University of Tabuk
Faculty of Computers and Information Technology

Department of Information Technology Manual
2019

كلية الحاسبات و تقنية المعلومات

قسم تقنية المعلومات

جامعة تبوك
University of Tabuk

Contents

Head of Department Message

On behalf of the department of Information Technology (IT) faculty members and staff, I would like to welcome you all into the guide of IT department at University of Tabuk . The aim of this guide is to introduce the IT department, the plans and the courses it provides, the scientific researches and the research projects, as well as the scientific and other activities in the department. I hope that the guide well be used to highlight the scientific, research development of the IT department, and contribute to the university's efforts towards excellence and universality. The department of IT offers a Bachelor of IT program (male students only currently), which is based on the quality plan and academic accreditation. Therefore, all the specialization subjects in the department teach the English language, the department includes also many faculty members who have experience and competence, which contributes to the achievement of the department to see it and its objectives. With best wishes to all students with success in serving our Saudi nation.

Department of Information Technology

https://www.ut.edu.sa/en/web/department-of-information-technology

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Establishment

The Department of Information Technology was established along with the start of FCIT in 2008, and the students are being admitted to the program of Information Technology since 2009. The department aims to graduate qualified IT professionals. The department devotes its efforts to meet the scientific and educational challenges, and is able to cope with the rapid development of the field of information technology to provide the latest technical knowledge to its students.

Vision

The IT Department aspires to maintain regionally leading and internationally recognized reputation in the areas of information technology. The program will produce successful and productive information technology professionals.

IT ProgramMission

The Information Technology Program is committed to provide quality education that contributes in lifelong learning and professional development for graduates; and to participate in both scientific research and community services.

IT Program Educational Objectives (PEOs)

Upon completion of the IT Program, graduates will be able to:

> **PEO1:** Exhibit a solid foundation in information technology and basic sciences.
>
> **PEO2:** Excel as an IT professional with potential knowledge and skills to apply IT solutions.
>
> **PEO3:** Exhibit communication, professionalism, team work, leadership skills, and ethical and responsible behavior.
>
> **PEO4:** Pursue lifelong learning and career development.

Student Outcomes

The IT Program has adopted the following a-n student outcomes as prescribed in ABET Criteria for Accrediting Computing Programs:

a. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
c. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.
d. An ability to function effectively on teams to accomplish a common goal.
e. An understanding of professional, ethical, legal, security and social issues and responsibilities.
f. An ability to communicate effectively with a range of audiences.
g. An ability to analyze the local and global impact of computing on individuals, organizations, and society.
h. Recognition of the need for and an ability to engage in continuing professional development.
i. An ability to use current techniques, skills, and tools necessary for computing practice.
j. An ability to use and apply current technical concepts and practices in the core information technologies.

k. An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.
l. An ability to effectively integrate IT-based solutions into the user environment.
m. An understanding of best practices and standards and their application.
n. An ability to assist in the creation of an effective project plan.

Career Opportunities
- Software designer;
- IT specialist;
- Multimedia designer
- Web sites designers and administrator;
- Information System Analyst, designer and programmer;
- Database administrator;
- Networking administrator;
- Networking security designer, and administrator;
- Information system security designer, and engineer;
- Programming languages and IT trainer.

Department Committee

Committee for Curriculum and Study Plan

The mission of the Curriculum Committee is to prepare and develop programs and study plans and review the characterization of the curricula, their objectives, their vocabulary and references, and then periodically evaluate them to keep abreast of developments in the field of computer and information technology. And continuous coordination with the College Quality Committee to identify the relevant requirements and models as well as the outputs, methods of teaching and evaluation and determine their compatibility with the outputs of the learning outcomes. The Committee shall have the following functions:

- Preparation and development of study plans for academic programs in Arabic and English versions in accordance with the standards of the curriculum unit and the university plans, the models specified in the procedural guide to the programs and the academic plans of the university, the standards and requirements of the ABET and the general guidelines for ACM / IEEE Taking into account the views of faculty members, students, graduates, the labor market and the community.
- Continuous coordination with the curriculum committee and the curriculum unit at the college and university.
- Determine the joint courses between the various programs within the college (college requirements) based on the recommendations of the councils of the scientific departments.

