**University of Management and Technology**

**School of Engineering**

**Department of Electrical Engineering**

**Course Outline, Fall 2015**

Course code: CS143 Course title: Programming Fundamentals

|  |  |
| --- | --- |
| Program | BSEE |
| Credit Hours | 2 |
| Duration | One semester |
| Prerequisites | None |
| Resource Person | Usman Ali |
| Counseling Hours | Mon: 2:00 to 4:30  Tues: 3:30 to 4:30  Wed: 2:00 to 4:30  Thurs: 3:30 to 4:30 |
| Contact | usman.ali@umt.edu.pk |

**Chairman/Director signature………………………………….**

**Dean’s signature…………………………… Date………………………………………….**

**Learning Objective:**

Upon completion of this course, students will:

* Understand the concepts of programming as list of instructions in any programming language.
* Become familiar with syntax and use of C language instructions for programming
* Be able to take a problem description, design a solution to that problem using pseudo-code and implement it in the C programming language
* Be able to use functions, arrays and pointers for advanced manipulation of data and better modularization of implementation

The course strongly supports expected outcomes a, b, d and i of the HEC Electrical Engineering Curriculum.

**Learning Methodology:**

Lecture, interactive, participative

**Grade Evaluation Criteria**

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

**Evaluation**

Quizzes /Assignments 20%

Mid Term 30%

Final exam 50%

Total 100%

**Recommended Text Book:**

H. M. Dietel and P.J. Deitel, “C How to Program”, 7th Edition, Pearson Education, 2012

**Reference Book:**

Kernighan and Ritchie, “The C Programming Language”, 2nd Edition, Prentice Hall, 2009

**Weekly Distribution of the Syllabus**

**Course code………CS143 Course title… Programming Fundamentals**

|  |  |  |
| --- | --- | --- |
| **Week** | **Course Contents** | **Reference Chapter** |
| 1 | Introduction to C Language, compiler and linker, C Data Types, C Variables, C constants, C operators and arithmetic in C | Ch-2 |
| 2 | C formatted input/output, formatting output with printf, printing Integers, floating-point numbers, Strings and Characters, examples | Ch-9 |
| 3 | Introduction to control structures in C and pseudocode, Selection Statements, | Ch-3 |
| 4 | Repetition statements, Comparison between control structures and examples | Ch-4 |
| 5 | Introduction to C Functions, its definition and prototypes, use of library functions, | Ch-5 |
| 6 | Function call by (value and reference) and examples | Ch-5 |
| 7 | Introduction to C arrays, defining arrays, array examples | Ch-6 |
| 8 | **Mid Term Examination** |  |

|  |  |  |
| --- | --- | --- |
| 9 | Passing arrays to function, sorting arrays, Searching arrays and examples | Ch-6 |
| 10 | Introduction to C pointers, Definition and initialization, Pointer operators, Passing arguments to function using pointers | Ch-7 |
| 11 | Referencing and dereferencing, Sizeof operator, Array of pointers, | Ch-7 |
| 12 | Pointer to functions and examples, Fundamentals of Strings and Characters, string conversion functions and examples | Ch-7  Ch-8 |
| 13 | Structure definition and initialization, using structures with functions | Ch-10 |
| 14 | Unions, Bit Manipulations and Enumerations, examples | Ch-10 |
| 15 | Introduction to C File Processing, Data hierarchy, creation of a sequential-access file and random-access file, examples | Ch-11 |
| 16 | **Final Examination** |  |