Bachelor in Information Technology (BIT)

Program Handbook

DEPARTMENT OF COMPUTER SCIENCE

College of Engineering &Computer Science

JAZAN UNIVERSITY

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Message from the Dean:

I am pleased to welcome you all to the College of Engineering and Computer Science, this esteemed academic institution that we all take pride in belonging to. The college continues to contribute to achieving Saudi Arabia's Vision 2030, an ambitious vision that has made education and knowledge the cornerstone of achieving comprehensive and sustainable development.

Our college has made remarkable strides toward achieving the vision's objectives by focusing on the development of academic and research programs in various vital disciplines offered by the college, including:

- **Mechanical Engineering:** Focused on innovating and designing advanced systems that serve various industrial sectors.
- **Civil and Architectural Engineering:** Contributing to building an integrated and sustainable infrastructure that reflects the Kingdom's aspirations for smart urban expansion.
- **Computer Science:** Playing a pivotal role in digital transformation and artificial intelligence to serve various sectors.
- **Electrical and Electronic Engineering:** Enhancing innovations in renewable energy and smart systems.
- **Chemical Engineering:** Contributing to the development of the chemical and petrochemical industries to achieve self-sufficiency and economic growth.
- **Industrial Engineering:** Focused on improving efficiency and productivity in alignment with global quality standards.

In our pursuit of academic and research excellence, we have introduced specialized graduate programs aimed at deepening knowledge and preparing highly skilled professionals capable of driving development and innovation. We also take pride in the fact that the college now includes a comprehensive women's section across all departments and programs, reflecting our firm belief in the role of women in nation-building and achieving excellence in engineering and computer science fields.

Empowering Saudi women is not just a goal but a fundamental pillar of our developmental vision. At the College of Engineering and Computer Science, we are committed to providing an inspiring and stimulating educational environments for all our male and female students, enabling them to acquire the knowledge and skills that align with labour market demands and contribute to building a bright future.

Finally, I pray that Allah grants us success in serving our religion and our nation, and that He makes our college a beacon of knowledge and innovation, contributing to the realization of our wise leadership's aspirations and Vision 2030.

Peace, mercy, and blessings of Allah be upon you.

DR. MOUSA MOHAMMED KHUBRANI
Dean - College of Engineering and Computer Science

Message from the Head of the Department:

Welcome to the Department of Computer Science, College of Engineering and Computer Science, Jazan University. Vision of the department is to be recognized for imparting quality education, conducting research, and serving the industry and community for the betterment of the nation. The Department of Computer Science is committed to providing quality education and focus not only on technical knowledge but on empowering our graduates with skill to be at the forefront of our nation's growth. We prepare students for current trends of the job market and enhance student skills through collaborative student centric teaching and learning process. The majority of courses in our department have laboratory components, which will deepen their understanding by allowing them to be exposed to theory and practice. The students exhibit their learning through mini projects and final year projects. In order to provide real-time learning, the department is fully furnished with laboratories equipped with the latest tools and technologies. Our Department has a team of highly experienced and motivated faculty members who are ready to impart quality education and train the young minds. Our graduates are highly recruited within government agencies and private industry.

DR. FATHE JERIBI
Head - Department of Computer Science

About the College:

The College was established according to the approval of His Majesty the King, No. 7 / B / 24 232 dated 11/5/1425 H. It began under the umbrella of King Khalid University, the Dean of the College at that time was Dr. Abdullah Bin Yahya Al-Hussein. The College was separated from King Khalid University and joined Jazan University on 01/12/1427 H. The first decision was issued by the appointment of first Dean of the college at the University of Jazan on 04/06/1429 H Dr. Omar Al Mushayt. The College began to admit students in the first semester of the academic year 1426 - 1427H. The number of students admitted in the first semester was 68 students. At the present time the number of students reached 1762, 160 of them being students at the female section. The College started with only two specializations, Information systems and Computer Sciences. The Department of Computer Networks was established at the beginning of the first semester of the academic year 1429/1430 H. The female students' section was opened at the beginning of the first semester of the academic year 1431/1432 H with two departments, Information systems and Computer Science. A decision was issued appointing Dr. Mohamed Bin Yahya AlSalem as the dean of the College of Computer Sciences and Information Systems. Subsequently, Dr. Baseem Asiri and Dr. Mousa Khubrani succeeded him as deans of the college. In [Year], a decision was issued to merge the Colleges of Computer Science and Information Technology and the College of Engineering under one umbrella named the College of Engineering and Computer Science. Dr. Mousa Khubrani assumed the dean's office.

