**TEMPLATE FOR COURSE SPECIFICATION**

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| HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW |

**COURSE SPECIFICATION**

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| This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification. | |
| Al-Maarif University College | **1. Teaching Institution** |
| Computer Engineering Techniques | **2. University Department/Centre** |
| Computer Organization | **3. Course title/code** |
| Bachelor in Computer Engineering Techniques | **4. Programme(s) to which it Contributes** |
| Face-to-face and online presence | **5. Modes of Attendance offered** |
| Year | **6. Semester/Year** |
| 120 | **7. Number of hours tuition (total)** |
| 22.06.2021 | **8. Date of production/revision of this specification** |
| **9. Aims of the Course** | |
| * The course aims to study the Von Neumann Architecture for computers, computer software and operating systems, and to study the generations of computers, * Introducing the student to virtual memory, the details of random memories (ROM & RAM), and addressing modes, in addition to the types of storage and how to store. | |

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| **10· Learning Outcomes, Teaching ,Learning and Assessment Method** |
| **A. Knowledge and Understanding**  A1. The trainee will be familiar with the structure of the computer  A2. Types of structures and structures of the computer  A3. Differentiate between internal and external types of RAM  A4. Explaining the structure of the world (Von Neumann)  A5. Major and sub-systems of the computer  A6. Structure of each type of computer |
| **B. Subject-specific skills**  B1. Analyzes processor and memory performance  B2. Distinguish the methods of delivering information and addressing  B2. Distinguish between the four main computer architectures |
| **Teaching and Learning Methods** |
| * Lectures * Discussions * Research * Reports |
| **Assessment methods** |
| * Feedback from students * Daily and quarterly exams * Preparing scientific reports |
| **C. Thinking Skills**  C1. The student learns how to describe and deal with microprocessor  C2. Through what the student learns from the theoretical and practical study, he can develop his abilities in how to connect microprocessor and RAM |
| **Teaching and Learning Methods** |
| * Science laboratories * Field visits |
| **Assessment methods** |
| * Daily exams, monthly exams * Conduct experiments |

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| **11. Course Structure** | | | | | |
| **Assessment Method** | **Teaching Method** | **Unit/Module or Topic Title** | **ILOs** | **Hours** | **Week** |
|  |  | Introduction to computer system |  | 4 | 1 |
|  |  | Von Neumann Architecture |  | 4 | 2 |
|  |  | Introduction to the main digital component |  | 4 | 3 |
|  |  | Decoder , encoders , multiplexer |  | 4 | 4 |
|  |  | Memory hierarchy : internal register , |  | 4 | 5 |
|  |  | primary memory |  | 4 | 6 |
|  |  | Secondary memory |  | 4 | 7 |
|  |  | cache memory |  | 4 | 8 |
|  |  | External memory |  | 4 | 9 |
|  |  | System buses |  | 4 | 10 |
|  |  | Memory addressing , memory organization and expansion |  | 4 | 11 |
|  |  | CPU basic organization :Arithmetic &logical unit organization |  | 4 | 12 |
|  |  | Subtraction cct , logical cct |  | 4 | 13 |
|  |  | Increment &decrement cct |  | 4 | 14 |
|  |  | Input &output organization (peripherals devices , isolated and memory mapped I/O , Data transfer) |  | 4 | 15 |
|  |  | CPU basic organization :control unit organization |  | 4 | 16 |
|  |  | CPU basic organization :control unit organization |  | 4 | 17 |
|  |  | Computer S/W (machine language) |  | 4 | 18 |
|  |  | Assembly language , OS |  | 4 | 19 |
|  |  | Basic concept idea of microprocessor |  | 4 | 20 |
|  |  | Introduction to 8085 MP architecture |  | 4 | 21 |
|  |  | 8085 pin configuration |  | 4 | 22 |
|  |  | 8085 addressing mode |  | 4 | 23 |
|  |  | Instruction set |  | 4 | 24 |
|  |  | Instruction set group for 8085 , data transfer group , Arithmetic and logic group branch group instruction for 8085 |  | 4 | 25 |
|  |  |  | 4 | 26 |
|  |  |  | 4 | 27 |
|  |  | Stack memory and subroutine |  | 4 | 28 |
|  |  | 8085 assembly programming I |  | 4 | 29 |
|  |  | 8085 assembly programming II |  | 4 | 30 |

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| **D. General and Transferable Skills (other skills relevant to employability and personal development)**  D1. The student acquires practical skills through what he acquires by carrying out experiments in the laboratory |

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| **12. Infrastructure** | |
| * Structured Computer Organization (5th Edition) * Computer Organization and Architecture (9th Edition) (William Stallings) | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
|  | Special requirements (include for example workshops, periodicals, IT software, websites) |
|  | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| 13. Admissions | |
| None | Pre-requisites |
| 8 | Minimum number of students |
| 100 | Maximum number of students |