هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	**Introduction to Computing**
Course Code:	**CSC 1101**
Program:	**Bachelor in Computer Science**
Department:	**Computer Science**
College:	**Faculty of Computers and Information Technology**
Institution:	**University of Tabuk**
Version:	**1.0**
Last Revision Date:	**27 July 2022**

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3 hours)					
2. Course type					
A.	☒ University	☐ College	☐Department	☐Track	☐Others
B.	☒ Required		☐ Elective		
3. Level/year at which this course is offered: (1/1)					
4. Course general Description:					
This course introduces information technology concepts and applications. The course provides fundamental knowledge and practical skills in computer architecture, Software Applications, Database Systems, Introduction to Programming, Computer Networking, Information Security, Internet of Things, Artificial Intelligence, Operating Systems, Virtual Machine and Cloud Computing.					
5. Pre-requirements for this course (if any)**:**					
N/A					
6. Co-requisites for this course (if any)**:**					
N/A					
7. Course Main Objective(s):					
After completing this course, the students will be able to: **1. Understand the principles of Information Technology, Computer Architecture, Operating Systems and Database Systems.** **2. Apply problem-solving concepts and write basic programs.** **3. Describe the key concepts of Networking, Information Security and Artificial Intelligence.** **Use computer applications in daily life.**					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	**60**	**100%**
2	E-learning	-	-
3	Hybrid ● Traditional classroom ● E-learning	-	-
4	Distance learning	-	-

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	-
4.	**Tutorial**	-
5.	**Others (specify)**	-
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**Understand the principles of Information Technology and computer architecture.**	ILO1, ILO 2	**Lectures Class Discussion Case Study**	**Exams Assignments** Class participation
1.2	**Describe the differences between Operating Systems, Software Applications, Programming languages and Virtual Machines.**	ILO1, ILO 2		
1.3	**Understand principles of Artificial Intelligence (AI) and its usages.**	ILO1, ILO 2		
1.4	**Identify Networks: types, Layers, Topologies, and Protocols as well as Information Security.**	ILO1, ILO 2		
2.0	**Skills**			
2.1	**Analyze and differentiate database-modeling techniques.**	ILO 2	**Lectures Class Discussion Demonstrated Practical**	**Exams Assignments** Class participation
2.2	**Develop and plan solutions for problems using computing methods.**	ILO 2		

2.3	**Apply problem-solving concepts and be able to write basic programs.**	ILO 2		
3.0	**Values, autonomy, and responsibility**			
3.1	**Demonstrate self-learning and continuing professional development.**	ILO9	**Class Discussion Practical**	**Assignments** Class participation
3.2	**Use communication and teamwork skills.**	ILO9, ILO10		
3.3	**Practice computer ethics effectively and professionally.**	ILO2		

C. Course Content

No	List of Topics	Contact Hours
1.	**Principles of Information Technology (IT) and Computer Architecture (Part 1):** The History of Computing, Computer Architecture, Machine Language, Program Execution	**4**
2.	**Principles of Information Technology (IT) and Computer Architecture (Part 2):** Arithmetic/Logic instructions, Communicating with Other Devices, Program Data Manipulation, Other Architectures **Lab:** Arithmetic/Logic instructions	**4**
3.	**Operating Systems (OS) and Virtual Machines (VM) (Part 1):** Introduction to Operating Systems, Operating System Architecture, Coordinating the Machine's Activities **Lab:** How to create virtual machines	**4**
4.	**Operating Systems (OS) and Virtual Machines (VM) (Part 2):** Handling Competition Among Processes, Introduction to Virtual Machine, Hypervisor **Lab:** How to install and configure operating system	**4**
5.	**Operating Systems (OS) and Virtual Machines (VM) (Part 3):** Comparison of Virtual Machine and containers, Virtualized Systems.	**4**

	Lab: How to create virtual machines, How to install and configure operating system	
6.	**Problems Solving Concepts and Programming (Part 1):** Introduction to Problem Solving, Historical Perspective of programming, Traditional Programming Concepts **Lab:** Applying programming concepts using Python.	**4**
7.	**Problems Solving Concepts and Programming (Part 2):** Procedural Units, Language Implementation, Object-Oriented Programming. **Lab:** Applying programming concepts using Python.	**4**
8.	**Networking and Information Security (Part 1):** Network Fundamentals, The Internet, The World Wide Web, Internet Protocols, Simple Client Server **Lab:** How to create and configure network using a simulator that shows packets movement.	**4**
9.	**Networking and Information Security (Part 2):** Introduction to Cybersecurity, Privacy and Security Procedures, Internet of Things (IoT), Cloud Computing. **Lab:** Managing your account security and privacy, How to manage IoT and cloud services including: creations and permissions.	**4**
10.	**Database Systems (Part 1):** Database Fundamentals **Lab:** How to implement relational database system.	**4**
11.	**Database Systems (Part 2):** The Relational Model, Maintaining Database Integrity. **Lab:** How to implement relational database system.	**4**
12.	**Introduction to Artificial Intelligence (AI) (Part 1):** Intelligence and Machines, Perception. **Lab:** How to configure ANN.	**4**
13.		**4**

	Introduction to Artificial Intelligence (AI) (Part 2): Reasoning, Artificial Neural Networks. **Lab**: How to apply binary classification using ANN.	
14.	**The Impact of Technology in a Changing World (Part 1):** Technology and Artificial Intelligence in a global society **Lab:** Demonstrating the impact of technology in daily life.	**4**
15.	**The Impact of Technology in a Changing World (Part 2):** Technology Connects Us with Others, Ethical Computing. **Lab:** Demonstrating the impact of technology in daily life.	**4**
Total		**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Class participation	**5,14**	**10%**
2.	Assignments	**4, 9**	**20%**
3.	Mid-Exam	**7-9**	**30%**
4.	Final Exam	**16**	**40%**

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	**Computer Science: An Overview, 13th Edition By Glenn Brookshear, Dennis Brylow, 2019, Pearson.** **Technology in Action, 15th Edition by Alan Evans, Kendall Martin, Jonathan Weyers, Mary Poatsy, Mary Anne Poatsy, 2020, Pearson.**
Supportive References	**Computer Security: Principles and Practice, 4th edition, William Stallings, Lawrie Brown, 2020, Pearson.** **Introduction to Python Programming and Data Structures, Y. Daniel Liang, 2020, Pearson.**
Electronic Materials	**-**
Other Learning Materials	**-**

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**Classroom**
Technology equipment (projector, smart board, software)	**Data show**
Other equipment (depending on the nature of the specialty)	**Students should have laptops**

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of Teaching	Faculty, Program Leaders, and Advisory Board	Both Direct and Indirect
	Students	Indirect
Effectiveness of Students Assessment	Faculty, Program Leaders, Advisory Board, and Independent Opinion	Both Direct and Indirect
Quality of Learning Resources	Faculty, Students, and Advisory Board	Indirect
The Extent to which CLOs have been Achieved	Faculty, Program Leaders, Advisory Board, and Independent Opinion	Direct (as in section B) and Indirect/Surveys
	Students	Indirect
Other	-	-

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	