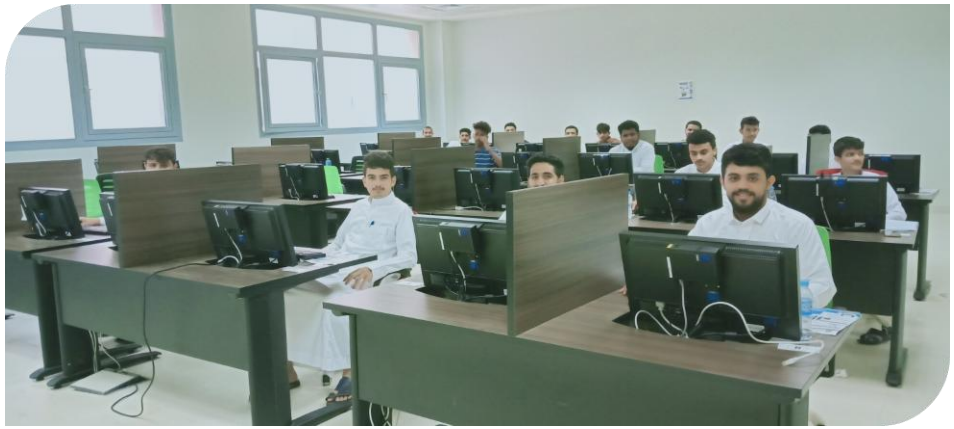
College Vision

Achieving leading positions in educational quality and scientific research both locally and globally in engineering and technical education.

College Mission

Striving to prepare a skilled engineering and technical workforce capable of productivity, creativity, and innovation, while fostering an advanced research environment based on collaborative efforts between researchers and inventors to meet labor market needs and support Saudi Vision 2030.

Department of Computer Science



ABOUT THE DEPARTMENT:

The Department of Computer Science at Jazan University is committed to excellence in education, research, and innovation. As one of the leading departments in the Faculty of Engineering and Computer Science, we aim to equip students with the knowledge and skills necessary to excel in the fast-evolving fields of technology and computing.

The department offers two comprehensive programs: **Computer Science** and **Information Technology**, each designed to meet the demands of the modern digital world. The Computer Science program focuses on the theoretical and practical aspects of computing, including programming, algorithms, artificial intelligence, data science, and cybersecurity. Meanwhile, the Information Technology program emphasizes practical applications, preparing students to design, implement, and manage IT systems and solutions across various industries.

Our highly qualified faculty members provide a supportive learning environment, encouraging innovation, and engaging in ground-breaking research. Students benefit from state-of-the-art laboratories, hands-on training, and opportunities to participate in research projects, internships, and community service initiatives.

Bachelor in Information Technology (BIT) Program:

The Department of Information Technology & Security (now merged with the Department of Computer Science) has designed a Bachelor in Information Technology (BIT) program to replace the existing Bachelor of Science in Information Systems (BS-IS). This major update positions the department at the intersection of human, technological, and organizational systems, aligning with international standards for IT education through educational innovations, research, and strategic collaborations. Additionally, the program addresses the growing need for a secure, scalable, and paperless environment in the civil services, organizations, and industries of Jazan.

Recognizing the evolving job market in the Jazan region, the department launched the BIT program in response to significant changes in the IT industry. The curriculum is designed to align with future industry projections and expectations, ensuring that graduates are well-equipped for emerging opportunities.

The BIT is a four-year program that complies with ACM, NCAAA, and ABET standards, allowing students to complete their degrees efficiently without unnecessary delays.

REASONS FOR PROGRAM ESTABLISHMENT

Economic Reasons

- IT enhances the accuracy, availability, and accessibility of information.
- Organizations can achieve better decision-making, improved planning, and enhanced outcomes through the effectiveness of IT-based systems.
- IT serves as the foundation for new applications and services that help firms manage their knowledge assets.
- The program aims to produce highly qualified system analysts and technologists for research and development.
- There is a predictable demand for IT professionals due to economic growth within and around the Kingdom.
- IT helps address pressing technological challenges aligned with the immediate needs of the country.
- The program creates opportunities for students to pursue higher studies in various IT domains.

Social/Cultural Reasons

- IT enables better business strategies that contribute to the growth of the Kingdom.
- The program aims to empower Saudi nationals to become IT professionals and contribute to national development.
- It provides a strong academic platform for students to develop social awareness and responsibility within their profession.
- Students will gain an understanding of the ethical, legal, and professional responsibilities in the field of IT, which directly impact society.

Technological Developments

- Establishing research and development centres in various IT fields.
- Supporting students in choosing their career paths and pursuing research or higher studies.
- Creating a software development hub to facilitate outsourcing and collaboration with industry partners.

- Preparing IT professionals equipped with the knowledge, skills, values, and confidence to take on leadership roles in IT system development.

Graduate Job options

Graduates of IT program may pursue the following career paths but not limited to:

Business Analyst		Data architect		Database Developer and Administrator		Web Engineers
IT Project Manager		System Analysts & Designer		IT & Security Manager		IT & Security Auditor
Cyber Security Specialist		Datacentre Supervisor.		System and Network Security Advisors		System Administrator

PROGRAM VISION

We aim at building a competitive environment of education, research, innovation and entrepreneurship in the field of information technology to help the community.

PROGRAM MISSION

The mission of the BIT program is to provide quality-based education, innovative research, and technology infrastructure to graduates so they can attain successful careers and contribute to building a knowledge-based economy.

STRATEGIC - DIRECTIONS:

- Enhance students ICT skills through refined teaching and add value to their personal and professional life.
- Strengthen academic faculty to excel in teaching, learning and research.
- Leverage society with IT enabled system and support knowledge economy through technology.