- Review, develop and study the coding, content and characterization of courses and prerequisites and the extent to which it is compatible expected educational outcomes, and with the objectives and vision of the department, college and university.
- Review, develop and study the compatibility and harmony between the curriculum and methods of teaching and evaluation with the expected outputs of education and with the objectives and vision of the department, college and university.
- Periodic review of the appropriateness of the knowledge and skills acquired by the student during his studies in the department with the requirements of the labor market.
- Determine the department's elective courses and submit recommendations to the department scientific council.

Organizational Structure

Department Head

department council

Department committees

Committee for Curriculum and Study Plan
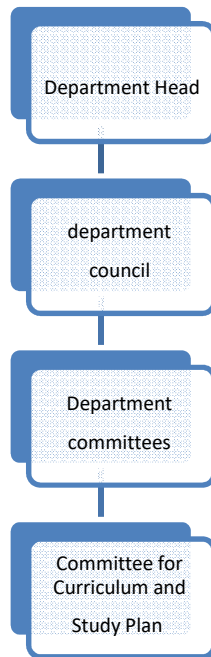
Research activities

In keeping with the vision and mission of the Faculty of Computers and Information Technology, the Information Technology Department supports and encourages department members to pursuance innovative scientific research that covering many areas of research related to Information Technology.Over the past three years, the faculty members have published many scientific papers in peer reviewed scientific journals, and have also participated in many research activities, conferences and workshops related to the following research areas:

- Artificial Intelligence;
- Pattern Recognition;
- E- learning;
- Mobile Applications;
- Software engineering;
- Natural Language Processing;
- Networking security;
- Health Information Systems.

Requirements for Obtaining a Bachelor's Degree in Information Technology

To obtain a Bachelor's Degree in Information Technology from Information Technology Department, the student must complete (139) study hours as follows:

#	Requirements	Credit Hours
1	The Courses Required by the University	20
2	The Courses Required by the College	25
3	The Courses Required by IT Program	82
4	Elective Courses for IT Program	12
Total		**139**

The Courses Required by the University (20 Credit Hours)

Code		Name	Lec	Lab	Tut	CH	Prerequisite	
ISLS	101	Islamic Culture(1)	2	0	0	2	N/A	
ARB	101	Arabic Language Skills	2	0	0	2	N/A	
ISLS	201	Islamic Culture (2)	2	0	0	2	ISLS	101
ARB	201	Arabic Writing Skills	2	0	0	2	ARAB	101
ISLS	301	Islamic Culture (3)	2	0	0	2	ISLS	201
ISLS	401	Islamic Culture (4)	2	0	0	2	ISLS	301
CSC	001	Computer Skills & Applications	4	0	0	3	N/A	
LTS	001	Learning Thinking & Research Skills	4	0	0	3	N/A	
COMM	001	Communication Skills	2	0	0	2	N/A	
						20		

The Courses Required by the College (25 Credit Hours)

Code		Name	Lec	Lab	Tut	CH	Prerequisite	
MATH	100	Mathematics (1)	3	0	2	3	N/A	
PHYS	101	General Physics	3	0	0	3	N/A	
ELS	001	English Language Skills (1)	15	0	0	5	N/A	
ELS	002	English Language Skills (2)	15	0	0	5	ELS	001
BIO	101	General Biology	3	0	0	3	N/A	
CHEM	101	General Chemistry	3	0	0	3	N/A	
MATH	101	Mathematics (2)	3	0	2	3	MATH	100
						25		

The Courses Required by IT Program (82 Credit Hours)

Code		Name	Lec	Lab	Tut	CH	Prerequisite	
PHYS	281	General Physics Lab	0	2	0	1	PHYS	101
CSC	101	Computer Programming (1)	3	2	0	4	CSC	001
MATH	200	Fundamental of Integral Calculus	4	0	2	4	MATH	101
STAT	201	General Statistics	4	0	2	4	MATH	100
ELS	210	English for Computer Students	3	0	0	3	ELS	102
CSC	102	Computer Programming (2)	3	2	2	4	CSC	101
CSC	109	Computer Ethics	1	0	0	1	CSC	001
CIT	200	Fundamentals of Information Technology	3	0	0	3	CSC	001

