

Fr. Conceicao Rodrigues College Of Engineering

Father Agnel Ashram, Bandstand, Bandra-west, Mumbai-50

Department of Information Technology

F.E. (Semester II) (2019-2020)

CO Assessment Plan

Subject: C Programming (CP)-FEC205

Credits-2-

Module	Detailed Contents	Hrs.
1	Introduction	5
	<ul style="list-style-type: none">• Introduction to components of a Computer System• Introduction to Algorithm and Flowchart	
	Fundamentals of C Programming	
	<ul style="list-style-type: none">• Keywords, Identifiers, Constants and Variables• Data types in C• Operators in C• Basic Input and Output Operations• Expressions and Precedence of Operators• In-built Functions	
2	Control Structures	7
	<ul style="list-style-type: none">• Introduction to Control Structures	
	Branching and looping structures	
	<ul style="list-style-type: none">• If statement, If-else statement, Nested if-else, else-if Ladder• Switch statement• For loop, While loop, Do while loop• break and continue	
3	Functions	4
	<ul style="list-style-type: none">• Introduction to functions• Function prototype, Function definition, Accessing a function and parameter passing.• Recursion.	
4	Arrays and Strings	4

CO Assessment Tools

	Direct Methods							Indirect Methods
	Term Test	Laboratory	Quiz	Mock Test	University (Theory)	University (Practical)		Course Exit Survey
FEC205.1	20%	10%	20%	----	30%	20%		100%
FEC205.2	20%	30%	--	20%	20%	10%		100%
FEC205.3	20%	30%	--	20%	20%	10%		100%
FEC205.4	20%	30%	--	20%	20%	10%		100%
FEC205.5	20%	30%	--	20%	20%	10%		100%

Laboratory Plan:

Week No.	Session No.	Topic	CO mapping	Planned date	Actual Date	Content Delivery Method/Learning Activities
1 st Week	1 (Tutorial)	<p>Find the output: Based on the following concepts</p> <ol style="list-style-type: none"> 1) Operators 2) Type casting 3) Format specifiers <p>Programs on</p> <ol style="list-style-type: none"> 1. Fahrenheit and Celsius. 2. Sum of three digit nos. 3. Swapping two nos. 4. A divisible by B using ternary op. 5. Largest of three using ternary. <p>Home Assignment: Write Algorithm and Draw Flowchart for following problem statements</p> <ol style="list-style-type: none"> 1. Simple Interest 2. Given an integer number in seconds as input, print the equivalent time in hours, 		3 th week of Jan		Video/ slides/ chalk board

		<p>minutes and seconds as output (Ex 7322 seconds is equivalent to 2 hrs 2 mins 2 secs)</p> <p>3. Accept a number and display its equivalent ASCII number.</p>				
	2 (Lab)	<p>Lab experiments: Learning Basic Unix Commands (mkdir, rmdir, gedit, cp, mv, rm, cd, cd..)</p> <p>Exp1 :Gross salary Exp2: Largest of three nos.Using ternary operator</p>	CO1	3 th week of Jan		Lab Experiment
2 nd week	1 (Tutorial)	<p>Programs</p> <ol style="list-style-type: none"> 1. Roots of Quadratic equation 2. Leap year 3. Largest of three nos. using nested if ..else 4. Type of triangle using else if ladder 5. Electricity Bill using if else if ladder 6. Vowels using switch case <p>Home assignment: Write algorithm and draw flowchart for</p> <ol style="list-style-type: none"> 1. Roots of Quadratic equation 2. Type of triangle 		4 th week of Jan		slides/ chalk board
	2 (Lab)	<p>Lab experiments: Exp3: Roots of Quadratic equation Exp 4:Grades using if else if ladder Exp 5: Calculator using switch</p>	CO2	4 th week of Jan		Lab Experiment
3 rd	1 (T)	1. Factorial using		5 th		slides/ chalk