PROGRAM GOALS:

- Goal 1: To provide environment to enhance student learning and boost up student success rate.
- Goal 2: Support innovative teaching and learning through state-of-the-art technology.
- Goal 3: To improve student's academic experience and personality development through co-curricular activities.
- Goal 4: Establish department partnership with industrial sectors and societal activity.
- Goal 5: Support through consultancy and IT enabled services for economic development.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

- PEO-1 Impart comprehensive IT knowledge for problem-solving strategies to implement solutions in IT-associated industries.
- PEO-2 Apply computing knowledge and skills to innovate and promote advanced IT-based solutions in local and global contexts.

- PEO-3 Promote leadership in the technological and ethical community through responsibility, professional attitude, and effective team-membership.
- PEO-4 Demonstrate lifelong learning and professional development through higher studies or cutting-edge technologies for career growth.

ABET STUDENT OUTCOMES (SOs):

- SO-1 Analyze a complex computing problems and apply principles of computing and other relevant disciplines to identify solutions.
- SO-2 Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- SO-3 Communicate effectively in a variety of professional contexts.
- SO-4 Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- SO-5 Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- SO-6 Use systemic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals.

Bachelor in Information Technology (BIT) Degree Study Plan:

#	Course Code	Course Name	Pre. Req.	Contact Hrs.		Cr. Hrs.
	Level – 1			T	P	
1	COMP 111	Introduction to Computing	-	2	2	3
2	MATH 105	Calculus	-	4	0	4
3	ENG 101	English 1	-	18	0	6
4	ARB 102	Arabic Writing	-	2	0	2
5	SLM 101	Islamic Culture 1	-	2	0	2
			Total	28	2	17
	Level – 3					
1	ITEC 211	Database Concepts and Design	-	2	2	3
2	COMP 213	Programming 2	COMP 112	2	2	3
3	PHYS 204	Principles of Physics 1	-	3	2	4
4	MATH 262	Statistics and Probability	MATH 105	3	0	3
5	SLM 102	Islamic Culture 2	SLM 101	2	0	2
			Total	12	6	15
	Level – 5					
1	ITEC 321	Human-Computer Interaction	-	2	2	3
2	ITEC 313	Introduction to Data Science	MATH 262	2	2	3
3	ITEC 331	Fundamentals of IT Security	-	2	2	3
4	ITEC 342	Web Technologies	-	2	2	3
5	COMP 321	Data Structures & Algorithms	COMP 213	2	2	3
6	ITEC 322	Software Engineering	-	2	2	3
			Total	12	12	18
					Summer Term →	
	Level – 7					
1	ITEC 424	Interaction Design	ITEC 321	2	2	3
2	CNET 411	Network Security	ITEC 251	2	2	3
3	COMP 452	Cloud Computing	-	2	2	3
4	ITEC 454	System Administration	COMP 333	2	2	3
5	ITEC 425	Graduation Project (Phase 1)	ITEC 322 & ITEC 323	3	0	3
6	ITEC ***	Elective 2	Refer Table	2	2	3
			Total	13	10	18

#	Course Code	Course Name	Pre. Req.	Contact Hrs		Cr. Hrs.
	Level – 2			T	P	
1	COMP 112	Programming 1	-	2	2	3
2	MATH 106	Matrix Algebra	-	3	0	3
3	MATH 107	Discrete Mathematics	MATH 105	3	0	3
4	ENG 102	English 2	ENG 101	18	0	6
			Total	26	2	15
	Level – 4					
1	ITEC 212	Database Management Systems	ITEC 211	2	2	3
2	ITEC 241	Multimedia Applications	-	2	2	3
3	ITEC 251	Data Communication & Computer Networks	-	2	2	3
4	ITEC 252	Digital Design & Computer Architecture	-	2	2	3
5	COMP 214	Object Oriented Programming	COMP 213	2	2	3
			Total	10	10	15
	Level – 6					
1	ITEC 323	IT Project Management	ITEC 322	2	2	3
2	ITEC 332	Cryptography & Data Security	ITEC 331	2	2	3
3	ITEC 343	Mobile Application Development	ITEC 342	2	2	3
4	ITEC 353	Wireless Technologies	ITEC 251	2	2	3
5	COMP 333	Operating Systems	-	2	2	3
6	ITEC ***	Elective 1	Refer Table	2	2	3
			Total	12	12	18
	ITEC-361	Cooperative Training	-	3	0	3
	Level – 8					
1	ITEC 426	System Integration and Architecture	ITEC 322	2	2	3
2	ITEC 462	Computer Ethics & Society	-	2	2	3
3	ITEC 455	Datacenter Design & Administration	ITEC 454	2	2	3
4	ITEC 456	Internet of Things	ITEC 353	2	2	3
5	ITEC 427	Graduation Project (Phase 2)	ITEC 425	3	0	3
6	ITEC ***	Elective 3	Refer Table	2	2	3
			Total	13	10	18

TOTAL CREDIT HOURS = 137

Specialised Tracks

Specialization	Data Mining		Web Design		Information Security	
	Course code & Name	Pre-req.	Course code & Name	Pre-req.	Course code & Name	Pre-req.
Elective-1 (level 6)	ITEC 314 - Machine Learning	ITEC313	ITEC 344 - Web Design	ITEC 342	ITEC 333 - Cyber Security & Cyber Crime	ITEC 331
Elective-2 (level-7)	ITEC 415 - Data Mining	ITEC313	ITEC 445 - Applied Web Programming	ITEC 342	ITEC 434 - Software Security	ITEC 331
Elective-3 (Level-8)	ITEC 416 - Big Data Analytics	ITEC313	ITEC 446 - Web Intelligence	ITEC 342	ITEC 435 - Digital Forensics	ITEC 331