Code		Name	Lec	Lab	Tut	CH	Prerequisite	
CSC	210	Computer Organization and Assembly Language Programming	3	2	0	4	CSC	101
CSC	220	Data Structures and Algorithms	3	0	2	3	CSC	102
CSC	221	Software Engineering	3	0	2	3	CSC	220
CIT	230	Internet and Web Technology	2	2	0	3	CSC	102
CIT	240	E-Commerce	3	0	0	3	CIT	200
							CIT	230
MATH	251	Discrete Structures	3	0	2	3	MATH	101
ELS	301	Technical Writing	3	0	0	3	ELS	210
CSC	301	Visual Programming	2	2	0	3	CSC	1 02
STAT	311	Probability Theory	3	0	0	3	STAT	201
CEN	330	Computer Networks	3	2	0	4	CSC	210
CIS	340	Database Systems	3	2	0	4	CSC	220
CIT	341	IT Project Management	3	0	0	3	CSC	221
CIT	390	IT Field Training	0	0	0	0	Department's Approval	
CSC	410	Operating Systems	3	0	0	3	CSC	210
CIT	420	Systems Integration and Architecture	3	0	0	3	CSC	221
CIT	450	Human Computer Interaction	3	0	0	3	CSC	301
CIT	453	Multimedia Systems	3	0	0	3	CIT	450
CIT	460	Computer and Information Security	3	0	0	3	CSC	220
CIT	490	IT Project (1)	1	0	0	1	Department's Approval	
CIT	491	IT Project (2)	1	4	0	3	CIT	490
						82		

Elective Courses of IT Program (12 Credit Hours)

Code		Name	Lec	Lab	Tut	CH	Prerequisite	
CSC	423	Advanced Software Engineering	3	0	0	3	CSC	221
CIT	430	Advanced Internet and Web Technology	3	0	0	3	CIT	230
CIT	431	Website Management and Design	3	0	0	3	CIT	230
CEN	432	Advanced Computer Networks	3	0	0	3	CEN	330
CIT	433	Network Programming	3	0	0	3	CEN	330
CIT	434	Network Management and Planning	3	0	0	3	CEN	330
CIT	435	Network Operating Systems	3	0	0	3	CEN	330
CIT	436	Network Servers	3	0	0	3	CEN	330
CIT	437	Multimedia Networking	3	0	0	3	CEN	330
CIS	440	Advanced Database Systems	3	0	0	3	CIS	340
CIT	461	Advanced Information Security	3	0	0	3	CIT	460
CIT	462	Computer Forensics and Crimes	3	0	0	3	CIT	460
CIT	463	Network Security	3	0	0	3	CIT	460
CIT	464	Database Security	3	0	0	3	CIT	460
CIT	495	Special Topics in Information Technology	3	0	0	3	Department's Approval	

Courses Distribution based on Program Levels

Preparatory Year

Code	Name	Lec	Lab	Tut	CH	Pre
Semester 1						
COMM001	Communication Skills	2	0	0	2	N/A
CSC001	Computer Skills & Applications	4	0	0	3	N/A
MATH100	Mathematics (1)	3	0	0	3	N/A
ELS001	English Langauge Skills (1)	15	0	0	5	N/A
PHYS101	General Physics	3	0	0	3	N/A
Semester 2						
LTS001	Learning, Thinking & Research Skills	4	0	0	3	N/A
MATH101	Mathematics (2)	3	0	0	3	MATH100
BIO101	General Biology	3	0	0	3	N/A
CHEM101	General Chemistry	3	0	0	3	N/A
ELS002	English Language Skills (2)	15	0	0	5	ELS001

Second Year

Code	Name	Lec	Lab	Tut	CH	Pre
Semester 3						
ISLS101	Islamic Culture (1)	2	0	0	2	N/A
CSC101	Computer Programming (1)	3	2	0	4	CSC001
ARB101	Arabic Language Skills	2	0	0	2	N/A
MATH200	Fundamental of Integral Calculus	4	0	0	4	MATH101
ELS210	English for Computer Students	3	0	0	3	ELS002
MATH251	Discrete Structures	3	0	2	3	MATH101

