EE/CE/CH/ ME114	PROGRAMMING WITH C	L	T	P	C	Int	Ext
		4	-	-	4.0	30	70

Semester I [First Year]

COURSE OBJECTIVES:

At the end of the course, the student will understand the

1. basic problem solving process using Flow Charts and algorithms.
2. basic concepts of control structures in C.
3. concepts of arrays, functions, pointers and Dynamic memory allocation in C.
4. concepts of structures, unions, files and command line arguments in C.

COURSE OUTCOMES:

At the end of the course, the student will be able to

1. develop algorithms and flow charts for simple problems.
2. use suitable control structures for developing code in C.
3. design modular programs using the concept of functions and pointers.
4. develop code for complex applications using structures and file handling features.

UNIT I [CO:1] **(15)**

Introductory concepts: Block Diagram of Computer, Computer Characteristics, Hardware vs Software, How to Develop a Program, Software Development Life Cycle, Structured Programming, Types of Programming Languages, Introduction to C program, Program Characteristics.

Introduction to C Programming: Character set, Identifiers and Keywords, Data types, Constants, type qualifiers, Declaration and Initialization of variables.

Operators & Expressions: Arithmetic Operators, Unary Operators, Relational and Logical Operators, Assignment Operators, Conditional Operator, Input/ Output functions.

UNIT II [CO:2] **(15)**

Control Statements: Branching, Looping, Nested Control Structures, Switch Statement, Break Statement, continue Statement, and Goto Statement.

Arrays: Defining an Array, Processing an Array, Multidimensional Arrays & Strings (Basic Programs only).

UNIT III [CO:3] **(15)**

Functions: Defining a Function, Accessing a Function, Function prototypes, Passing Arguments to a Function, Passing Arrays to Functions, Recursion, Storage Classes (Basic Programs only).

Pointers: Fundamentals, Pointer Declarations, Passing Pointers to a Function, Pointers and Arrays, Dynamic memory allocation (Basic Programs only).

UNIT IV [CO:4] **(15)**

Structures and Unions: Defining a Structure, Processing a Structure, User-Defined Data Types, Unions (Basic Programs only).

Files handling: Opening and Closing a Data File, Reading and Writing a Data File, Processing a Data File, Unformatted Data Files (Basic Programs only).

LEARNING RESOURCES:

TEXT BOOK:

Programming with C (Schaum's Outlines) by Byron Gottfried, Third Edition, Tata McGraw-Hill.

REFERENCE BOOK(s):

1. Programming in C by Stephen G. Kochan, Fourth Edition, Pearson
2. C Complete Reference, Herbert Sheildt, TMH., 2000.
3. Programming with C by K R Venugopal & Sudeep R Prasad, TMH., 1997.
4. The C programming Language by Brian W. Kernighan & Dennis M. Ritchie, Second Edition, Prentice Hall.
5. A Structured Programming Approach Using C by Behrouz A. Forouzan, Richard F. Gilberg, Third Edition, Cengage 2007.

WEB RESOURCES:

1. http://cprogramminglanguage.net/
2. http://lectures-c.blogspot.com/
3. http://www.coronadoenterprises.com/tutorials/c/c_intro.htm
4. http://vfu.bg/en/e-Learning/Computer-Basics--computer_basics2.pdf