Data Mining Track:

The Data Mining track, a specialized area within the BIT program, provides comprehensive knowledge and expertise in one of the most sought-after fields of data science in today's IT and business industries. This track equips students with the tools and techniques to extract, analyze, and present data effectively. The curriculum covers the development of statistical and machine learning models for projections, clustering, classification, simulations, and other analytical tasks. Students will learn to predict user behavior through rigorous data analysis, pattern recognition, and trend identification, as well as convey insights through data summarization and visualization. Additionally, the track incorporates big data techniques for exploratory and predictive analytics, including working with unstructured datasets. By completing this track, students will gain theoretical and practical expertise in data mining, preparing them for careers in data-driven decision-making, business intelligence, and advanced analytics.

Web Design Track:

The Web Design track within the BIT program prepares students for careers in web development and programming. Web developers design, create, and maintain web-based applications and websites for businesses, industries, government and non-government organizations, and corporate firms, helping them establish a strong online presence. This specialization provides students with up-to-date web design and development tools and skills, ensuring they are well-equipped for the evolving IT industry. With the increasing demand for web professionals, this track offers a strong foundation for students looking to launch a career in web design and development.

Information Security Track:

The Information Security track within the BIT program focuses on cybersecurity, a highly specialized and in-demand field of IT. As cybersecurity breaches impact entire organizations, higher-level management is increasingly involved in cybersecurity teams to ensure a cohesive security strategy and direct communication with top leadership. This specialization covers both fundamental and advanced concepts essential for building secure systems, spanning hardware, software, and human-computer interaction, with a strong emphasis on cryptographic methods for securing digital interactions. Students will gain expertise in modern IT security practices through hands-on exercises using relevant tools and techniques. Additionally, the track includes a course in digital forensics, which focuses on identifying, acquiring, processing, analyzing, and reporting electronic data. Given that most cybercrimes involve some form of digital evidence, digital forensics plays a critical role in law enforcement investigations and cybersecurity incident response.

COURSE DESCRIPTIONS (Core and Elective Courses)

ITEC-211 DATABASE CONCEPTS AND DESIGN

This course introduces the fundamental concepts necessary for designing, using and implementing database systems and applications. Emphasis is placed on data dictionaries, entity relationship, relational data model, logical database design, relational algebra, normalization, basic commands and functions of SQL to create database tables, its constrains and queries. Students will be trained on Oracle DBMS to solute case studies on the environment systems from the real world.

ITEC-212 DATABASE MANAGEMENT SYSTEMS

This course covers the topics including Storing data: disks and files which include the memory hierarchy, RAID, disk space management, buffer management, file and indexes, page formats and record formats; file organization and indexes which introduce cost modelling, comparison of three file organizations, overview of indexes and properties of indexes. Three-structured indexing, hash-based indexing and database design security; transaction management which introduce to transactions and schedules, concurrent execution of transaction, lock-based concurrency control and crash recovery. Crash recovery includes introduction to ARIES, recovery from a system crash and media recovery. It also covers advanced topics such as: Distributed database including distributed DBMS architectures, storing data in distributed DBMS, distributed catalogue management and query processing, updating distributed data, distributed transactions and concurrency and recovery. Students will be trained on some software tools such as: Oracle, Sybase, DB2, and Informix.

ITEC-241 MULTIMEDIA APPLICATIONS

This course is designed to provide the fundamental concepts and techniques of multimedia system components e.g. text, image, sound, animation, and video. Some of the key areas covered by the course are: Multimedia authoring and tools, hypertext and hypermedia content creation and delivery, media representations, user interfaces design and development, multimedia skills, animation principle, multimedia project requirements, planning, costing, designing and producing, and recent trends in multimedia. The techniques and tools for producing, designing, and implementing interactive multimedia applications will also be covered. Students will be trained on a range of authoring, editing, and scripting tools for multimedia development.

ITEC-251 DATA COMMUNICATION & COMPUTER NETWORKS

Fundamentals of data communications: Essential Elements of Data Communications: Simplex, Half-Duplex and Full Duplex Transmission, Basic concepts of networking: network concepts, network criteria, network applications and benefits. Configurations, topologies and categories of networks: line configuration, network topologies (mesh, star, tree, bus, ring, hybrid), internetwork or internet, types of network connection (peer-to-peer network, server-based network, combined network), intranet and extranet. Introduction to OSI and TCP/IP models: The OSI Model, The OSI layers, TCP/IP Protocol Suite. Physical layer and media: Analogue and Digital Signals, Periodic and Non-Periodic Signals, Signal Parameters, Time and Frequency Domains Concepts, Types of Channels, Transmission Impairment, Transmission Media: Guided Media, Unguided Media, Circuit and packet switching. Data link layer control: framing, error control and flow control, Error detection and correction techniques: VRC, LRC, CRC, Checksum and Hamming code techniques. Networking and internetworking devices. Student will be trained on the existing components and product related to Cisco such as wireless networking, Switches, routers, etc.

