Subject:Problem Solving Using Computers and 'C' Programming-II

Semester – II   Subject Code: BS-21501   Lectures: 40

Objectives:

The syllabus aims in equiping students with,

1. Problem solving abilities using computers.
2. Ability to build the necessary skill set and developing computer based solutions for real life problems.
3. Necessary knowledge base for programming.

Unit 1: Arrays and Pointers   No. of Lects.=16

Chapter 1: Arrays   6
- Array declaration, initialization
- Types one, two and multidimensional
- Passing Arrays to functions
- Activity:
  - Programs.
  - Trace the output of the programs.

Chapter 2 : Pointers   10
- Concept of pointer,pointer declaration, initialization
- Dereferencing pointers
- Pointer arithmetic
- Arrays and pointers
- Functions and pointers-passing pointers to functions(call by reference), function returning pointers
- Dynamic memory allocation
- Pointer to pointer
- Activity :
  - Programs.
  - Trace the output of the programs.

BOS Members:

Prof. Manisha Bharambe (Subject Expert)

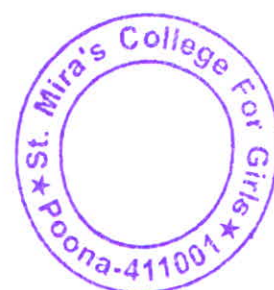Prof.Poonam Ponde (Subject Expert)

Ms Febi Byju (Industry Expert)

Ms Sneha Shinde-Patil (Alumni)

Prof. Ashwini Kulkarni (Chairman)

Prof. Smita Borkar (Internal Faculty)

Prof. Shubhangi Jagtap (Internal Faculty)

Unit 2: Strings

No. of
Lects.=6

Chapter 3 : Strings

6

- Declaration and initialization
- Standard library functions
- String handling using pointers
- Array of strings
- Command line arguments
- Activity :
  - ➤ Programs.
  - ➤ Trace the output of the programs.

Unit 3: Structures and Unions

No. of
Lects.=9

Chapter 4 : Structures and Unions

9

- Creating structures
- Structure initialization
- Accessing structure members (dot Operator)
- Array of structures
- Passing structures to functions
- Nested structures
- Structures using pointers
- Unions
- Difference between structures and unions
- Activity :
  - ➤ Programs.
  - ➤ Trace the output of the programs.

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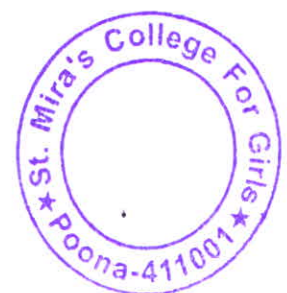
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Unit 4: Files and Preprocessors	No. of Lects.=9

Chapter 5 : File Handling   7

- Streams
- Types of Files
- Operations on files
- Random access to files
- Activity :
  - ➤ Programs.

Chapter 6 : C Preprocessor

- Format of Preprocessor directive
- File Inclusion directive   2
- Macro substitution, nested macro, argumented macro, difference between functions and macros
- Activity :
  - ➤ Programs.
  - ➤ Trace the output of the programs.

Recommended Books:

- R.G. Dromey, *How to Solve it by Computer.*
  Pearson Education, ISBN:9788131705629

- Brian W. Kernighan, Dennis M. Ritchie, *The C Programming Language.*
  PHI Learning, ISBN:9788120305960

- E. Balaguruswamy, *Programming in ANSI C.*
  Mc-Graw. Hill Publishing Co. Ltd.-New Delhi, ISBN:9781259004612

- Yashwant Kanitkar, *Let Us 'C'.*
  BPB Publication.

- Behrouz A.Forouzan, Richard F.Gilbert, *A Structured Programming Approach Using C.*
  Cengage Learning India, ISBN:9788131500941

- Byron Gottfried , Programming with C-Schaum's series.

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