COURSE TITLE	Advance C Practical
COURSE CODE	CC-112
COURSE CREDIT	3
Session Per Week	3
Total Teaching Hours	40 HOURS

AIM

Students will be provided with practical knowledge of advanced C programming language which includes functions, structures, files, pointers, dynamic memory allocation & preprocessors.

LEARNING OUTCOMES

On the completion of the course students will:
1. Get in-depth practical knowledge of C language.
2. Know the advanced concepts of C Programming Language.
The students are expected to write program in 'C' language unit wise as given below.
The list in each unit is **indicative only and may or may not be asked in the examination.**

DETAIL SYLLABUS

UNIT	TOPIC / SUB TOPIC	TEACHING HOURS
1	1 . Write a program to define structure with tag state with fields state name, number of districts and total population. Read and display the data. 2. Write a program to create a list of books details. The details of a book include title, author, publisher, publishing year, number of pages, and price. 3. Define a structure called Item with members: Item_code, Item_name, Price. Create an array of five Items. Create a function which accepts the Item array and modifies each element with an increase of 10% in the price. 4. Define a structure to represent a date. Use your structures that accept two different dates in the format mm dd of the same year. Write a C program to display the month names of both dates.	

1	5. Define a structure that can describe a Hotel. It should have members that include name, address, grade, room charges, grade and no of rooms. Write a function to print out all hotel details with room charges less than a given value. 6. Write a program to accept records of different states using array of structures. The structure should contain char state and number of int engineering colleges, int medical colleges, int management colleges and int universities. Calculate total colleges and display the state, which is having highest number of colleges. 7. Define a structure by name time with members seconds, minutes and hours of int type. A variable of the structure would thus represent time. If time1 and time2 are two variables of the structure type, write a program to find the difference of two times using a function. 8. Write a program to accept records of different states using array of structures. The structure should contain char state, int population, int literacy rate and int per capita income. Assume suitable data. Display the state whose literacy rate is highest and whose per capita income is highest. 9. Define a structure employee with members employee name, basic pay, dearness allowance, house rent, net salary. Declare an array of 5 employees. Write a function which calculates the net salary of employees and prints all employee details in descending order of their net salary. 10. Define a structure with tag population with fields Men and Women. Create structure with in structure using state and population structure. Read and display the data.	**10**
2	1. Write a user defined function which will swap the values of two variables declared locally in the main program. 2. Write a user defined function calc(), which will returns the sum, subtraction, multiplication, and division values of two variable locally declared in the main function. 3. Write a user defined function which will return the length of the string declared locally in the main function.	
	4. Write a program, which takes a name of the user in the lowercase letters. Call a user defined function upper which will convert all lowercase letters into the uppercase letter. Finally print the string.	

2	5. Write a user defined function to reverse the given string. 6. Create a structure product with ProductCode (int), Name (char array) and Price data elements. In the main function declare p[5] of product. Do the necessary data entry for all five products. Pass the base address of an array to user defined function inc_price(), which will increase the price of all the products by 10%. Print all the products with all the details again after increasing the price. 7. Create a structure student with rollno (int), name (char array), marks (int), grade (char). Create an array stu[5] of type student. Take the details of students like rollno, name, and marks from the user. Call UDF prepare_result() which will store the values for grade based on marks (if marks >=75 then 'A', Between 60 to 75 'B', Between 50 to 60 'C', Between 35 to 50 'D' and Below 35 'F' grade). Print the details of the students with Grade.	10
3	Create a Singly Linked List with following functionalities: • Insert an element at the end of the list. • Insert an element at the beginning of the list. • Delete an element from the list. • Display all the elements of the list. • Insert an element before key value. • Insert an element after key value. • Sort a list. • Reverse a list.	10
4	1. Write a program to display contents of file on the screen. The program should ask for file name. Display the contents in capital case. 2. Write a program to find size of the file. 3. Write a program to combine contents of two files in a third file. Add line number at the beginning of each line. 4. Write a program to display number 1 to 100. Redirect the output of the program to text file. 5. Write a program to write contents of one file in reverse into another file. 6. Write a program to count number of lines, words and characters in a file.	

4	7. Write a program to create a file called dictionary.dat that contains the information such as Name, Surname, City and Phone number. Write a program to accept a City from user and list details of persons having the given city.	10
	8. Write a program to copy one file to another. While doing so, all extra spaces in a file should be squeezed to one. For eg. If a file contains line "I am learning C", it should be converted to "I am learning C". 9. Write a program that counts the frequency of a word from a text file. The program should accept file name as commandline argument. Program should continue to ask word and display its frequency in a file till the Enter key is pressed without entering any word.	
	10 Write a Program to insert the following contents in a file named "File1". Customer No. Account Type Balance 101 Savings 2000 102 Current 5000 103 Savings 3000 104 Current 10000 Append the contents of "File1" in another file "File2". Also display the contents of File2 on screen.	

Note:

The students should maintain the record of typical (not simple ones) programs in their file which duly certified, should be presented at the time of final examination.

TEXT BOOK/S:

Introduction to C Programming
Publication :Oxford
by Reema Thareja

REFERENCE BOOKS:

1. Computer Fundamentals & Programming in C
Publication: Oxford
By Pradip Dey, Manas Ghosh

2. Programming in ANSI C (Fifth Edition 2011)
Publication: Mc Graw Hill
By Balaguruswami