ITEC-252 DIGITAL DESIGN & COMPUTER ARCHITECTURE

This is the basic course which includes the components such as: fundamentals of digital computer design; quantifying cost and performance; instruction set architecture; program behavior and measurement of instruction set use; processor data paths and control; pipelining, handling pipeline hazards;

memory hierarchies and performance; I/O devices, controllers and drivers; I/O and system performance.

ITEC-321 HUMAN-COMPUTER INTERACTION

This course provides a comprehensive, authoritative introduction to the dynamic field of human-computer interaction (HCI). Students will learn practical principles and guidelines needed to develop high quality interface designs–ones that users can understand, predict, and control. It covers theoretical foundations, and design processes such as expert reviews and usability testing. Numerous examples of direct manipulation, menu selection, and form fill-in give students an understanding of excellence in design. It also provides updates on current HCI topics with balanced emphasis on mobile devices, Web, and desktop platforms.

ITEC-313 INTRODUCTION TO DATA SCIENCE

Data Science is the study of the generalizable extraction of knowledge from data. Being a data scientist requires an integrated skill set spanning mathematics, statistics, databases and other branches of computer science along with a good understanding of the craft of problem formulation to engineer effective solutions. This course will introduce students to this rapidly growing field and equip them with some of its basic principles and tools as well as its general mindset. Students will learn concepts, techniques and tools they need to deal with various facets of data science practice, including data collection and integration, exploratory data analysis, predictive modeling, descriptive modeling, data product creation, evaluation, and effective communication. The focus in the treatment of these topics will be on breadth, rather than depth, and emphasis will be placed on integration and synthesis of concepts and their application to solving problems. To make the learning contextual, real datasets from a variety of disciplines will be used.

ITEC-331 FUNDAMENTALS OF IT SECURITY

This introductory course will provide learners with principles of data and technology that frame and define cyber security. Students will gain insight into the importance of cyber security and the integral role of cyber security professionals. This course will provide a dynamic learning experience for the students with foundational cyber security principles, security architecture, risk management, attacks, incidents, and emerging IT security technologies. Topics may include confidentiality, integrity, and availability; security architecture; security policies; authentication; access control; risk management; threat and vulnerability assessment; common attack/defense methods; ethical issues.

ITEC-342 WEB TECHNOLOGIES

This course is an overview of the modern Web technologies used for the Web development. The purpose of this course is to give students the basic understanding of how things work in the Web world from the technology point of view as well as to give the basic overview of the different technologies. The topics include Introducing WWW, Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS). We will follow the guidance of the World Wide Web Consortium (W3C) to create interoperable and functional websites.

ITEC-322 SOFTWARE ENGINEERING

Software engineering is a major branch of computing science that deals with the development of software systems as practical and cost-effective solutions for individuals and society. This course covers the fundamentals of software engineering like software life cycle, requirements engineering, system development paradigm, and system modeling using UML. It also covers software verification & validation, important implementation issues, open-source development and concepts of software re-engineering. The course has a strong technical relation with graduation project providing the opportunity to practice software engineering knowledge, skills, and practices in a realistic development setting with a real client.

ITEC-323 IT PROJECT MANAGEMENT

This course will start to commence by reviewing management and project management principles. It continues by studying the project management knowledge areas, the triple constraint, what is a Project?, difference between Program and project, project manager, skills of project manager, Project life cycle: analysis (requirements determination), Project Scope management, project time management, project cost management, project quality management, designing, implementation; system and database integration issues; project tracking techniques, metrics, and system performance

evaluation; managing expectations of managers, clients, team members, and others; determining skill requirements and staffing; cost-effectiveness analysis; management of behavioral and technical aspects of the project; change management. Project risk management, project procurement management, project communications management, project human resource management. This course teaches software tools for project tracking and monitoring. Team collaboration techniques and tools. Also, this course will introduce students to project-time scheduling methods. Students will be trained to use project management software tools such as MS-Project.

ITEC-332 CRYPTOGRPHY & DATA SECURITY

Cryptography is a tool for data security. It is used to provide data confidentiality, integrity, and availability. It supports the authentication of data and enhances privacy. Cryptography is a component of a security system that can be integrate in hardware or software systems for personal, social and political issues. This course provides a broad view of security with practical applications of cryptography to data security. Specific topics include classical and modern encryption techniques, steganography, and human factors.

ITEC-343 MOBILE APPLICATION DEVELOPMENT

This course introduces mobile application development for the Android platform. Android is a software stack for mobile devices that includes an operating system, middleware and key applications. The Android SDK provides the tools and APIs necessary to begin developing applications on the Android platform. Students will learn skills for creating and deploying Android applications, with particular emphasis on software engineering.

ITEC-353 WIRELESS TECHNOLOGIES

This course introduces the concept of wireless world through wireless networking and wireless communication to the students. The course presents the major wireless concepts like signals and transmission, access points, wireless routing, WLANs, speed spectrum, channel capacity (Nyquist bandwidth and Shannon Capacity formulas), FHSS, DSSS, OFDM, IR and Wireless standards. The course further takes the students in the depth of core wireless concepts like ad hoc networking. Wireless application protocols, Bluetooth and multiple access techniques (FDMA, TDMA and CDMA). Lately, the course covers the concepts of Microwave and Satellite based communication with the focus on service types and classification of orbits. In addition, the course highlights the 5G communication systems prospects and challenges.

