

Course Name : Computer Engineering Group
Course Code : CO/CM/IF/CD
Semester : Second
Subject Title : Programming in ‘C’
Subject Code : 9017

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
04	--	02	03	100	50#	--	25@	175

Rationale:

‘C’ is the most widely used computer language, which is being taught as a core subject. C is general-purpose structural language that is powerful, efficient and compact, which combines features of high-level language and low-level language. It is closer to Man and Machine both. Due to this inherent flexibility and tolerance it is suitable for different development environments. Due to these powerful features C has not lost its importance and popularity in recently developed and advanced software industry C can also be used for system level programming, C is still considered as first priority programming language.

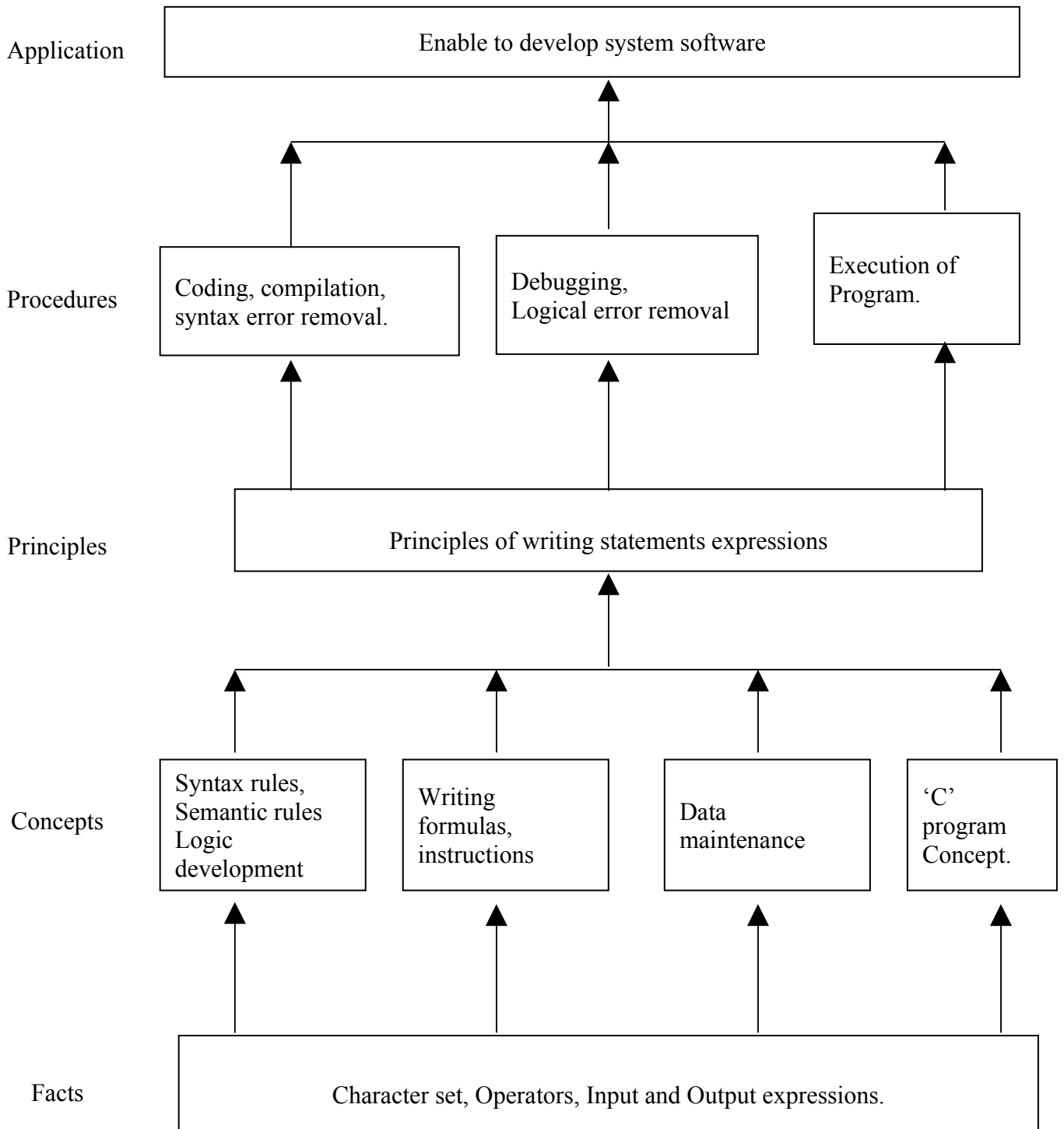
This subject covers from the basic concept of C to pointers in C. This subject will act as “programming concept developer” for students. It will also act as “Backbone” for subjects like OOPS, VB, Windows Programming, JAVA, OOMD, etc.

