Course Objective:

- To learn basic concepts of procedural programming
- To study and understand various features of C language and
- To apply the programming concepts to develop real world applications

| BSM 304 Programming and Problem Solving through C Language | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Teaching Scheme | | | | | Examination Scheme | | | | | |
| L | T | P | C | Hrs/Wk | Theory | | | Practical | | Total |
| | | | | | MS | ES | IA | LW | LE/VIVA | Marks |
| 3 | 0 | 2 | 4 | 5 | 25 | 50 | 25 | 25 | 25 | 150 |

Unit 1 (10 Hrs) 08

Introduction to Programming: types of programming languages (machine language, assembly language, high level language, etc.), procedural programming paradigm, program compilation tools (compiler, assembler, linker, loader, etc.)

Fundamentals of C Language: Structure of C program, comments, constants, variables, data types, keywords, operators, precedence and associativity rules, etc

Unit 2 (10 Hrs)

Programming language constructs: looping and branching (if-else, for, while, do-while, case,conditional operator, break, continue, goto, etc.); built in functions: standard IO, math functions, etc.

Unit 3 (10 Hrs)

Composite data types: arrays and strings, structure and union, storage representation

Procedural Programming: implementation of functions and procedures, parameter passing (by value and reference), returning results, calling; Macros and Preprosessor directives (#define, #ifdef, and others)

Unit 4 (10 hrs)

Dynamic Memory access: concept of Pointer variables, library functions for run time memory management (malloc, calloc, free, etc.)

Passing parameters to the main function from command line parameter passing

File System Access: file operations such as open, close, read, write, random and sequential access, create and delete files, etc using inbuilt functions such as fopen, fread, fwrite, fseek, and others)

| **Total** | **40 Hrs** |
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**Texts and References**


1. Programming in ANSI C by E Balagurusamy, MGH publisher
2. Programming in C ANSI Standard, Yashwant Kanetkar, BPB Publisher
3. Programming with C by Gottfried, MGH Publisher
4. Pointers in C by Yashwant Kanetkar, BPB Publisher


Course Outcome:

At the end of this subject, students should be able to:

- Understand basic concept of Procedural programming
- Understand the features of C languages
- Write applications to solve real world problems using C language