ITEC-361COOPERATIVE TRAINING

The cooperative training at the faculty of computer science and information technology is an important part of student's academic plan that is considered as a basic requirement for graduation. This program is shared between the various departments of (Computer Science, Computer Engineering and Network, Information Technology and Security. The cooperative training includes either international or national training; Some distinguish students will be nominated for international training (outside Kingdome) on advance topic in the computer fields, other students will join national training program on any governmental or privet institution that specialized in Information technology and security services to give the students practical experience on their career. the trainees are considered as staff members in the place where he training during training period time.

ITEC-424 INTERACTION DESIGN

The goal of this course is to provide students with basic techniques and expertise to create and evaluate the design of interactive digital products, environments, systems, and services. It includes a study of interaction design for a variety of applications. The students will learn principles, patterns and process for interaction design, rapid prototyping, user interface (UI) and user experience (UX) design - skills that can be applied to desktop apps, web and mobile app development, game development, entertainment and artistic performances.

ITEC-454 SYSTEM ADMINISTRATION

System administration is an essential ingredient of modern computing practice. Knowledge of this topic can be helpful in managing a home computer network, a small business network, or enterprise systems. In addition, knowledge of system administration is a necessary aspect of experimental computing, including embedded software development, cluster computing, and

distributed systems, where users often need to set up their own systems software. This course addresses the basic principles of system administration focusing on contemporary operating systems such as Linux or Microsoft Windows.

ITEC-426 SYSTEM INTEGRATION AND ARCHITECTURE

This course is designed to provide students with an understanding of Systems Integration (SI) process, approaches, drivers, tools and techniques required for successful SI, critical success factors, and best practices. The course focuses on how a proposed system will be integrated with other existing or planned systems. It addresses the System Integration problem using architecture as the basis and then addresses the evaluation of the architecture in terms of the capabilities they provide. Case studies and examples from the Information Technology (IT), energy, and financial services industry will be used to illustrate the concepts discussed. The students will learn the theory and practice of business process integration, legacy integration, new systems integration, business-to-business integration, integration of commercial-of-the-shelf (COTS) products, interface control and management, testing, integrated program management, integrated Business Continuity Planning (BCP). Specific focus will be given to issues of interface integration and interoperability of systems.

ITEC-462 COMPUTER ETHICS & SOCIETY

This course will examine the ethical issues that arise because of increasing use of computers, and the responsibilities of those who work with computers, either as computer science professionals or end users. This course will stress the ways in which computers challenge traditional ethical and philosophical concepts and raise old issues in a new way. This course is designed to educate existing and future business managers and IT professionals on the tremendous impact ethical issues play in the use of information technology in the modern business world. The topics covered in this course are extremely current and relevant to anyone preparing to enter the field of IT. This course will give students the foundation they need to make appropriate decisions when faced with difficult situations and make a positive impact in the field of information technology.

ITEC-455 DATACENTER DESIGN & ADMINISTRATION

This course is intended to study data center principles and operational issues, including design, build, configure, deploy, and maintain the critical assets that comprise your data center, environmental controls, power supplies, backup, data communications, and security standards to assure business continuity. It also discusses emerging trends and technologies in areas including cloud computing, virtualization, middleware, databases, data centers, green grids, and corporate and environmental social responsibility.

ITEC-456 INTERNET OF THINGS

The Internet of Things (IoT) course will teach you how to program with current and leading IoT technologies for building IoT solutions for Smart Homes, Smart Campus etc., using IoT sensor and devices. In the course, we will examine the concept of IoT. We will look at the 'things' that make up the Internet of Things, including how those components are connected, how they communicate, and how they value add to the data generated. We will also examine cyber security and privacy issues and highlight how IoT can optimize processes and improve efficiencies in your business. They also learn to capture data using sensors, and the basics of analysis and visualization of the data in the cloud and its security.

ITEC-425 GRADUATION PROJECT (PHASE-1)

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 timetable schedule. The Project Design phase allow senior level students to integrate their Information Systems Analysis and design knowledge and produce a useful artifact while working on the design and analysis phase of their capstone project. They practice major activities in the information systems development process, including communication, planning, modeling, system architecture design, logical database design, physical database design, user interface design etc. Students get experience working in teams, participating in project planning and scheduling, and writing reports. Students should present the project interim report at the end of the semester; Assessment Methods 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.

ITEC-427 GRADUATION PROJECT (PHASE-2)

Project implementation course offers students an opportunity to assemble their knowledge acquired throughout their BS curriculum to realize a final project. This course allows the senior level students to implement their IS Project designed in the Project Design course. This would require them to gather information about the proposed subject and realize a final report as well as to develop a system practically. At this stage, students must carry on all phases of system development of the subject already defined in the precedent course (Project Design), and under the supervision of the same supervisor (as possible). Implementation of the project include Hardware preparation, component implementation, coding and development, testing, system integration, verification and validation, and Documentation. At the end of the semester, students are asked to make an oral presentation with the presence of faculty members as referees. The students are also required to submit their thesis by the end of semester.