		Semester 4				
Code	*Name*	*Lec*	*Lab*	*Tut*	*CH*	*Pre*
CSC102	**Computer Programming (2)**	**3**	**2**	**0**	**4**	**CSC101**
CSC109	**Computer Ethics**	**1**	**0**	**0**	**1**	**CSC001**
STAT201	**General Statistics**	**4**	**0**	**2**	**4**	**MATH100**
ARB201	**Arabic Writing Skills**	**2**	**0**	**0**	**2**	**ARB101**
ISLS201	**Islamic Culture (2)**	**2**	**0**	**0**	**2**	**ISLS101**
CSC210	**Computer Organization and Assembly Language Programming**	**3**	**2**	**0**	**4**	**CSC101**
PHYS 281	**General Physics Lab.**	**0**	**2**	**0**	**1**	**PHYS 101**

Third Year

		Semester 5				
Code	*Name*	*Lec*	*Lab*	*Tut*	*CH*	*Pre*
CIT200	**Fundamentals of Information Technology**	**3**	**0**	**0**	**3**	**CSC001**
CSC301	**Visual Programming**	**2**	**2**	**0**	**3**	**CSC102**
CSC220	**Data Structures and Algorithms**	**3**	**0**	**2**	**3**	**CSC102**
CIT230	**Internet and Web Technology**	**2**	**2**	**0**	**3**	**CSC102**
ELS301	**Technical Writing**	**3**	**0**	**0**	**3**	**ELS210**
STAT311	**Probability Theory**	**3**	**0**	**0**	**3**	**STAT201**
		Semester 6				
Code	*Name*	*Lec*	*Lab*	*Tut*	*CH*	*Pre*
CSC221	**Software Engineering**	**3**	**0**	**2**	**3**	**CSC220**
CIT240	**E-Commerce**	**3**	**0**	**0**	**3**	**CIT200** **CIT230**
CEN330	**Computer Networks**	**3**	**2**	**0**	**4**	**CSC210**
CIS340	**Database Systems**	**3**	**2**	**0**	**4**	**CSC220**
CIT450	**Human**	**3**	**0**	**0**	**3**	**CSC301**

	Computer Interaction					
CIT390	**IT Field Training**	**0**	**0**	**0**	**0**	**Department's Approval**

Fourth Years

Semester 7						
Code	*Name*	*Lec*	*Lab*	*Tut*	*CH*	*Pre*
ISLS301	**Islamic Culture (3)**	**2**	**0**	**0**	**2**	**ISLS201**
CSC410	**Operating Systems**	**3**	**0**	**0**	**3**	**CSC210**
CIT341	**IT Project Management**	**3**	**0**	**0**	**3**	**CSC221**
CIT420	**Systems Integration and Architecture**	**3**	**0**	**0**	**3**	**CSC221**
CIT460	**Computer and Information Security**	**3**	**0**	**0**	**3**	**CSC220**
CIT490	**IT Project (1)**	**1**	**0**	**0**	**1**	**Department's Approval**
Cxxxxx	**Elective Course (1)**	**3**	**0**	**0**	**3**	**Cxxxxx**
Semester 8						
Code	*Name*	*Lec*	*Lab*	*Tut*	*CH*	*Pre*
ISLS401	**Islamic Culture (4)**	**2**	**0**	**0**	**2**	**ISLS301**
CIT453	**Multimedia Systems**	**3**	**0**	**0**	**3**	**CIT450**
Cxxxxx	**Elective Course (2)**	**3**	**0**	**0**	**3**	**Cxxxxx**
Cxxxxx	**Elective Course (3)**	**3**	**0**	**0**	**3**	**Cxxxxx**
Cxxxxx	**Elective Course (4)**	**3**	**0**	**0**	**3**	**Cxxxxx**
CIT491	**IT Project (2)**	**1**	**4**	**0**	**3**	**CIT490**

