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College of Computing and Informatics asdasd

September 2023

As we live in a digital age, most industries rely on data and software programs. Therefore, the demand for computer professionals with a scientific background has grown rapidly in the past decade. The College of Computing and Informatics offers a Bachelor of Science in Computer Science with the aim of satisfying the growing need and qualification of distinguished cadres, commensurate with the needs of the labor market. The program includes the scientific foundations of computing with advanced applications that require advanced knowledge of computing systems, programming and problem-solving tools and techniques.

The Saudi Arabia's Vision 2030 is committed to provide citizens with knowledge and skills to meet the future needs of the labor market. Information and Communication Technology (ICT) can be a key enabler of the national programs outlined in Saudi Vision 2030 and described in detail in the National Transformation Plan 2020. However, the ICT sector suffers from a significant gap between supply and demand. This is reflected in the Ministry of Communications and Information Technology (MCIT) strategic objective, that is "the rehabilitation of specialized Saudi human capital and employment of this capital to reduce the gap between supply and demand in the ICT sector". A recent report by the CIT Commission states that although Saudi universities, colleges, recruitment organizations, and domestic training institutions continue to supply hundreds of new ICT professionals, the gap between the demand and the supply will continue to expand. The ICT talent gap exceeded 37,000 in 2017. The report shows the growing needs for computer science specialties such as software/application developer/manager which classified among the most difficult skills to find by employers. Therefore, The BSc in Computer Science program

aims to bridging the gap in ICT industry by developing qualified graduates who are able to contribute and participate to the growth of Saudi Arabia and to the improvement of society.

Proficiency as computer scientists with an ability to solve a wide range of computing-related problems in industry, government, or other work environments.

Professional status with a capacity to adapt quickly to new environments and technologies, assimilate new information, and work in multi-disciplinary areas with a strong focus on innovation and entrepreneurship.

Graduate credits toward advanced degrees with a dedication for lifelong learning.

Respect as computer scientists in conformance with societal and national expectations for the Kingdom of Saudi Arabia so that it becomes a leading knowledge-based economy in conformance with Islamic and Arabic principles and practice.

4 Years Program, 8 Semesters (130 credit hours)

#### Career Opportunities for Graduates of the Program

Computer Scientist

Software Engineer

Software Developer

Systems Analyst

Technical support specialist

Web Developer

Network Architect

Database Administrator

Information Security Analyst

Artificial intelligence specialist

System Developer

Software project manager

Software Quality Assurance Specialist

Software Testing Engineer

IoT Professional

Cloud Infrastructure Administrator

The program envisions is development of an innovative quality discipline for students in Undergraduate program of computer science enabling them to excel, contribute and innovate in the industry and academia of computer science.

#### Mission

The mission of the BSc in Computer Science program aims at developing cadres to be highly motivated, skillful, innovative, and entrepreneurial CS professionals and scientist, through a

modern, flexible education system.

### Program Study Plan

The Bachelor of Computer Science program contains 42 courses, distributed over 8 semesters. The program is only offered in English.

University Requirements: (34 Credits)

ENG001: English Skills 01

CS001: Computer Essentials

COMM001: Communication Skills

CI001: Academic Skills

ENG002: English Skills 02

MATH001: Fundamentals of Mathematics

ISLM101: ISLAMIC FAITH

ISLM102: PROFESSIONAL CONDUCT & ETHICS IN ISLAM

ISLM103: ISLAMIC ECONOMIC SYSTEM

ISLM104: ISLAMIC SOCIAL SYSTEM

College Requirements: (30 Credits)

CS230: Object Oriented Programming

ENG103: Technical Writing

MATH150: Discrete Mathematics

CS240: Data Structure

MATH251: Linear Algebra

CS350: Introduction to Database

CS351: Operating Systems

CS360: Computer Networks

STAT101: Statistics

CS499: Practical Training

Department requirements (54 Credits)

CS231: Digital Logic Design

SCI 101: General Physics 1

SCI 201: General Physics 2

CS241: Computer Architecture and Organization

CS242: Theory of Computing

CS243: Discrete Mathematics for CS

CS352: System Analysis and Design

CS353: Design and Analysis of Algorithms

CS361: Web Programming

CS362: Artificial Intelligence

CS363: Principles of Programming Languages

CS364: Computing Entrepreneurship and Innovation

CS470: Human Computer Interaction

CS471: Computer Security

CS479: Senior Project 1 in Computer Science

CS489: Senior Project 2 in Computer Science

CS480: Project Management in Computing

CS481: Professional Ethics in Computer Science

Track Requirements: (12 Credits)

Electives:

Advance Application Development Track

CS475 Mobile Computing

CS476 Parallel and Distributed Computing

CS477 Compiler Design

CS478 Computer Graphics

Gaming Development Track

CS485 Game Architecture and Design

CS486 2D Game Programming

CS487 3D Game Programming

CS488 Game Artificial Intelligence

Program Structure

First Year

Level three

Level Four

Level Five

Level Six

Level Seven

Level Eight

## **Program Courses Descriptions**