ITEC-314 MACHINE LEARNING

With the increased availability of data from varied sources, there has been increasing attention paid to the various data driven disciplines such as analytics and machine learning. This course is intended to introduce some of the basic concepts of machine learning from an algorithmic perspective. This course will familiarize students with a broad cross-section of models and algorithms for machine learning and prepare students for the application of machine learning techniques. Topics covered in this course include Machine learning types, linear and non-linear regression, nonparametric methods, Bayesian methods, support vector machines, kernel methods, Artificial Neural Networks, model selection, learning theory, VC dimension, clustering, EM, dimensionality reduction, PCA, SVD, and reinforcement learning. The course will also facilitate the students to solve real world problems using machine learning techniques.

ITEC-415 DATA MINING

As an introductory course on data mining, this course introduces the key concepts, principles, algorithms, and systems of data mining, including: what is data mining? get to know your data, data preprocessing, integration and transformation, data warehousing and OLAP, data cube and also the fundamental principles of frequent patterns, classification, and cluster analysis. It will also explain implementations in open-source software.

ITEC-416 BIG DATA ANALYTICS

Big Data is the term for a collection of datasets so large and complex that they become difficult to process using on-hand database management tools or traditional data processing applications. The challenges include capture, storage, search, sharing, transfer, analysis, and visualization. This Big Data Analytics course will first introduce the overview applications, market trend, and the things to learn. Then, it will introduce the fundamental platforms, such as Hadoop, Spark, and other tools, such as IBM System G for Linked Big Data. Afterwards, the course will introduce several data storage methods and how to upload, distribute, and process them. This will include HDFS, HBase, KV stores, document database, and graph database. The course will go on to introduce different ways of handling analytics algorithms on different platforms. Then, it will introduce visualization issues and mobile issues on Big Data Analytics. Students will then have fundamental knowledge on big data analytics to handle various real-world challenges.

ITEC-344 WEB DESIGN

This course is designed to start you on a path toward future studies in web development and design, no matter how little experience or technical knowledge you currently have. This course introduces students to general information about the web design environment, including the various roles that he can play, technologies he can learn and tools he can use. In this course students will learn web design using HTML (Hypertext Markup Language) for structure, CSS (Cascading Style Sheets) for presentation and JavaScript for behavior. In the HTML section, students will learn about creating simple page, marking up text, adding links and images, table markup and forms. In the CSS section, students will learn CSS orientation, formatting text, colors and background, floating, positioning, page layout with CSS and animation. In the

JavaScript section and web graphics section, students will learn how to use JavaScript and web graphic basics.

ITEC-445 APPLIED WEB PROGRAMMING

This course is designed to give students the opportunity to enhance and enrich their skills in Web programming. Students will learn to develop Web applications that use three-tier architecture, session management, object-oriented techniques, and advance database interactions. Concepts such as advanced CSS concepts, rich interactive Web environments, authentication, and security will also be explored. The main objective of the Applied Web Programming course is to discuss state-of-the-art technologies in Web Programming and some open research issues of the domain. It represents the next generation of Internet applications, business strategy and technologies that supports contribution to the online community.

ITEC-446 WEB INTELLIGENCE

This course aims to achieve a multi-disciplinary balance between research advances in the fields of collective intelligence, data science, human-centric computing, knowledge management, and network science. It is committed to addressing research that deepens the understanding of computational, logical, cognitive, physical as well as business and social foundations of the future Web and enables the development and application of intelligent technologies.

ITEC-333 CYBER SECURITY AND CYBER CRIME

This course explores cyber-security measures and the different forms of cybercrime and emergent forms of cyber-warfare. Students will learn challenges to cyber-security and examine the nature, prevalence, scope and the means by which criminals perform these crimes. The course also provides the impact of cybercrime on victims, business, and the state, and the responses of information security providers and police agencies. The course concludes with a critical assessment of the threats to rights posed by the emergent new digital age of surveillance.

ITEC-434 SOFTWARE SECURITY

The course will go through all the phases in the secure software development lifecycle (requirements, design, implementation and testing) focusing on how to incorporate security in each phase and what techniques to use. The main focus is on web-based applications, mobile apps, and cloud security.

ITEC-435 DIGITAL FORENSICS

This course introduces the basic concepts of computer forensics, principles, techniques, special software tools and practical skills necessary to perform digital investigation of incidents in which computers or other digital devices play a significant or interesting role. Students will learn skills for the most important parts of digital crime scene investigation process, which has several phases, from initial system preservation through evidence searching to event reconstruction. Students will learn how to create an incident response plan and implement a computer forensics incident response strategy. Furthermore, through practical lab exercises, students will also learn how to conduct “Live” investigation including acquisition, examination, analysis, and evidence preservation, and documentation of computer evidence stored as data or computer encoded information. This course also covers state-of-the-art techniques for digital investigation analysis, including file carving, multimedia forensics, memory analysis, mobile device forensics, anti-forensics and counter anti-forensics, and log analysis and correlation.

ADMISSION AND REGISTRATION

1. Upon primary online nomination, applicant will see three options:
   - ***(Accept and Confirm)**

     Pressing this option means that the applicant is accepting the offered primary nomination and confirms it as final acceptance without any competition for other specialty in case seats are available.

   - ***(Accept and Upgrade)**

     Pressing this option means that the applicant is accepting the offered primary nomination with and authorizes the university to upgrade their admission to another program if a seat becomes available.