Objectives:

The students will be able to

- Describe the concepts of constants, variables, data types and operators.
- Develop programs using input and output operations.
- Write programs using different looping and branching statements.
- Write programs based on arrays and strings handling functions.
- Write programs using user-defined functions, structures and union.
- Write programs using C pointers.

Learning Structure:



Contents: Theory

Chapter	Contents	Hours	Marks
01	Basics of C 1.1 History of C, where C stands 1.2 C character set, tokens, constants, variables, keywords 1.3 C operators (arithmetic, Logical, assignment, relational, increment and decrement, conditional, bit wise, special, operator precedence), C expressions data types 1.4 Formatted input, formatted output.	10	16
02	Decision making 2.1 Decision making and branching if statement (if, if-else, else-if ladder, nested if-else) Switch case statement, break statement. 2.2 Decision making and looping while, do, do-while statements for loop, continue statement	12	24
03	Arrays and Strings 3.1 Arrays Declaration and initialization of one dimensional, two dimensional and character arrays, accessing array elements. 3.2 Declaration and initialization of string variables, string handling functions from standard library (strlen(), strcpy(), strcat(), strcmp()).	14	12
04	Functions, Structures 4.1 Functions Need of functions, scope and lifetime of variables, defining functions, function call (call by value, call by reference), return values, storage classes. category of function(No argument No return value, No argument with return value, argument with return value), recursion 4.2 Structures Defining structure, declaring and accessing structure members, initialization of structure, arrays of structure.	14	12
05	Pointers 5.1 Understanding pointers, declaring and accessing pointers, Pointers arithmetic, pointers and arrays	14	16
Total		64	80

Practical:

Skills to be developed:

Intellectual skills:

- Use of programming language constructs in program implementation.
- apply different logics to solve given problem.
- write program using different implementations for the same problem
- Identify different types of errors as syntax semantic, fatal, linker & logical
- Debugging of programs

- Understanding different steps to develop program such as

Motor skills:

- Proper handling of Computer System.

List of Practical:

Write a C program

Any One from 1 to 3

- 1) To display hexadecimal, decimal, octal format of the entered numbers.
- 2) To display entered number with leading zeros and trailing zeros.
- 3) To display entered numbers with right justification and left justification.
- 4) To demonstrate all possible formatting specifiers.

Any one from 5 and 6

- 5) To find greatest/ smallest of 3 numbers.
- 6) To display pass class, second-class, distinction according to the marks entered.

Any one from 7 and 8

- 7) To find even or odd numbers.
- 8) To display spellings of number 1-10 on entry.

Any one from 9 and 10

- 9) To display menu 1. Addition 2. Subtraction 3. Multiplication 4. Division and execute it using switch case.
- 10) To demonstrate continue and BREAK statements.

Any one from 11 to 13

- 11) To display our College name twenty times on screen.
- 12) To display all even numbers from 1-100.
- 13) To perform addition of 1-100 numbers.

Any one from 14 and 15

- 14) To find smallest / largest number from array elements.
- 15) To sort array elements in ascending / descending order.

Any one from 16 to 18

- 16) To enter elements for 3X3 matrix and display them.
- 17) To calculate addition / subtraction of 2 dimensional matrix.
- 18) To calculate multiplication of 2 dimensional matrix.
- 19) To demonstrate output of standard library functions Strlen(), strcpy(), strcat(),strcmp().

Any one from 20 and 21

- 20) To calculate area of circle using function.

- 21) To calculate factorial of any given number using recursion.
- 22) To demonstrate call by reference, call by value
- 23) To maintain and manipulate student data using structure.
- 24) To perform 4 arithmetic functions on pointers.

Learning Recourses:

1. Books

Sr. No.	Name of Book	Author	Edition	Publication
1	Programming in 'C'	Balgurusamy	3 rd	Tata Mc-Graw Hill
2	Let's 'C'	Kanetkar	3 rd	BPB
3	Complete reference C	Herbert Schildt	4 th	Tata Mc-Graw Hill

2. Websites:

- <http://cplus.about.com/od/beginnerctutorial/a/blctut.htm>
- <http://computer.howstuffworks.com/c.htm>
- **Objective questions:**
<http://www.indiastudycenter.com/studyguides/sc/objtest/default.asp>

Demo lectures with power point presentations using LCD projector should be arranged to develop programming concepts of students.