Prerequisites Chart

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2006

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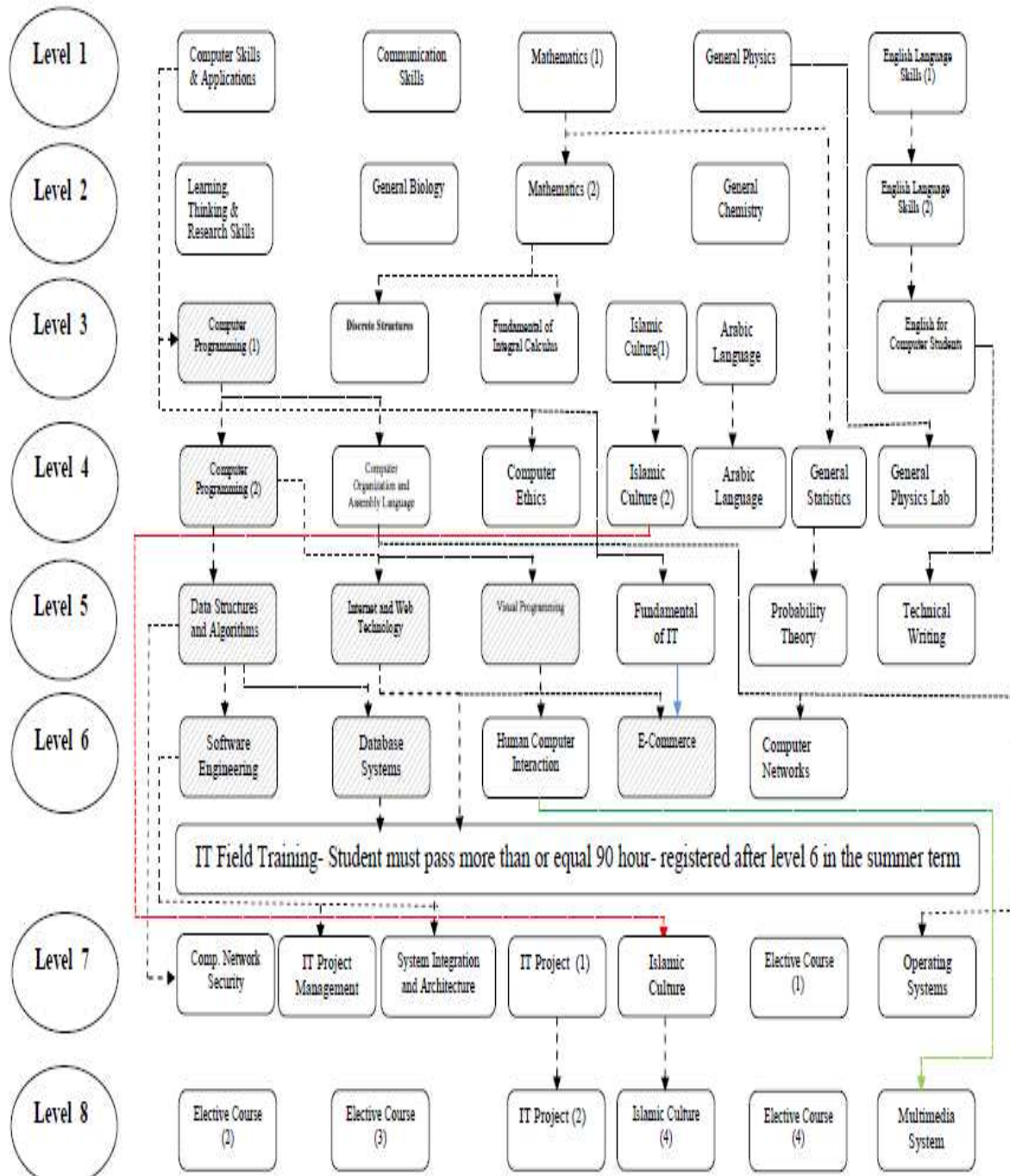
Course Descriptionfor Bachelor of IT

Computer Skills and Applications: CSC-001: This course is an introduction to computer skills and applications. The course will cover basic concepts of computers and application programs. Topics covered include introduction: computer hardware, software and information technology, windows, word, excel, power point, access and the internet.

Computer Programming (1): CSC-101: The course introduces the students to the concepts of problem and the basic principles of programming. Then students proceeds with applications of that knowledge to develop algorithms and write computer C# code. Fundamentals of data storing and manipulation are explained. Students gain hand-on experience in the use of structured programming tools including compilers, linkers, and debuggers.

Computer Programming (2): CSC-102: This course provides an introduction to object-oriented programming. Topics include classes and objects: a deeper look, inheritance, polymorphism, interfaces & operator overloading, exception handling, graphical user interface concepts, strings, files and streams.