   - ***(Withdraw)**

     Pressing this option means that the applicant does not accept the offered primary nomination. This is considered a final withdrawal, and a withdrawal form can then be printed online.
2. Not confirming primary nomination within the allowed time means that the applicant does not wish to join Jazan University. This will cause the applicant to lose their right to admission and as will as their access to their online account.
3. At the end of acceptance process applicant's state online is changed to (primarily accepted) or (finally accepted) and receives college, specialty, and student number online.
4. An applicant can withdraw after receiving student number by printing a Withdrawal form (a Clearance form) online. In this case the current admission will be terminated, and the applicant will be eligible for admission after two academic years.
5. Accepted students should complete the final acceptance procedure by making reservation for issuing University Student card following these steps:
   - sign in to the online account.
   - access the University Student Card page (using student number or national id number)
   - select a date for issuing student card
   - print out student card issue date slip
   - print out notice of admission slip Having met these conditions, the final admission becomes confirmed.

STUDENT ASSESSMENTS & GPA

Student assessment is the process of evaluating students' skills and knowledge at both the course and program levels. Effective assessment plays a crucial role in enhancing student learning and ensuring the continuous improvement of teaching quality. To meet the teaching and learning objectives, it is essential to implement a robust assessment framework throughout the program.

The department of Computer Science is committed to conducting comprehensive assessments of student performance at both the program and course levels. In the BIT program, faculty members employ a variety of assessment methods, including case studies, mini-projects, assignments, internal exams, lab exams, and final written examinations. This diverse approach ensures a holistic evaluation of student learning while mitigating potential weaknesses in any single assessment method, allowing opportunities for further academic development.

ASSESSMENT SCHEME		
1	Mid-Term Exam	15%
2	Assignment-1	10%
3	Assignment-2 (Courses without Lab) / Mini-project (courses with Lab)	15%
4	Case Study Evaluation (Courses without Lab) / Final Lab Exam (courses with Lab)	20%
5	Final Theory Written Exam	40%

Grade Point Average (GPA) Calculation

1. GPA upon graduation	2. Honours are granted according to GPA
○ (Excellent) GPA no less than 4.50 (out of 5.0) ○ (Very Good) GPA 4.00-4.49 (out of 5.0) ○ (Good) GPA 3.50-3.99 (out of 5.0) ○ (Pass)GPA 2.00-2.74 (out of 5.0)	○ The student has not failed any courses at Jazan University or any other institution. ○ The student has fulfilled all graduation requirements within the designated time frame. ○ The student has completed at least 60% of the graduation requirements at Jazan University.

STUDENT AFFAIRS & ACADEMIC ADVISING

College level Student Affairs Unit is coordinating following activities for the students:

- Academic Advising
- Complaints and Appeals
- Student Club
- Community Services
- Facilitating Summer Training

Deanship of Student Affairs dealing with the following things for the students:

- Financial Aid and Loans
- Student Club Subscription
- Student Services

For more information follow the link: https://www.jazanu.edu.sa/en/centers-and-institutes/aac/about-center

TRAINING OPPORTUNITIES

ORACLE ACADEMY

- Java Fundamentals
- Java Foundations
- Java Programming
- Database Foundations
- Database Design and Programming with SQL
- Programming with PL/SQL
- Oracle 11g Database Administration

RED HAT ACADEMY

- Red Hat System Administration I (RH124)
- Red Hat System Administration II (RH134)

paloalto NETWORKS CYBERSECURITY ACADEMY

- Cyber security Foundation
- Cyber security Gateway
- Cyber security Essentials

CISCO Networking Academy

- CCNA R&S: Introduction to Networks
- CCNA R&S: Routing and Switching Essentials
- CCNA R&S: Scaling Networks
- CCNA R&S: Connecting Networks
- Introduction to Cyber Security
- IT Essentials

For more details Contact: **Excellence Unit, College of CS & IT**

INNOVATION AND ENTREPRENEURSHIP CENTER

The **Innovation and Entrepreneurship Center** plays a pivotal role in fostering a culture of creativity, research, and business development, particularly in the field of **Information Technology (IT).** In Saudi Arabia, the Vision 2030 initiative has significantly driven technological innovation and entrepreneurship, leading to the establishment of various incubation programs, funding opportunities, and tech-driven projects. The center serves as a hub for aspiring entrepreneurs, researchers, and students, providing them with the necessary resources to develop innovative IT solutions, software applications, and smart technologies that address local and global challenges. It promotes collaborations with industry leaders, government agencies, and academic institutions to accelerate the transformation of ideas into market-ready products and services. With a strong focus on **artificial intelligence (AI)**, **cybersecurity**, **cloud computing, and big data analytics**, the center aligns with Saudi Arabia's efforts to enhance digital infrastructure, smart cities, and e-governance. Through mentorship, funding programs, and state-of-the-art research facilities, the Innovation and Entrepreneurship Center is shaping the next generation of tech-driven startups and IT professionals, positioning Saudi Arabia as a leader in digital innovation and entrepreneurship.

For More details: https://www.jazanu.edu.sa/en/centers-and-institutes/center-innovation-and-entrepreneurship

ADMISSION & REGISTRATION

For admission and registration follow the link:

https://edugate.jazanu.edu.sa/jazan/ui/guest/bridging_application_online/index/bridgeHomeIndex.faces

DEANSHIP OF ADMISSION AND REGISTRATION