**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. |

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| Baghdad University | **1. Teaching Institution** |
| College of Engineering/Department of Electrical Engineering | **2. University Department/Centre** |
| Computer Programming | **3. Course title/code** |
| Electrical Engineering | **4. Programme(s) to which it contributes** |
| Internal | **5. Modes of Attendance offered** |
| First Year Class | **6. Semester/Year** |
| 60 | **7. Number of hours tuition (total)** |
| 2014 | **8. Date of production/revision of this specification** |
| 9**. Aims of the Course** | |
| Explain the basic principles of computer programming in C, C++ and identify the most important directives and orders which qualify a student practicing the language in high stages. | |
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| **10· Learning Outcomes, Teaching, Learning and Assessment Method** |
| **A-Knowledge and Understanding**  A1. Understanding academic texts, using effective learning strategies .  A2.Developing computer programming skills necessary for becoming a contributing for designing and solving the scientific problem and research.  A3.Finding and understand information about academic study, programming capabilities, usage, and capability for analysisiing the scientificproblems.  A4. Demonstrating an appropriate level of control of analysis of many problems in academic and industrial fields. |
| **B. Subject-specific skills**  B1. Understanding the Vocabulary of C& C++ programming language.  B2. Studying simple flowchart technique.  B3. Studying the declarative,defining, and calling different data types  B4. Studying different control statements, functions and pointers.  B5. Studyting the more advance programming instructins.  B6. Writing simple and difficult programs |
| **Teaching and Learning Methods** |
| Lecturing and Exercises |
| **Assessment methods** |
| Exams |
| **C. Thinking Skills**  C1. Asking the student to give solution for any problem through the lecture  C2 Give many questions and scientific problems using academic sources. |
| **Teaching and Learning Methods** |
| Lecturing & Class discussions, activities, and lab. |
| **Assessment methods** |
| Exams that involve problem-solving skills and critical thinking skills, practically and theoretically. |

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| **D. General and Transferable Skills (other skills relevant to employability and personal development)**  D1.The sharing among the students to solve the weekly homework.  D2. Laboratory tests. |

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| **11. Course Structure** | | | | | |
| **Assessment Method** | **Teaching**  **Method** | **Unit/Module or Topic Title** | **ILOs** | **Hours** | **Week** |
| Exam | Lecturing, , & Laboratory tests. | Flowchart Techniques & Pseudocode | B | **2** | **1** |
| Exam | Lecturing, , & Laboratory tests | Programming languages, how to use, run programs. | A+B+C+D | **2** | **2** |
| Exam | Lecturing, , & Laboratory tests | Compiler overview & Interpreter | A+B+C+D | **2** | **3** |
| Exam | Lecturing, , & Laboratory tests | Programming in C (input and output) | A+B+C+D | **2** | **4** |
| Exam | Lecturing, , & Laboratory tests | Type casting functions | A+B+C+D | **2** | **5** |
|  |  | Exam (1) |  |  | **6** |
| Exam | Lecturing, , & Laboratory tests | Arithmetic and logical operators, precedence of operators. | A+B+C+D | **2** | **7** |
| Exam | Lecturing, , & Laboratory tests | Other arithmetic operations with different statements. | A+B+C+D | **2** | **8** |
| Exam | Lecturing, , & Laboratory tests | C program control and structured programming selections. | A+B+C+D | **2** | **9** |
| Exam | Lecturing, , & Laboratory tests | If statement, nested if statement, if-else if ladder else. | A+B+C+D | **2** | **10** |
| Exam | Lecturing, , & Laboratory tests | Switch-case statements, nested switch-case statement. | A+B+C+D | **2** | **11** |
| Exam | Lecturing, , & Laboratory tests | Counter controlled and sentinel controlled repetition. | A+B+C+D | **2** | **12** |
|  |  | Mid-Year Break |  |  | **13** |
|  |  | Exam (2) |  |  | **14** |
| Exam | Lecturing, , & Laboratory tests | Loops, for statement, for with no body and for loop variations. | A+B+C+D | **2** | **15** |
| Exam | Lecturing, , & Laboratory tests | The do-while and while loops. | A+B+C+D | **2** | **16** |
| Exam | Lecturing, , & Laboratory tests | Skipping loop iterations break and continue and exit() function. | A+B+C+D | **2** | **17** |
|  |  | Exam (3) |  |  | **18** |
| Exam | Lecturing, , & Laboratory tests | 1-D array creation, initialization and processing. | A+B+C+D | **2** | **19** |
| Exam | Lecturing, , & Laboratory tests | 2-D array creation, initialization and processing. | A+B+C+D | **2** | **20** |
| Exam | Lecturing, , & Laboratory tests | Functions in C/C++ new function creation return values and call. | A+B+C+D | **2** | **21** |
| Exam | Lecturing, , & Laboratory tests | Formal parameters call by value and call by reference/ math and other. | A+B+C+D | **2** | **22** |
|  |  | Exam (4) |  |  | **23** |
| Exam | Lecturing, , & Laboratory tests | Create a call by pointer reference/ formal reference. | A+B+C+D | **2** | **24** |
| Exam | Lecturing, , & Laboratory tests | Prototype, local, global, and static variables in functions. | A+B+C+D | **2** | **25** |
| Exam | Lecturing, , & Laboratory tests | C/C++ pointers/ pointer variable definitions and initialization. | A+B+C+D | **2** | **26** |
|  | Lecturing, , & Laboratory tests | User defined data types, C structures. |  | **2** | **27** |
|  |  | Final Exam |  |  | **28** |

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| 12. **Infrastructure** | |
| The book I use to teach Computer language to first year students in the Electrical Engineering Department is  Herbert Schildt, "The complete reference C++," 4th edition, McGraw-Hill companies, 2003. As a text book,  Other refrences are:   1. Neill Graham, "Learning C," McGraw-Hill, 1992. 2. D.S. Malik, "C++ Programming: from problem analysis to program design," Course technology, a division of Thomson Learning,2002.   in addition to internet links related to the topics discussed in the book and class | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| Internet links related to the topics discussed in the book, class, and lab. | Special requirements (include for example workshops, periodicals, IT software, websites) |
| None | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| **13. Admissions** | |
| ---------- | Pre-requisites |
| **25** | Minimum number of students |
| **30** | Maximum number of students |