Computer Ethics: CSC-109: Computer technology is remarkably affecting every human being on the earth in a multitude of ways. Traditional ethical issues like security, privacy, integrity, responsibility, anonymity, property rights, and related social concerns are also greatly affected by our highly technological environment. This course analyzes the impacts of computer technology on traditional ethical and social issues. It explores the consequences of relatively new computer technologies, such as virtual reality, artificial intelligence, and the Internet.

Fundamental of Information Technology: CIT-200: This course provides knowledge about computer structurecategories, computer applications, basic concepts of computing, components of the System, operating system, programing languages, databases, networks configuration, Internet, and information system development.

Computer Organization and Assembly Language: CSC-210: The course provides a comprehensive and up-to-date coverage of computer organization and Assembly language programming. Students are introduced to data representation, microprocessor functionality, memory organization, external storage, bus architecture, and input/output devices. Furthermore, the students learn nature of assembly language and how to write an assembly program. They will develop a simple application in assembly on different computational platforms.

Data Structures and Algorithms: CSC-220: The course introduces the main characteristics of different Abstract data types ADT as: Linked Lists, stack, queue, binary trees, and graphs. Determination of pre- and post-conditions for operations on an ADT. Study the complexity analysis using Generic Big Oh. The course introduces different elementary and advanced sorting algorithms. The different searching algorithms are presented as well as the recursive algorithms. Building dictionaries using different hash tables with different hashing functions, with the study the different techniques to resolving the collisions.The trees, its operations, and applications are introduced. The presentation of the graphs, graph algorithms as: graph traversal algorithms as DFS, BFS, the shortest paths using Dijkstra's algorithm, minimal spanning tree.

Software Engineering: CSC-221: The course gives an introduction to the principles and techniques used in software engineering. The course presents the Software Processes, Project Management, Software Requirements and specifications, System Models, Formal Specifications, Application Architecture, Object Oriented Design, User Interface Design, software testing and validation. Working in teams where students organize, manage and develop a software engineering project.

Internet and Web Technology: CIT-230: This course is an introduction to various internet and web technologies. Topics include internet and web basics, World Wide Web, HTML, XHTML, cascading style sheets, web page design and java script.

Electronic Commerce: CIT-240: This course provides knowledge and understanding of main technologies behind electronic systems, interactionsbetween these electronic systems, understanding designing of e-commerce and web based applications, and understanding of technical infrastructure of e-commerce sites.

Visual Programming: CSC-301: This course is a study of graphical-user-interface (GUI) and component-based programming. The course covers visual programming skills needed for modern software development. Topics will include event handling and event procedures, problem solving, business applications, game applications, database interface, and software design.

Computer Networks: CEN-330: This is a fundamental course designed to introduce current networking technologies, models and concepts in network communications. The course focuses on network terminology, protocols, and local area networks (LANs), wide-area networks (WANs), and Open System Interconnection (OSI) models and Ethernet standards. Up to date technologies ADSL, cable modems technologies are surveyed and its features explained including switches, hubs, routers and network

cabling is introduced with Internet Protocol (IP) addressing, and OSI layers and network standards.

Database Systems: CIS-340: This course covers fundamentals of database architecture and systems. Topics include databases and database users, database system concepts and architecture, relational data model, the relational algebra and relational calculus, data modeling using the entity-relationship model, structured query language, functional dependency and normalization.

Operating System: CSC-410: This introductory course in operating systems provides a description of the concepts that underlie modern operating systems. The fundamental concepts covered in this course are based on those found in existing commercial operating systems in particular UNIX/Linux, and Microsoft Windows.

Human Computer Interaction: CIT450: This course provides an introduction to and overview of the field of human-computer interaction (HCI). HCI is an interdisciplinary field that integrates theories and methodologies from computer science, cognitive psychology, design, and many other areas. Course readings will span current theory and practice in interface specification, design and evaluation. Students will work on both individual and team projects to design, implement and evaluate computer interfaces.

Computer and Information Security: CIT-460: This course is intended to teach introduction to computer and information security, aspects of security, topics include cryptography, program security, operating system security, Database security, Network security, Web security, Management of security.

