SARDAR RAJA COLLEGE OF ENGINEERING RAJA NAGAR, ALANGULAM

Department of Computer Applications



Subject Name: PROBLEM SOLVING & PROGRAMMING

Subject Code : MC9212

Year : I - M.C.A

Semester : I

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Asst.Prof / MCA

MC9212 PROBLEM SOLVING AND PROGRAMMING LTPC 3003

OBJECTIVE

- > To know the correct and efficient ways of solving problems
- > To learn various steps while developing computer program.
- > To learn C Programming language.

UNIT I INTRODUCTION TO PROGRAMMING

9

Introduction to computing – building blocks for simple programs – problem to program – Decision structures – loop structures – problem analysis – programming style – documentation and testing.

UNIT II PROGRAMMING PARADIGMS

9

Procedural – functional – recursive – rule-based – structured programming.

UNIT III PROBLEM SOLVING TECHNIQUES

9

Programming life cycle phases – problem solving – implementation – maintenance – pseudo code representation – flow charts - algorithms – algorithmic efficiency – complexity of algorithms.

UNIT IV C PROGRAMMING FUNDAMENTALS

9

Structured program development – Data types – operators – expressions – control flow – arrays and pointers – functions – Input – output statements – storage classes.

UNIT V ADVANCED FEATURES

9

Strings - Recursion - structures - unions - bit manipulations - enumerations - file processing - fundamental data structures.

TOTAL = 45

REFERENCES:

- 1. Kernigan Brian W., and Dennis M. Ritchie, "The C Programming Language", Seconde Edition, Prentice Hall, 1988.
- 2. Deitel and Deitel, "C How to program", Prentice Hall, 1994.
- **3.** Cormen, Leiserson, Rivest, Stein "Introduction to algorithms", McGraw Hill publishers, 2002.

Micro Lesson Plan

| Hours | Lecture Topics | Text Book | | |
|-------|-------------------------------------|-----------|--|--|
| | UNIT I INTRODUCTION TO PROGRAMMING | | | |
| 1 | Introduction to computing | | | |
| 2 | Building blocks for simple programs | | | |
| 3 | Problem to program | | | |
| 4 | Decision structures | R2 | | |
| 5 | Loop structures | | | |
| 6 | Problem analysis | | | |
| 7 | Programming style | | | |
| 8 &9 | Documentation and testing | | | |
| | UNIT II PROGRAMMING PARADIGMS | | | |
| 10 | Procedural | | | |
| 11&12 | Functional | D2 | | |
| 13&14 | Recursive | R3 | | |
| 15&16 | Rule-based | | | |
| 17&18 | Structured programming | | | |
| | UNIT III PROBLEM SOLVING TECHNIQUES | | | |
| 19 | Programming life cycle phases | | | |
| 20 | Problem solving | | | |
| 21 | Implementation | | | |
| 22 | Maintenance | D2 | | |
| 23&24 | Pseudo code representation | R3 | | |
| 25&26 | Flow charts | | | |
| 27&28 | Algorithms | | | |
| 29 | Algorithmic efficiency | | | |
| 30 | Complexity of algorithms | | | |
| | UNIT IV C PROGRAMMING FUNDAMENTALS | | | |
| 31 | Structured program development | | | |
| 32 | Data types | | | |
| 33 | Operators | | | |
| 34 | Expressions | R1 | | |
| 35&36 | Control flow | Kı | | |
| 37&38 | Arrays | | | |
| 39&40 | Pointers | | | |
| 41&42 | Functions | | | |
| 43&44 | Input & output statements | | | |
| 45 | Storage classes. | | | |
| | UNIT V ADVANCED FEATURES | | | |
| 46 | Strings | | | |
| 47 | Recursion | | | |
| 48&49 | Structures | R1 | | |
| 50 | Unions & Bit manipulations | | | |
| 51 | Enumerations | | | |
| 52&53 | File processing | | | |
| 54 | Fundamental Data Structures | | | |