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Faculty of Engineering and Technology

**Department of Computer Science**

**Introduction to Computers and Programming**

**(Comp 133/ Spring 2015)**

**Course Information**

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| **Course Title** | **Introduction to Computers and Programming** | | |
| **Course Code** | **Comp133** | **CREDIT VALUE** | **3** |
| **Course Coordinator** | **Mr. Nael Qaraeen (TEC 321)** | | |
| **Instructors** | **Dr. Mustafa Jarrar (TEC 320), Dr. Radi Jarrar (TEC 314)** | | |
| **DEPARTMENT** | **Computer Science Department** | | |

**Relationship with other COURSES**

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| Co-requisites | None | Pre-requisites | Comp131 |

**COURSE Description**

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| This course reviews algorithms and the process of writing pseudo code. For the main part, this course serves as an introductory course in computer programming, which explores different operators, types, conditional statements, looping structures, functions, pointers, arrays, and strings. The course also discusses recursion, structures, as well as file processing. |

**Course Objectives:**

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| Upon completion of this course, the students will have a good understanding of the main programming structures and concepts.  The student will also be able to:   1. Identify and utilize the different programming structures to write useful programs. 2. Implement a given algorithm using the C programming language. 3. Recognize and use the different tools provided by the CodeBlocks compiler. |

**Course Outline:**

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| ***Lectures***  ***1wk=2L*** | *Ch. Title* | *Topics* |
| 3 | Overview of C | Introduction to C Programming, A simple ***Algorithm*** + program, Data and Error types, memory Concept, and Arithmetic Operations. Intro. to Text File I/O. |
| 3 | Top-Down Design w. Functions | Library Functions, Top-Down Design, Functions without Arguments, Functions with Input Arguments and return value. |
| 3 | Selection Structures: If and Switch | Relational and logical operators. The **if statement** and the **switch statement.** Compound if + Nested if. |
| 3 | Repetition and Loops | The **while, for,** and **do-while statements**. Break and continue. Nested Loops. |
| 4 | Pointers and Modular Programming | Pointers. Functions with simple output parameters, multiple calls to a function with input/output parameters, and formal output parameters as  actual arguments. Scope Rules (global, local, static). |
|  |  | **Mid Term Exam** |
| 5 | Arrays | Declaring and referencing **Arrays,** array subscripts, array arguments, searching and sorting. Enum types. Pointer arithmetic. Parallel arrays. Multidimensional arrays |
| 2 | Strings | String basics, string library functions, Arrays of pointers. |
| 2 | Recursion | The nature of recursion, tracing and writing simple recursive functions. |
| 3 | Structures | User-Defined structure types, structure type data as input and output parameters, and functions whose result values are structures. |
| 2 | Text and Binary File Processing | Input/output text and binary files. |
| **30** |  | **Final Exam** |

**SPECIAL REGULATIONS**

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| * *Late Assignments will* ***NOT*** *be accepted for any reason.* * *There will be* ***NO*** *makeup quizzes.* * *There will be* ***NO*** *makeup exams. Missing any exam without an* ***acceptable*** *excuse will result in a zero grade for that exam.* * ***Attendance*** *is mandatory. University regulations will be strictly enforced.* |

**Teaching and Learning Strategy**

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| Lectures introduce concepts, techniques and information about computers and programming. Practical labs provide practice using the C compiler. |

**INDICATIVE Assessment**

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| **No.** | **Assessment method** | **Weighting %** |  |
| 1 | Midterm | 25% |  |
| 2 | Project | 10% |  |
| 3 | assignments , quizzes and Practical Exam | 30% |  |
| 4 | Final Exam | 35% |  |

**course PassING Requirements**

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| To pass the module, the student must attain an average of at least 60%. |

**Resources**

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| This course requires a lab of computers, a printer, CodeBlocks software, and an LCD. |

**Text book and Learning Support Material**

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| * Problem Solving and Program Design in C, 7th Ed., by Jeri R. Hanly and Elliot B. Koffman * COMP. 133 LAB Manual |

**Lab Outline**

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| **Lab No.** | | **Lab# in workbook** | **List of Experiments** | |
| **1** | | 1 | Algorithms Review | |
| **2** | | 2 | C Building Blocks | |
| **3** | | 3 | Functions in C-Language programming | |
| **Quiz #1 (Simple C program)** | |
| **4** | | 4 | Decision making the if, if-else, Switch case, and conditional operators | |
| **5** | | 5 | Looping constructs in C-Language and nested loops | |
| **6** | | **Quiz #2 (C prog with Functions + if )** | |
| **7** | | 6 | Modular Programming  **Quiz #3 (Loops)** | |
| **8** | | 7 | Arrays in C (single dimensional) | |
| **9** | | 8 | Arrays in C (Multidimensional) and string functions | |
| **10** | | 9 | Recursion | |
| **Quiz #4 (Arrays)** | |
| **11** | | 10 | Structures | |
| **12** | | 11 | Filing in C-Language | |
| **13** | | ***Final Practical Exam*** | | |