Multimedia Systems: CIT-453: This course is an introduction to the study and creation of multimedia (text, audio, images and graphics, and video) using various software programs. Students will learn both the aesthetic and technical aspects of multimedia design and production. Students will be introduced to animation and Web authoring and the business technology related to multimedia, working in teams to produce a full working multimedia systems. Students will use software programs such as Macromedia Dreamweaver, Flash, and Adobe Photoshop. Topics include Creating Multimedia, Text, Sound, Images, Moving Multimedia, Animation,Video, and multimedia's hardware. Students are also introduced to compression concepts and its relevance to multimedia.

Information Technology Project Management: CIT 341: This course is an introduction to the study of Information Technology project management. The course provides knowledge about time, cost, quality, communication, human resources, support, risk, and finalizing project management. In addition, the course explains thecontext of It project management with the organization and how to control the information flow with different stakeholder.

System Integration and Architecture: CIT 420: This course is provides knowledge of systems' integration in terms of prerequisite operations, understanding front need to factor in the integration, test, verification and validation of a system in determining the system requirements, role of backend databases, Understand the criticality of defining, documenting and managing interfaces during system development, understandingsystem architecture, select suitable system architecture, understand fault diagnosis techniques, and applying suitable API techniques.

Information Technology Project (1): CIT 490: The graduation project challenges students to go beyond the learning that occurs as the result of their prescribed educational program by developing projects that demonstrate their intellectual, technical and creative abilities. Students shall complete their projects in areas of concentrated study under the direction and supervision of faculty members. The projects will demonstrate the students' ability to apply, analyze, synthesize, evaluate information, and communicate significant knowledge and comprehension. Personal growth and satisfaction are associated with the graduation projects. Students will derive sense of accomplishment through the completion and "ownership" of bodies of works that are reflections of their interests and abilities. Opportunities to expand their personal knowledge and explore careers and apply learning to real life situations will serve to benefit the students' growth and promote lifelong learning.

Information Technology Project (2): CIT 491: The graduation project challenges students to go beyond the learning that occurs as the result of their prescribed

educational program by developing projects that demonstrate their intellectual, technical and creative abilities. Students shall complete their projects in areas of concentrated study under the direction and supervision of faculty members. The projects will demonstrate the students' ability to apply, analyze, synthesize, evaluate information, and communicate significant knowledge and comprehension. Personal growth and satisfaction are associated with the graduation projects. Students will derive sense of accomplishment through the completion and "ownership" of bodies of works that are reflections of their interests and abilities. Opportunities to expand their personal knowledge, explore careers, and apply learning to real life situations will serve to benefit the students' growth and promote lifelong learning.

Field Training: CIT-390: The course lasts 8 weeks to cover the training period of the third year during which students will undergo a practical training at an approval private, government or semi-government agency.

Advanced Database Systems: CIS-440: This course provides a comprehensive overview of the internal mechanisms of Database Management Systems (DBMS) and other systems that manage large data collections. The main topics include: Database Security and Authorization, Concepts for Object Databases, Enhanced Data Models for Advanced Applications, Distributed Databases and Client - Server Architectures, xml and Internet Databases, Data Mining Concepts, Data Warehousing and OLAP, Emerging Database Technologies and Applications.

Advanced Computer Networks: CEN-432: This course provides a comprehensive overview of principles of advanced computer networks, IP addressing, forwarding, and routing, BGP and adaptive routing, Multi-Protocol Label Switching (MPLS), Transport protocols and congestion control, Virtual Private Networks (L2, L3, and Hybrid), Metro Networks, Optical Networks, GMPLS (Generalized MPLS), and Other Hot Topics (Time permitting).

Advanced Software Engineering: CSC-423:The course will build on the knowledge and experience the student has acquired in CSC 221, Software Engineering I. It will further assist in understanding the principles and complexities regarding the software engineering life cycle of large software projects, and to experience and develop skills for working in a large group on a small to medium scale software project. Specific topics covered will include verification/validation, software quality, documentation, and maintenance.

Advanced Internet and Web Technology:CIT-430:This course highlights the code separation and modularity features that ASP.NET allows the student to create solid, easily-maintainable Web sites. In addition, ASP.NET's new Web Controls will be covered, including list, and grid controls along with postback and session features that maintain state and advanced repeater. Database access with ADO.NET is demonstrated, as disconnected data is read and updated via objects such as datasets and data views. As well giving students practical experience in creating common Internet applications since the underlying data format managed by ASP.NET is XML, the

course includes coverage of how to work with and transform XML data using new objects, the document object model, or XSL.

