). The Application Layer (some examples).

INFO* - Elective 1** **3 (3 + 0 + 1)** **Prerequisite: None**

INFS336 - Human Computer Interaction 3 (3 + 0 + 1) Prerequisite: None

Introduction to HCI. The Human User: Capabilities and Limitations. The Computer: Capabilities and Limitations. The Interaction: Models of Interaction and Interaction Styles. Usability Principles: Principles of HCI that support user friendliness. Interface design: dialog notation and design - Visual Design. Design support: Systems that support the design process. Usability Evaluation. Introduction to Speech Computing and other Forms of Input/Output.

INFS316 - Decisions Support Systems 3 (3 + 0 + 1) Prerequisite: None

This course covers the following topics: the decision making process, decision making and support systems (DSS), modeling and support, categorization of problem-solving techniques, data management and concepts of the data warehousing, modeling; forecasting models, simulation models and association analysis models, decision support system construction methods, decision tree induction, knowledge-based systems and expert systems, expert system architecture, representation of knowledge, forward and backward chaining, inferences making process, applications of expert systems in decision making.

INFS334 - Software Engineering 3 (3 + 0 + 1) Prerequisite: None

Important concepts in software engineering Software life cycle - Software processes, introduction to extreme programming - Requirements engineering – Basics of software models and design - Basics of software testing - Basics of configuration management - Basics of software project management and software cost estimation. Students participate in a group project using the principles of software engineering.

INFS342 - E-Business and E-Commerce 3 (3 + 0 + 1) Prerequisite: None

Introduction: E-business Vs E-commerce, E-business infrastructure, E-environments, Security. Strategy and Applications: E-business Strategy, Supply chain Management, E-procurement, E-marketing, and Customer Relationship Management. Implementation: Change Management, Analysis and Design, Implementation and Maintenance. Case Studies: At-least one case study among the successful E-business experiments like Google, Facebook, Hotmail etc. and one among the unsuccessful e-business experiments, understanding the reasons for their success and failures.

INFS435 - Software Quality Assurance 3 (3 + 0 + 1) Prerequisite: INFS334

The aim of this course is to quantify the factors that influence software quality and provide students with sufficient information to predict and measure quality levels of their projects and applications. It consolidates an expansive body of software quality data—data on software structural quality, software assurance processes and techniques, and the marginal costs and benefits of improving software quality. It provides quantitative data on how high and low quality affects software project schedules, staffing, development costs, and maintenance costs. In addition with functional quality, it also deals with non functional and structural quality on testing. It also covers newer kinds of development methods also have beneficial impacts on software quality compared to traditional

“waterfall” development. Students will be trained with the following softwares: Selenium (Web Testing Tool) Bugzilla (Bug Tracking Tool) and Test Director (Test Management Tool).

INFS390 - Summer Training **3 (3 + 0 + 1)** **Prerequisite: None**

INFS451 - Technical Report Writing **3 (3 + 0 + 1)** **Prerequisite: None**

This course is designed to help students develop an effective method of planning and completing writing tasks so that student can meet professional writing demands. Since succeeding in the professional world requires not only technical knowledge but also effective writing skills. This course focuses on the writing skills necessary for advanced academic and professional writing, tailored specifically to student academic career work as professional in a technical field. Successful technical communicators know how to organize and present complex information so that the ideas are understandable to many readers, viewers, and listeners. In this course, students will complete several small technical and recommendation reports on a topics related to IT related majors. Indeed, this course requires intensive writing, reading, and peer commentary.

INFO* - Elective 2** **3 (3 + 0 + 1)** **Prerequisite: None**

Multimedia **3 (3 + 0 + 1)** **Prerequisite: None**

This course is designed to provide the fundamental concept and techniques of multimedia system components. Some of the key areas covered by the course are: Multimedia authoring and content creation, media representations, compression, multimedia communication and retrieval, user interfaces and recent trends in multimedia. It covers the techniques and tools to design and implement interactive multimedia applications. Students will be trained on some of the authoring, editing, and scripting tool for the multimedia development.

COMP455 - Final Project **3 (3 + 0 + 1)** **Prerequisite: None**

In this course, students choose a project subject and define the objectives of the project under the supervision of a faculty member, and prepare the project proposal including: defining the statement of the problem, defining system requirements, defining different candidate solutions for the problem of study, making feasibility study for different candidate solutions, defining the best candidate solution, defining time table schedule. Students should present the project interim report at the end of the semester, grading will be obtained by oral examination to be held by a committee from faculty members. Students will be allowed to work individually or in groups.

**INFS452 - Computer Ethics
and Society**

3 (3 + 0 + 1)

Prerequisite: None

Introduction, ,Definition of some important terminologies, Ethics in the business world, Why fostering good business ethics is important, Improving corporate ethics, Creating an ethical work environment, Including ethical considerations in decision making, Four common approaches in ethical decision making, Ethics in Information Technology, IT professionals (An overview),Are IT workers professionals, The changing professional services industry, Professional relationships that must be managed, Professional codes of ethics, Common Ethical issues for IT users, Supporting ethical practices of IT users, Different Types of Exploits, Different Types of perpetrators, Implementing trust worthy computing, Risk Assessment, Establishing a security policy, Prevention from threats, Detection, Privacy protection, Concepts & principles related to information privacy, Data & information privacy guidelines, Key privacy issues, Recommendations for safeguarding your identity data, Freedom of expression key issues, Controlling access to information on the internet, Anonymity on the internet, Defamation & hate speech, Corporate blogging, Pornography What is Intellectual Property, Copyrights, Patents, Trade Secrets, Key intellectual property issues, Strategies for engineering quality software, Key issues in software development, Development of safety critical systems, Quality management standards, Checklist for improving software quality, IT investment & productivity, Tele-work, Advantages & disadvantages of tele-working, The digital divide, The impact of IT on healthcare and its costs, Use of mobile and wireless technology in healthcare industry, Telemedicine, What is social networking website?, Business applications of online social networking, Social networking ethical issues, Online virtual worlds, Crimes in virtual worlds, , Whistle, blowing, Green computing, Commandments, Ethics Theories.

