

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Pract.	Tut.	Theory	TW/Pract	Tut.	Total
FEC205	Structured Programming Approach	04	02	--	04	01	--	05

Course Code	Course Name	Examination Scheme							
		Theory				Term Work	Pract	Oral	Total
		Internal Assessment			End Sem Exam				
		Test1	Test2	Av of Test 1 & 2					
FEC205	Structured Programming Approach	20	20	20	80	25	25	--	150

Objectives

1. To familiarise the logic of structured programming approach.
2. To provide exposure in developing algorithm, flowchart and thereby writing efficient codes for user defined problem.

Outcomes: Learner will be able to...

1. Illustrate the basic terminology used in computer programming.
2. Illustrate the concept of data types, variables and operators using C.
3. Design and Implement control statements and looping constructs in C.
4. Apply function concept on problem statements.
5. Demonstrate the use of arrays, strings, structures and files handling in C.
6. Demonstrate the dynamics of memory by the use of pointers to construct various data structures.

Module	Topic	Detailed Contents	Hrs.
01	Introduction to Computer, Algorithm And Flowchart	1.1 Basics of Computer: Turing Model, Von Neumann Model, Basics of Positional Number System, Introduction to Operating System and component of an Operating System. 1.2 Algorithm & Flowchart : Three construct of Algorithm and flowchart: Sequence, Decision (Selection) and Repetition	06
02	Fundamentals of C-Programming	2.1 Character Set, Identifiers and keywords, Data types, Constants, Variables. 2.2 Operators -Arithmetic, Relational and logical, Assignment, Unary, Conditional, Bitwise, Comma, other operators. Expression, statements, Library Functions, Preprocessor. 2.3 Data Input and Output – getchar(), putchar(), scanf(), printf(), gets(), puts(), Structure of C program .	06
03	Control Structures	3.1 Branching - If statement, If-else Statement, Multiway decision. 3.2 Looping – while , do-while, for 3.3 Nested control structure - Switch statement, Continue statement Break statement, Goto statement.	12
04	Functions and Parameter	4.1 Function -Introduction of Function, Function Main, Defining a Function, Accessing a Function, Function Prototype, Passing Arguments to a Function, Recursion. 4.2 Storage Classes –Auto , Extern , Static, Register	06

05	Arrays , String Structure and Union	5.1 Array -Concepts, Declaration, Definition, Accessing array element, One-dimensional and Multidimensional array. 5.2 String - Basic of String, Array of String , Functions in String.h 5.3 Structure - Declaration, Initialization, structure within structure, Operation on structures, Array of Structure. 5.4 Union - Definition , Difference between structure and union , Operations on a union	14
06	Pointer and Files	6.1 Pointer :Introduction, Definition and uses of Pointers, Address Operator, Pointer Variables, Dereferencing Pointer, Void Pointer, Pointer Arithmetic, Pointers to Pointers, Pointers and Array, Passing Arrays to Function, Pointers and Function, Pointers and two dimensional Array, Array of Pointers, Dynamic Memory Allocation. 6.2 Files : Types of File, File operation- Opening, Closing, Creating, Reading, Processing File.	08

Laboratory Assignments:

1. Students are expected to solve and execute at least 20 programming problems based on above Syllabus.
2. Journal work should comprise of writing the problem definition, solution of problem either as algorithm and flow chart and source code in C (Advisable hand written) for all the 20 problems.

Assessment:

Internal Assessment Test:

Assessment consists of two class tests of 20 marks each. The first class test is to be conducted when approx. 40% syllabus is completed and second class test when additional 35% syllabus is completed. Duration of each test shall be one hour.

End Semester Theory Examination:

1. Question paper will comprise of total 06 questions, each carrying 20 marks.
2. Total 04 questions need to be solved.
3. Question No: 01 will be compulsory and based on entire syllabus wherein sub-questions of 3 to 5 marks will be asked.
4. Remaining questions will be mixed in nature.(e.g. Suppose Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3)
5. In question paper weightage of each module will be proportional to number of respective lecture hrs as mentioned in the syllabus.

Text Books:

- 1 “MASTERING C” by K.R.Venugopal and SudeepR.Prasad , Tata McGraw-Hill Publications.
- 2 “A Computer Science –Structure Programming Approaches using C ”, by

BehrouzForouzan
, Cengage Learning .

- 3 Schaum's outlines "Programming with C", by Byron S. Gottfried, Tata McGraw-Hill Publications.

Reference Books:

- 1 "Basics of Computer Science", by BehrouzForouzan , Cengage Learning .
- 2 "Programming Techniques through C", by M. G. Venkateshmurthy, Pearson Publication.
- 3 "Programming in ANSI C", by E. Balaguruswamy, Tata McGraw-Hill Education.
- 4 "Programming in C", by Pradeep Day and Manas Gosh, Oxford University Press.
- 5 "Let Us C", by YashwantKanetkar, BPB Publication.