SUBJECT TITLE : ADVANCED 'C' LAB
SUBJECT CODE : 339
COURSE CATEGORY : B
PERIODS/WEEK : 6
PERIODS/SEMESTER : 108
CREDITS : 3

TIME SCHEDULE

MODULE	TOPIC	PERIODS
1	Pointers & Memory management	40
2	File handling & streams	34
3	Preprocessors & Graphics	34
	TOTAL	**108**

OBJECTIVES

MODULE I:- Overview of basic programming constructs, structures & pointers in C
1.0 Control structures, arrays, strings, user defined & library functions, storage class
1.1 Structures, Nested structures, Arrays of structures
1.2 Pointers, pointer expressions and pointer arithmetics
1.3 Pointers to functions, pointer to pointer
1.4 Array of pointers, pointers and strings
1.5 Pointer to structure, Self referential structure
1.6 Dynamic memory allocation(DMA)
1.7 DMA functions: malloc(),sizeof(), free0 & realloc()

MODULE II:- File handling using c
2.1 Data organization
2.2 File attributes
2.3 File Operations : Opening, reading and closing files
2.4 Text and Binary files
2.5 Streams, working with streams, fputs() & fgets()
2.6 Standard streams in C, Flushing a stream, fread() & fwrite()
2.7 Direct access file , fseek(), random access I/O, updating records
2.8 fprintf() and fscanf()

MODULE III:- Preprocessors and macros
3.0 Preprocessor, #define, macros with arguments, file inclusion
3.1 Conditional compilation directives :#if, #ifdef , #else, #elif & #endif
3.2 Creating header files, include user defined header files.
3.3 Command Line arguments
3.4 Making projects
3.5 Error handling
3.6 Graphics: Initialize graphics mode, plot a point, draw line

3.7 Draw different shapes using library functions

CONTENT DETAILS

MODULE I: Pointers & Memory management

Overview of basic programming constructs in C. Structure, Basics of Pointers :-pointers operators, pointer arithmetic, Pointers and function, Array of pointers, Pointer and Strings, Pointer to structure, Self referential structure, Introduction of Dynamic memory allocation, DMA functions malloc() function, sizeof() operator, Function free(), Function realloc().

MODULE II: Files

File handling:-Data organization, various functions for handling files , File types, streams, working with stream, fputs() and fgets(), standard streams in C, Flushing a stream, Using fread() and fwrite(), Direct access file, fseek() and random access I/O, fprintf() and fscanf().

MODULE III Preprocessors & Graphics

The preprocessor directives, macros, conditional compilation directives, command line arguments , making projects, error handling, graphics

TEXT BOOK:

Data Structures Using C : Reema Thareja – Oxford Higher Education
Reference :
Let Us C : Yashavant Kanetkar – BPB Publications

MODEL EXPERIMENTS

1. Implement used defined functions: with & without arguments
2. Implement user defined funnctions : with & without return values
3. Implement library functions in C(string & mathematical)
4. Implement structure, nested structure, array of structures
5. Implement pointers
6. Implement text files
7. Implement binary files
8. Implement random files
9. Implement command line arguments
10. Implement used defined library functions
11. Implement macros, compiler directives
12. Implement graphics