INFS415 - Information Systems Audit and Control

3 (3 + 0 + 1)

Prerequisite: None

Information technology overview, Current IT environment, emerging issues. Risk and control impact of information systems, Risks in using information systems - what can go wrong? How information systems affect audit materiality, audit risk and generally accepted, auditing standards. How information systems affect internal audits and value-for-money audits. Auditor independence, Inherent risk, Control risk, Audit risk. IT Overview and General controls, Information systems control structure, Organization controls, Access controls, Program change controls, Computer operations controls, Business continuity planning. Systems Development Controls, Systems development life cycle, Systems development methodologies. Value-for-money issues, Auditor's involvement, Accounting implications of systems under development, Why development projects fail. Application Controls, Input controls, Processing controls, Output controls, Management and independent controls. Electronic data interchange; Owner managed organizations, Internal control certification. Computer assisted audit techniques (CAATs), Benefits, Types, Analytical review, Control testing, Substantive audit work, Applications in internal auditing. Access controls, Policies and standards, Network security, Application and data security, Information Privacy, Electronic transactions security, Physical access controls. Control and Audit Impact of Outsourcing, Impact on the financial statement audit, Impact on internal auditing, Reliance on other auditors.

8- Study Plan:

First Level

Subject Code	Subject Name	Prerequisite	CH
ENGL 103	Intensive English		6
MATH 001	Mathematics		3
COMP 101	Introduction to Computer		3
ISLM 101	Islamic Culture 1		2
Total Credit Hours			14

Second Level

Subject Code	Subject Name	Prerequisite	CH
ENGL104	English For Computer	ENGL 103	6
COMP 011	Programming Language I		3
MATH011	Matrices & Algebra 1	MATH 100	3
ISLM 102	Islamic Culture 2		2
Total Credit Hours			14

Third Level

Subject Code	Subject Name	Prerequisite	CH
ARAB 101	Arabic Language Skills		2
PHYS 201	Principles of Physics		4
COMP 112	Programming Language - II	COMP 011	3
INFS 111	Introduction to Information System		3
ISLM 103	Islamic Culture 3		2
Total Credit Hours			14

Forth Level

Subject Code	Subject Name	Prerequisite	CH
MATH206	Discrete Mathamatics	MATH 102	3
ISLM104	Islamic Culture 4		2
ADMIN 213	Principles & Practices of Managment		3
INFS 112	Managment Information System		3
ARAB102	Arabic Writing		2
MATH012	Calculus	MATH 100	3
Total Credit Hours			16

Fifth Level

Subject Code	Subject Name	Prerequisite	CH
COMP 221	Algorithms & Data Structure 1		3
INFS 221	Database Systems I	INFS 111	3
COMP 252	Data Modeling & Simulation		3
COMP 213	Object Oriented Programming	COMP 112	3
CNET 213	Computer Organization & Architecture		3
Total Credit Hours			15

Sixth Level

Subject Code	Subject Name	Prerequisite	Description	CH
COMP 231	Operating System		View File	3
INFS 222	Database -2	INFS 111	View File	3
INFS 241	Internet Technology		View File	3
COMP 241	Artificial Intelligence	COMP 112	View File	3
INFS 231	Systems Analysis & Design-1	COMP 221	View File	3
Total Credit Hours				15

Seventh Level

Subject Code	Subject Name	Prerequisite	CH
INFS 332	Systems Analysis & Design - 2	INFS 231	3
INFS 314	Knowledge Base Systems		3
CNET 331	Computer Networks	COMP 222	3
COMP 324	Computer Data Security and Privacy	COMP 231	3
INFS ***	Elective-1		3
Total Credit Hours			15

Eight Level

Subject Code	Subject Name	Prerequisite	CH
INFS 323	Data Warehousing and Data Mining	INFS 222	3
INFS 316	Decision Support System		3
INFS 342	E-Business		3
INFS 336	Human Computer Interaction		3
INFS 334	Software Engineering		3
Total Credit Hours			15

Ninth Level

Subject Code	Subject Name	Prerequisite	CH
INFS 451	Technical Report Writing		3
INFS 433	Software Project Management		3
INFS 443	Multimedia Applications		3
INFS 4**	Elective 2		3
Total Credit Hours			12

Tenth Level			
Subject Code	Subject Name	Prerequisite	CH
INFS 345	Software Quality Assurance	INFS 334	3
INFS 415	Information Systems Control & Audit		3
INFS 495	Final Project		3
INFS 452	Computer Ethics & Society		3
Total Credit Hours			12

9- Graduation Project Samples:

No.	Project Title	Supervisor	Abstract
1	In-House Office Collaboration System	Ms. Ghofran Babier	pdf
2	Disease Diagnosis Using Data Mining Techniques	Ms. Ebtihal	pdf
3	Clinic Inventory Management System Courier	Ms. Halah Zain	pdf
4	Courier Information Management	Ms. Lateefa Asiri	pdf
5	Disease Diagnosis Using Data Mining Techniques	Ms. Lateefa Asiri	pdf
6	Courier Information Management	Ms. Rehab Najmi	pdf
7	Courier Information Management	Dr. Sadia Hussain	pdf
8	In-House Office Collaboration System	Ms. Manju Sharma	pdf

10- Contact Us:

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