**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 Programming (I) | **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** |
| 150 | **7. Number of hours tuition (total)** |
| 22.06.2021 | **8. Date of production/revision of this specification** |
| **9. Aims of the Course** | |
| * Familiarize the student with facing problems and trying to solve them and searching for and following the correct ways of solving. * Developing his research and investigation skills. * Aims to teach the student the types of programming languages and then the methods and analysis of algorithms and programs, and programming them in C++. | |

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| **10· Learning Outcomes, Teaching ,Learning and Assessment Method** |
| **A. Knowledge and Understanding**  A1. Analyzing and solving problems.  A2. Learn about algorithms, data processing schemes, and commands.  A3. Learn about programming languages and their types.  A4. Understand the basics of programming and building applications in C++.  A5. Familiarity with the vocabulary of the C++ language in particular and the vocabulary of programming in general. |
| **B. Subject-specific skills**  B1. Read and understand the topic in a way that achieves the required scientific benefit  B2. Develop the student's mental ability in the field of his scientific and academic specialization |
| **Teaching and Learning Methods** |
| * The direct method is through lectures * The subjective method by preparing research papers and discussing them collectively |
| **Assessment methods** |
| * Feedback from students * Daily and quarterly exams * Preparing scientific reports |
| **C. Thinking Skills**  C1. To familiarize the student with the importance of programming and its role in scientific development and civilized progress.  C2. To appreciate the aesthetic aspects of programming, especially with regard to a taste for syllogism and respect for the power of thinking, analysis and reasoning.  C3. That the student knows the great importance of programming for companies and in the labor market. |
| **Teaching and Learning Methods** |
| * Direct lecture style * Discussion method * Self-learning (research and seminars) |
| **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** |
|  |  | Algorithm and Flow Chart |  | 5 | 1 |
|  |  |  | 5 | 2 |
|  |  |  | 5 | 3 |
|  |  | Introduction to C++ (Structure of program) |  | 5 | 4 |
|  |  |  | 5 | 5 |
|  |  | Variables, Data Types, Expressions and Basic Input and Output |  | 5 | 6 |
|  |  |  | 5 | 7 |
|  |  | Operators (Bitwise, Arithmetic, Conditionals) |  | 5 | 8 |
|  |  |  | 5 | 9 |
|  |  | Making Decisions (if…else and switch) |  | 5 | 10 |
|  |  |  | 5 | 11 |
|  |  | Looping (While loop and for loop) |  | 5 | 12 |
|  |  |  | 5 | 13 |
|  |  | Jump Statements (break, continue) |  | 5 | 14 |
|  |  |  | 5 | 15 |
|  |  | Functions (Local and global variables, Overload functions and Recursion Functions) |  | 5 | 16 |
|  |  |  | 5 | 17 |
|  |  | Arrays (Single and two dimensional arrays) |  | 5 | 18 |
|  |  |  | 5 | 19 |
|  |  | Character sequences and String handling |  | 5 | 20 |
|  |  |  | 5 | 21 |
|  |  |  | 5 | 22 |
|  |  | Pointers (Reference operator, Dereference operator, Declaring variables of pointer types, Pointers and arrays, void pointers and pointer to function) |  | 5 | 23 |
|  |  |  | 5 | 24 |
|  |  |  | 5 | 25 |
|  |  |  | 5 | 26 |
|  |  |  | 5 | 27 |
|  |  | Dynamic Memory (Operators new, Allocation memory, Operators Delete) |  | 5 | 28 |
|  |  |  | 5 | 29 |
|  |  |  | 5 | 30 |

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| **D. General and Transferable Skills (other skills relevant to employability and personal development)**  D1. Improve debating skills  D2. Raising research perceptions and transferring students from the stage of education to learning |

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| **12. Infrastructure** | |
| * The C++ Programming Language, 4th Edition by Bjarne Stroustrup | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| * E-Learning / The official page of the College of Knowledge * http://www.cplusplus.com | Special requirements (include for example workshops, periodicals, IT software, websites) |
| * Guest Lectures * Internship | 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 |