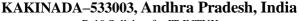
JAWAHARLAL NEHRUTECHNOLOGICALUNIVERSITY:KAKINADA



R-19 Syllabus for IT.JNTUK

I Year-II Semester	L	Т	Р	С
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PROGRAMMING FOR PROBLEM SOLVING USING C (ES1201)

Prerequisite Course:

Basic Knowledge on Computers

Course Description and Objectives:

Formulating algorithmic solutions to problems and implementing algorithms in C

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes.

Cos	Course Outcomes	POs
1	Acquires skills to write, compile and debug programs in C language.	2,3
2	Be able to use different operators, data types and write programs that use two- way/ multi-way selection.	2,3,12
3	Acquire knowledge to select the best loop construct for a given problem.	1,2
4	Design and implements programs to analyze the different pointer applications	2,3
5	Design and implements C programs with functions, File I/O operations	2,3

Svllabus:

UNIT-I:

Objective: To learn about the computer systems, computing environments, developing of a computer program and Structure of a C Program

Introduction to Computers: Computer Systems, Computing Environments, Computer languages, Creating and running Programs, Computer Numbering System, Storing Integers, Storing Real Numbers

Introduction to the C Language: Background, C Programs, Identifiers, data Types, Variable, Constants, Input/output, Programming Examples, Scope, Storage Classes and Type Qualifiers, Tips and Common Programming Errors Key Terms, Summary, Practice Seat.

Structure of a C Program: Expressions Precedence and Associativity, Side Effects, Evaluating Expressions, Type Conversion Statements, Simple Programs, Command Line Arguments Tips and Common Errors, Key Terms, Summary, Practice Sets.

UNIT-II:

Objective: To gain knowledge of the operators, selection, control statements and repetition in C

Bitwise Operators: Exact Size Integer Types, Logical Bitwise Operators, Shift Operators, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

Selection & Making Decisions: Logical Data and Operators, Two Way Selection, Multiway Selection, More Standard Functions, Tips and Common Programming Errors, Key Terms, Summary, Practice Set. **Repetition:** Concept of Loop, Pretest and Post-test Loops, Initialization and Updating, Event and Counter Controlled Loops, Loops in C, Other Statements Related to Looping, Looping Applications,



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Programming Example The Calculator Program, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

UNIT -III:

Objective: To learn about the design concepts of arrays, strings, enumerated structure and union types. To learn about their usage.

Arrays: Concepts, Using Array in C, Array Application, Two Dimensional Arrays, Multidimensional Arrays, Programming Example – Calculate Averages, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

Strings: String Concepts, C String, String Input / Output Functions, Arrays of Strings, String Manipulation Functions String/ Data Conversion, A Programming Example – Morse Code, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

Enumerated, Structure, and Union: The Type Definition (Type def), Enumerated Types, Structure, Unions, Programming Application, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

UNIT-IV:

Objective: To assimilate about pointers, dynamic memory allocation and know the significance of Preprocessor.

Pointers: Interdiction, Pointers to pointers, Compatibility, L value and R value, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

Pointer Applications: Arrays, and Pointers, Pointer Arithmetic and Arrays, Memory Allocation Function, Array of Pointers, Programming Application, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

Processor Commands: Processor Commands, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

UNIT-V:

Objective: To assimilate about File I/O and significance of functions

Text Input / Output: Files, Streams, Standard Library Input / Output Functions, Formatting Input / Output Functions, Character Input / Output Functions, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

Binary Input / Output: Text versus Binary Streams, Standard Library, Functions for Files, Converting File Type, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

Functions: Designing, Structured Programs, Function in C, User Defined Functions, Inter-Function Communication, Standard Functions, Passing Array to Functions, Passing Pointers to Functions, Recursion, Passing an Array to Function, Tips and Common Programming Errors, Key Terms, Summary, Practice Set.

TEXT BOOKS:

1. Programming for Problem Solving, Behrouz A. Forouzan, Richard F.Gilberg, CENGAGE

- 2. The C Programming Language, Brian W. Kernighan, Dennis M. Ritchie, 2e, Pearson
- 3. Programming in C, Reema Thareja, OXFORD

REFERENCE:

- 1. Computer Fundamentals and Programming, Sumithabha Das, Mc Graw Hill
- 2. Programming in C, Ashok N. Kamthane, Amit Kamthane, Pearson
- 3. Computer Fundamentals and Programming in C, Pradip Dey, Manas Ghosh, OXFORD