week		for loop 2. A^B using for 3. Fibonacci series using for 4. Series: $1 + \frac{1}{3} + \frac{1}{5} + \dots$ 5. Series: $1 - \frac{1}{3} + \frac{1}{5} - \dots$ 6. Series: $1 - \frac{1}{2!} + \frac{1}{3!} - \frac{1}{4!} + \dots$ Home Assignment: Write algorithm and flowchart for 1. Fibonacci series 2. Series : $1 - \frac{1}{3} + \frac{1}{5} - \dots$		week of Jan		board
	2 (L)	Lab experiments: Exp 6: Cosine series Exp 7: GCD using Euclid's algorithm using do...while loops Exp 8: A AB ABC	CO2	5 th week of Jan		Lab Experiment
4 th week	1 (T)	Patterns 1. Various star patterns 2. Various Alphabet patterns 3. Mixed patterns (Digits+alphabets)		3 rd week of Feb		slides/ chalk board
	2 (T)	1. Sum of digits of a number 2. Reversing a number 3. Armstrong number 4. Binary to Dec 5. Dec to Binary 6. nPr and nCr		3 rd week of Feb		Lab Experiment
5 th Week	1 (L)	Exp9: Diamond pattern Exp 10: Armstrong nos. from 1 to 500 Exp 11: Prime nos. from 1 to 50	CO2	4 th week of Feb		Lab Experiment
	2 (L)	Lab Experiments: Mocktest1 (1 hour) Exp 12: nPr and nCr using functions	MT1-CO2 (Exp12, Exp13) CO3	4 th week of Feb		Lab Experiment

		Exp 13: Swapping two nos.				
6 th Week	1 (T)	<ol style="list-style-type: none"> 1. Fibonacci using recursion 2. X^Y using recursion 3. GCD using recursion 4. Reversing a number using recursion 5. Printing binary form of a decimal no. using recursion (Home Assignment) 6. Maximum of an array 7. Sorting an array using bubble sort 8. Sum of array of size 'n' using recursion 		1 st week of March		Slides/ chalk board
	1 (L)	Lab Experiments: Exp14:Fibonacci using recursion Exp 15: X^Y using recursion Exp 16: Bubble sort Exp 17: Merge two array into a single array	(Exp14,Exp15) CO3, (Exp16) CO4	1 st week of March		Lab Experiment
7 th Week	1 (T)	<ol style="list-style-type: none"> 1. Reversing an array 2. Binary search 3. Clockwise rotation (optional) 4. Sum of each row and column of a matrix 5. Transpose of a matrix 6. Symmetric Matrix 		2 nd week of March		slides/ chalk board
	2 (L)	Lab Experiments: Exp18:Transpose of a matrix Exp 19:Multiplication of matrix	CO4	2 nd week of March		Lab Experiment
8 th Week	1 (T)	Strings: <ol style="list-style-type: none"> 1. Convert first 		3 rd week of		slides/ chalk board

		letter of every word into uppercase 2. String copy without using library functions 3. Returning average of an array by passing array to fun 4. Reverse a string by passing string to function		March		
	2 (L)	Lab Experiments: Exp20:String is Palindrome or not and User defined function to concatenate two strings Exp 21: WAP to find trace and norm of square matrix Exp 22: Addition of two matrices by passing Matrices to function	(Exp 19)-CO4 (Exp 20, Exp 21) - CO3	3 rd week of March		Lab Experiment
9 th Week	1 (T)	1. Printing details of the patients with a given disease using structure. 2. Adding two complex numbers using structure. 3. One program to clear basics of pointer (optional)		4 th week of March		Video/slides/ chalk board
	(L)	Lab Experiments: Exp 23: Sorting an array of employees using structures Exp 24: Reversing an array using pointers	CO4	4 th week of March		Lab Experiment
10 th week	Lab	Mock Test2	CO4	1 st week of April		
	(T)	Pointers	CO4	1 st week of April		Video/slides/ chalk board

