Course Code	**CS204 / CS104**
Course Title	**Computer Programming**
Type of Course	
Course Assessment Methods End Semester Assessment(University Exam) Continuous Assessment (Minors, Assignments, Quiz) Practical (Continuous and end semester evaluation)	 50 50 50
Course Prerequisites	10+2
Course Objectives (CO)	
Course Outcome	

SYLLABUS

Note for Examiner: The semester question paper will be of 50 Marks having 7 questions of equal marks. Students are required to attempt 5 questions in all. First question, covering the whole syllabus and having questions of conceptual nature, will be compulsory. Rest of the paper will be divided into two parts having three questions each and the candidate is required to attempt two questions from each section.

SECTION-A

Introduction: Computer Basic, Block Diagram of Computer, Memory Hierarchy, Types of RAM, Secondary Memory Introduction to Operating Systems, Programming Languages, Program Structure, Linux Shell Commands, Bourne Shell, C Shell, Korn Shell. (8 hours)

Basic Constructs of C: Keywords, Identifiers, Variables, Symbolic Constants, Data Types and their storage, Operands, Arithmetic Operators, Relational Operators, Logical Operators, Bitwise Operators, Increment & Decrement Operators, Expressions, Conditional Expressions, Assignment Operators and Expressions, Type Conversions, Precedence and Order of Evaluation, External Variables and Scope of Variables. Basic Input Output, Formatted I/O. (8 hours)

Program Control Flow: Statements and Blocks, Conditional Statements, IF, ELSE-IF, Switch Case statements, Control Loops, For, While and Do-While, Go to and Labels. (4 hours)

Arrays & Functions: Pointers and Addresses, Arrays, Multi dimensional arrays, strings, pointer arrays, Functions, Function Prototyping, Scope of functions, Arguments, Call by value and call by references, static variables, recursion. (8 hours)

SECTION B

Structures: Structures, Array of Structures, pointer to structures, Typedef, Unions, Bit fields, passing structures as an argument to functions , C-Preprocessor and Macros, Command line arguments. (4 hours)

Input and Output: Standard and Formatted Input and Output, File Access & its types, Line Input and Output, Types of Files, Binary & ASCII Files, Error handling, stderr and exit functions (7 hours)

Introduction to Object Oriented Programming: Classes and Objects, Structures vs Classes, Abstraction, Encapsulation, Polymorphism, Inheritance. (6 hours)

RECOMMENDED BOOKS			
S.No.	**NAME**	**AUTHORS**	**PUBLISHER**
1.	The C Programming Language	Brian Kernighan and Dennis M. Ritchie	Prentice Hall, 2nd Edition 2007
2.	Fundamentals of Information Technology and Computer Programming	V.K. Jain	HI. Latest Edition
3.	C Programming : A Modern Approach	K.N.King	W.W. Norton Company 2nd edition (2008).
4.	C: The Complete Reference	Herbert Schildt	Tata Mcgraw Hill Publications 4th edition.
5.	Let us C++	Yashwant Kanetkar	latest edition, BPB Publications
6.	Programming in ANSI C++	E. Balagurusamy	TMH publications, dition, Reprint (2008).
7.	Programming in ANSI C	Gottfired	Schaum Series, TMH publications, 2nd Edition (1996).

List of Experiments

Instruction for Students: The candidate will be attending a laboratory session of 2 hours weekly and students have to perform the practical related to the following list.

1. Introduction to UNIX Shells, C Shell, Bourne Shell, Korn Shell
2. Writing and compiling C Program in Linux.
3. Introduction to basic structure of C program, utility of header and library files.
4. Implementation of program related to the basic constructs in C
5. Program using different data types in C
6. Programs using Loops and Conditional Statements in C
7. Programs using arrays single dimension and multi dimensions in C.
8. Implementation of Matrices and their basic functions such as addition, subtraction, multiplication, inverse.
9. Programs using functions by passing values using call by value and call by reference method
10. Programs related to structures and unions
11. Program to implement array using pointers
12. Programs related to string handling in C
13. Program to manage I/O files
14. Introduction to classes and program related to basic use of classes showing their advantages over structures.
15. Any other program related to theory program to enhance the understanding of students in the subject.