Database Security: CIT-464: This subject focuses on security issues related to data and databases. In particular, the subject reviews practical security mechanisms and solutions, such as identity and access management (ex: grant/revoke model; security by views; query modification; auditing in databases; multi-level database security), cryptography (ex: watermarking and fingerprinting databases), secure communications and secure web applications (ex: XML database security; encrypted databases; SQL injection attack; anomaly detection in databases). It is also focusing on vulnerabilities and attacks that exist within various database environments or that have been used to attack databases.

Network Security: CIT-463: Principles of network security and management. Review of network vulnerabilities, security at the link, network and transport layers; dial-up security (PAP, CHAP, Radius, Diameter), Keys distribution, IPSEC, SSL, SSH, and VPNS. Email security (PGP, S/MIME); Kerberos; X.509 certificates; SNMP security; firewalls; filters and gateways; policies and implementation of firewall policies.

Network Programming: CIT-433: The course build skills in writing networking programs (socket programming) to design new network services, components, client's applications, server programs, peer-to-peer services, and network maintenance. Understanding main principles of Internet like: addresses, routers, levels of network and transport layers protocols, How TCP protocol works: port numbers, active and passive opening, establishing connections.

Website Management and Design:CIT-431: The course introduces principles and approaches used to plan, design, create, manage, and enhance Web sites. Topics cover Web Sites Architecture, Web page elements: text, images, tables, forms, frames, hyperlinks and so on. Web page authoring tools, using multimedia, Cascading Style Sheets, Scripting languages, and managing web site content.

Network Management and Planning: CIT-434: Provide analytical and practical capabilities to design, deploy, and manage computer networks. Topics include: basic foundations of network management, the Simple Network Management Protocol in its different versions (SNMPv1, SNMPv2, and SNMPv3), Remote network Monitoring Management Information Base (RMON1 MIB, RMON2 MIB, and SMON MIB). Telecommunications Management Network (TMN), management tools and statistics measurement, management applications including: configuration, performance, event correlation, security, reports and service levels.

Network Operating Systems: CIT-435: This course is an intensive introduction to multiuser, multitasking network operating systems. Characteristics of the Linux, Windows 2000, NT, and XP network operating systems will be discussed. Students

will explore a variety of topics including installation procedures, security issues, back up procedures and remote access.

Network Servers: CIT-436: This course will explain to students important issues about server hardware technologies, including installation, configuring, and upgrading server hardware; preventive maintenance, troubleshooting, and disaster-recovery techniques for servers. It helps individuals certify their advanced technical knowledge of planning, installing, configuring, and maintaining servers.

Multimedia Networking: CIT-437: This course introduces current techniques in multimedia communications.Itwill introduce the main issues in multimedia communications and networking and it will introduce Multimedia compression, image, audio, video; Standards for multimedia communications; and broadband ATM networks; and Packet video in the Network environment.

Advanced Information Security: CIT-461: This course discusses the advanced cryptography and crypto analysis. Advance encryption: block and product ciphers, public key ciphers, crypto analisys methods, Key distribution, Data integrity, Methods of authentication, Digital signature.

Computer Forensics and Cyber Crimes:CIT-462: This course focuses on access control, forensic science principles, recovery, , computer forensics, cyber crime, digital evidence, digital forensics, evidence analysis, fingerprint recognition, forensic analysis, fraud detection, identification, information retrieval.

Special Topics in Information Technology: CIT-495: The course contents will be periodically reviewed by the instructors and the Undergraduate Committee to include new structural materials and test methods, as and when necessary. By the instructor and students with: Internet Searching, Class – workshops, Projects development and Technical reports and papers preparation.

Achievements

- Information Technology program in the department obtained international academic accreditation from the Academic Accreditation Commission for Engineering and Technical Sciences (ABET).
- Launching new program in department:Master in Information Security
- The department organized in collaboration with the college units in the college a number of scientific workshops.
- The Department organized a number of short training courses to enhance students' practical skills.
- The department organized IT day for its graduated students.

Aspirations

- Leadership and excellence in the field of information technology at the regional and international levels.
- Continue to create and publish innovative scientific research.
- Obtaining national and international academic accreditation.
- Continue in community service.

Department Members

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