Lecture Plan

Lecture No.	Topic	Programs to be covered	Actual date	Planned Date	Delivery Mechanism
1	Informing Course outcomes, Syllabus, Scheme, credit systems, reference books. Introduction to components of a Computer System. Introduction to Turing Model, Von Neumann Model, Basics of Positional Number System, Introduction to Operating System and component of an Operating System.			Jan Week 2	Chalk and Board
2	Algorithm & Flowchart	<ol style="list-style-type: none"> 1. Basic 2. Selection 3. Loops 		Jan Week 2	
3	Character Set, Identifiers and keywords, Data types, Constants, Variables, Type conversion.			Jan Week 2	
4	Operators -Arithmetic, Relational and logical, Assignment, Unary (++ , --)	<ol style="list-style-type: none"> 1. Sum of two numbers 2. Area of a circle and rectangle 		Jan Week 2	
5	Operatpors : Conditional, Bitwise, Comma, other operators.Expression, statements, Preprocessor.			Jan Week 3	
6	Library Functions, Data Input and Output – getchar(), putchar(), scanf(), printf(), gets(), puts(), Structure of C program . In-built functions	<ol style="list-style-type: none"> 1. Data Input output 2. Math library 3. String library 		Jan Week 3	
7	Branching - If statement, If-else Statement, Multiway decision.	<ol style="list-style-type: none"> 1. Odd even 2. Grade of a student 		Jan Week 3	
8	Switch case	Printing digits in words OR Display days of a week		Jan Week 3	
9	Looping – while , do-while, for	For loop : <ol style="list-style-type: none"> 1. sum of n numbers 2. series : 1+1/2+1/3+...., 3. Printing 1 to n numbers in ascending and descending order. 		Jan Week 4	
10	Looping – while , do-while, for	While: <ol style="list-style-type: none"> 1. Counting number of digits 2. 2. GCD Using 		Jan week 4	

		Dijkstras Do while: 1. Add integers till user types 'n'			
11	Nested control structure - Switch statement	1. Start pattern (Simple triangle), 2. Multiplication tables		Jan Week 5	
12	Continue statement, Break statement, Goto statement.	1. One program for continue 2. Prime number using break		Jan week 5	
13	Function -Introduction of Function, Function Main, Defining a Function, Accessing a Function, Function Prototype,	Sum of two numbers or largest of three numbers.		Feb week 1	
14	Passing Arguments to a Function,	Swap (call by value, call by reference)		Feb week 1	
15	Recursion Storage Classes –Auto , Extern , Static, Register	1. Sum and Factorial of n numbers using recursion. 2. X^y using recursion		Feb Week 2	
16	Array -Concepts, Declaration, Definition, Accessing array element.One-dimensional	Standard deviation Linear search OR max of 'n' numbers		Feb week 2	
17	Multidimensional array	Reading and writing 2D arrays		March Week 1	
18	Basic of String, Functions in String.h	Length of string, Counting frequency of a character		March Week 1	
19	Array of String , functions and strings	Searching a name in the list		March Week 2	
20	Enum, Structure: Declaration, Initialization , Operation on structures Nested structures.	Addition of two complex numbers. Reading and displaying Employee details		March Week 2	
21	Array of Structure. 4 Union - Definition , Difference between structure and union , Operations on a union	Display all the details of Players, one program on Union		March Week 3	
22	Passing structure to functions.	1. Adding two Time using structure (By passing structure to functions) 2. Calculate distance between two points (x1,y1) and (x2,y2) using structure (By passing structure to functions)		March week 3	

23	Fundamentals of pointers: Definition and uses of Pointers, Address Operator, Pointer Variables, Dereferencing Pointer, Void Pointer. Pointer Arithmetic – assignment, addition / subtraction with integers, subtraction of pointers and comparing points.	1. Traversing an array using pointers. 2. Linear search using pointers.		March Week 4	
24	Introduction to Pointers to Pointers, Pointers and Array, Pointers to strings. Passing/ returning pointers to function.	1. Concatenating two strings using pointers 2. Returning an average of integer array using function and pointers		March week 4 and April Week 1	
25	Static & Dynamic Memory Allocation. Calloc(), malloc(), free(), realloc(), exit()00	Program on dynamic allocation for arrays		Extra Lecture	

Content Beyond Syllabus:

Workshop on HTML and CSS using BOOTSTRAP

Rubrics for the Lab Experiments:

	Poor	Average	Good	Excellent
On time Completion and Submission (2)	Late submission (0)	Two sessions late (0.5)	One session late (1)	On time submission (2)
Knowledge of the topic (4)	Unable to explain Basic concept. (1)	Able to explain concepts (2)	Able to explain fundamental concept with suitable example (3)	Shown Detailed understanding of the topic and able to relate to problem in hand. (4)
Implementation and Output (4)	No output (0)	Partial output. OR Program works for very few test cases. (1)	Correct output. Program works for most test cases. (2)	Correct output. Program works for all test cases. (3)