



Lok Jagruti Kendra University
Ahmedabad – 382210

Course Code	140110102			
Category	Core Subject			
Course Title	Programming in C Language (C)			
Scheme and Credits	Theory	Tutorial	Lab	Credits
	0	2	6	5
Pre-requisites (if any)	No.			

1.Course Objectives:

1	• To understand what is programming language
2	• To develop ability to solve the given problem using flow chart and algorithm
3	• To develop and enhance the problem solving skills using C Programming
4	• To understand functional hierarchical code organization
5	• To understand effective use of user define data types
6	• To be able to store & manage data in permanent storage media

2. Course Contents:

Unit	Course Content	Weightage
Unit I	<p>Introduction to programming in C: What is programming, Introduction to program and programming languages, Simple Program in C, compiler, interpreter, loader, linker, C program execution, Classification of Programming Languages, Flow Chart & Algorithm</p> <p>Good programming practices: Comments, Meaningful identifiers name, Escape sequence, Structure of C Program, Tokens, Concept of Identifier, Variable, Constant and Keywords, Data types in C.</p> <p>Basics of C: Program statements, declarations, How the computer stores data in memory, Operators and Expressions, L-values and R-values. Type casting & type conversion.</p> <p>Input Output: Basic Screen and Keyboard I/O in C, Unformatted Input and Output, Formatted Input, Output Functions and format</p>	20%

	specifier.	
Unit II	Control Statements, Arrays & Strings: Control Statements: Specifying test condition for selection and iteration, writing test expression, Conditional execution and selection, Iteration and repetitive Execution: goto statement, for, while, do-while loops; variations of for loop, break, continue statement, nested loops. Arrays & strings: One-dimensional Array, Strings, String: One dimensional Array, Multi-dimensional array, Array of string. Writing first program with the help of flow chart and user define function.	25%
Unit III	Functions and Pointers: Function -What is function, need of function, types of function, Passing array to Function, Scope and Extent, Storage class Recursion -Concept of recursion, Types of recursion, comparison of iteration and recursion Pointer - Concept of memory addresses, use of the (&) operator. Pointer Execution – Declaring and Initializing a pointer, Indirection Operator and dereferencing a pointer. Pointer Arithmetic – Assignment, Addition-subtraction with integers, pointer comparison. Use of Pointers – Returning more than one value from the function (Call by value and call by References concept). Pointers and Arrays – One dimensional Arrays and pointers, Difference between array name and pointers, passing one dimensional and two dimensional array to functions, Pointers for character array(strings), Array of pointers 2-D Array and pointer, pointer to function. Dynamic memory allocation – Array allocation, Memory freeing, Memory reallocation. Informative - void Pointers, Null pointers, Pointers to pointers, Memory leak and Memory corruption, pointer to constant and constant pointer.	25%
Unit IV	User Defined Data types and Files in C: User Defined Data types – Basic structure operations - Declaring structures and structure variables, Accessing the members of the structure, Initialization of structure, Structure comparisons and copying, typedef and its use. Advanced - Nested structures, Array within the structure and Array of structures, Structures with functions and structures with pointers. Union and its operations Enumerated data type, bit field Files in C: Introduction – Streams in C, Types of Files. Files concept in C – Declaration of File pointer, opening a file,	20%

	<p>closing a file various modes to open the file, Handling file functions for reading data from files – fscanf (), fgetw (), fgets (), fgetc (), fread(), Handling file functions for writing data into files- fprintf, fputw, fputs(), fputc(), fwrite(), Detecting the end of the file – what is EOF and feof() function</p> <p>Types of the files – Binary and Text files.</p> <p>Types of access to the file – Sequential and Random access, Difference between both, how to read and write data in both the cases, for random access (fseek(), ftell(), rewind(), fgetpos(), fsetpos())</p> <p>Error handling during File operations</p> <p>Files of records – Working with files of records (fread() and fwrite()).</p> <p>Other functions – Renaming a file, Removing a file, Command line Arguments</p>	
Unit V	<p>Pre-processor directives:</p> <p>Pre-processor Directives– Types of pre-processor directives, #define, #include, #undef, #line, pragma directives, Conditional directives, Predefined identifiers, Type Qualifiers, variable length arguments. recursion</p>	10%

3. Text Books:

- 1) Pradip Dey – Manas Ghosh, Programming in C Second Edition Oxford Publication).
- 2) Reema Thareja, "Programming in C", 2nd Edition, Oxford University Press.
- 3) Balagurusamy, Programming in ANSI C , Tata McGraw Hill.
- 4) Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson Education.
- 5) Brian W. Kernighan, Dennis Ritchie, "The C Programming Language", Pearson
- 6) Yeshvant Kanetkar, "Let Us C", BPB Publication

4. Webilography:

- 1) 'C' Programming Language: <http://www.w3schools.in/cprogramming-language/intro/>
- 2) Learn C Online: <http://www.learnonline.com/>
- 3) 'C' Frequently Asked Questions: <http://www.c-faq.com>
- 4) 'C' Programming: <http://www.cprogramming.com>
- 5) Sams Teach Yourself C in 24 Hours: <http://aelinik.free.fr/c/>

5. Accomplishment of the student after completing the course:

After completion of the course students should become capable of solving problems using computers through C programming language.