# Course Specification

— (Bachelor)

| |
|---|
| **Course Title**: Introduction to Computing |
| **Course Code**: CSC 1101 |
| **Program**: University Course |
| **Department**: Computer Science |
| **College**: Computers and Information Technology |
| **Institution**: University of Tabuk |
| **Version**: |
| **Last Revision Date**: |

**Table of Contents**

**A. General information about the course:**

**1. Course Identification**

**1. Credit hours: ( …3…… )**

**2. Course type**

| | | | | | |
|---|---|---|---|---|---|
| **A.** | ☒ University | ☐College | ☐Department | ☐Track | ☐Others |
| **B.** | ☒ Required | | ☐Elective | | |

**3. Level/year at which this course is offered: (Level 1/First year……….)**

**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):**

NA

**6. Pre-requirements for this course (if any):**

NA

**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. 4. Use computer applications in daily life

**2. Teaching mode** (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|---|---|---|---|
| 1 | Traditional classroom | 45 | 100% |
| 2 | E-learning | | |
| 3 | Hybrid <br> • Traditional classroom <br> • E-learning | | |
| 4 | Distance learning | | |

## 3. Contact Hours (based on the academic semester)

| No | Activity | Contact Hours |
|----|----------|---------------|
| 1. | **Lectures** | 45 |
| 2. | **Laboratory/Studio** | |
| 3. | **Field** | |
| 4. | **Tutorial** | |
| 5. | **Others (specify)** | |
| **Total** | | |

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

| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|------|--------------------------|-----------------------------------|---------------------|--------------------|
| **1.0** | **Knowledge and understanding** | | | |
| 1.1 | Understand the principles of Information Technology and computer architecture . | ILO1, ILO2 | Lectures Class Discussion | Exams Assignments |
| 1.2 | Describe the differences between Operating Systems, Software Applications, Programming languages and Virtual Machines. | ILO1, ILO2 | Lectures Class Discussion | Exams Assignments |
| 1.3 | Understand principles of Artificial Intelligence (AI) and its usages | ILO2 | Lectures Class Discussion Case Study | Exams Assignments |
| 1.4 | Identify Networks: types, Layers, Topologies, and Protocols as well as Information Security | ILO2 | Lectures Class Discussion Case Study | Exams Assignments Project |
| **2.0** | **Skills** | | | |

| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|------|--------------------------|-----------------------------------|---------------------|--------------------|
| 2.1 | Analyze and differentiate database modeling techniques. | ILO2 | Lectures Class Discussion | Exams Assignments Class Participation |
| 2.2 | Develop and plan solutions for problems using computing methods. | ILO2 | Lectures Class Discussion | Exams Assignments |
| 2.3 | Apply problem-solving concepts and be able to write basic programs. | ILO2 | Lectures Class Discussion | Exams Assignments Project |
| **3.0** | **Values, autonomy, and responsibility** | | | |
| 3.1 | Demonstrate self-learning and continuing professional development. | ILO9 | Class Discussion Case Study | Class Participation Presentations |
| 3.2 | Use communication and teamwork skills | ILO9, ILO10 | Class Discussion Case Study | Class Participation Presentations |
| 3.3 | Practice computer ethics effectively and professionally. | ILO2 | Class Discussion Case Study | Class Participation Presentations |

**C. Course Content**

| No | List of Topics | Contact Hours |
|----|----------------|---------------|
| **1.** | Principles of Information Technology (IT) and Computer Architecture: The History of Computing, Computer Architecture, Machine Language, Program Execution, Arithmetic/Logic instructions, Communicating with Other Devices, Program Data Manipulation, Other Architectures | 6 |
| **2.** | Operating Systems (OS) and Virtual Machines (VM): Introduction to Operating Systems, Operating System Architecture, Coordinating the Machine's Activities, Handling Competition Among Processes, Introduction to Virtual Machine, Hypervisor, Comparison of Virtual Machine and containers, Virtualized Systems | 9 |
| **3.** | Problems Solving Concepts and Programming: Introduction to Problem Solving, Historical Perspective of programming, Traditional Programming Concepts, Procedural Units, Language Implementation, Object-Oriented Programming | **6** |

| | | |
|---|---|---|
| 4. | Networking and Information Security: Network Fundamentals, The Internet, The World Wide Web, Internet Protocols, Introduction to Cybersecurity, Privacy and Security Procedures, Internet of Things (IoT), Cloud Computing. | 6 |
| 5. | Database Systems: Database Fundamentals, The Relational Model, Maintaining Database integrity | 6 |
| 6. | Introduction to Artificial Intelligence (AI): Intelligence and Machines, Perception, Reasoning, Artificial Neural networks | 6 |
| 7. | The Impact of Technology in a Changing World: Technology and Artificial Intelligence in a global society, Technology Connects Us with Others, Ethical Computing | 6 |
| **Total** | | **45** |

## D. Students Assessment Activities

| No | Assessment Activities * | Assessment timing (in week no) | Percentage of Total Assessment Score |
|---|---|---|---|
| 1. | Class participation | During classes | 10% |
| 2. | Projects and presentations | 13 | 20% |
| 3. | Assignments | 3, 9 | 20% |
| 4 | Mid-Exam | 7 | 20 |
| 5 | Final Exam | 15 | 30 % |

*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** | 1. Computer Security: Principles and Practice, 4th edition, William Stallings, Lawrie Brown, 2020, Pearson. 2. Introduction to Python Programming and Data Structures, Y Daniel Liang, 2020, Pearson. |
| **Supportive References** | |
| **Electronic Materials** | |
| **Other Learning Materials** | |

**2. Required Facilities and equipment**

| Items | Resources |
|---|---|
| **facilities** <br> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.) | Fully equipped computer Lab |
| **Technology equipment** <br> (projector, smart board, software) | 1. Projector with HDMI port <br> 2. 31 Desktop Computers 3. Operating System: Windows <br> 3. .Software: Python |
| **Other equipment** <br> (depending on the nature of the specialty) | NA |

**F. Assessment of Course Quality**

| Assessment Areas/Issues | Assessor | Assessment Methods |
|---|---|---|
| Effectiveness of teaching | | |
| Effectiveness of Students assessment | | |
| Quality of learning resources | | |
| The extent to which CLOs have been achieved | | |
| Other | | |

**Assessors (**Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

**Assessment Methods** (Direct, Indirect)

**G. Specification Approval**

| COUNCIL /COMMITTEE | |
|---|---|
| REFERENCE NO. | |
| DATE | |