NPTEL Video Course - Computer Science and Engineering - NOC:Programming, Data Structures and Algorithms (Aria

Subject Co-ordinator - Dr. N S. Narayanaswamy, Prof. Shankar Balachandran, Prof. Hema A Murthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computers and Programming
Lecture 2 - Writing your first program
Lecture 3 - Variables, Operators and Expressions
Lecture 4 - Variable declarations, more operators and precedence
Lecture 5 - Input and Output Statements
Lecture 6 - Conditionals
Lecture 7 - Loops
Lecture 8 - Introduction to arrays
Lecture 9 - Working with 1D arrays
Lecture 10 - Find prime numbers
Lecture 11 - Debugging demo
Lecture 12 - Multi-dimensional arrays
Lecture 13 - Pointers
Lecture 14 - More on pointers
Lecture 15 - Arrays and pointer arithmetic
Lecture 16 - Introduction to Strings
Lecture 17 - More on Strings
Lecture 18 - Introduction to functions
Lecture 19 - More details on functions
Lecture 20 - Arguments, variables and parameters
Lecture 21 - Pass parameters by reference
Lecture 22 - Recursive Functions
Lecture 23 - C control structures, functional specification of programs
Lecture 24 - Complexity Analysis using Sum and Product Rule
Lecture 25 - Complexity Analysis of Recursive Functions
Lecture 26 - Algorithms and Powering
Lecture 27 - Polynomial evaluation and multiplication
Lecture 28 - Linear and Binary Search Analysis
Lecture 29 - Analysis of minimum and maximum in an array

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Lecture 30 - Sorting I: Insertion, Merge
Lecture 31 - Sorting II: Counting, Radix
Lecture 32 - Finding i-th smallest number
Lecture 33 - Structures
Lecture 34 - More on Structures
Lecture 35 - Using structures and pointers to structures
Lecture 36 - Dynamic memory allocation
Lecture 37 - Linked List
Lecture 38 - Brief introduction to C++: Classes and objects
Lecture 39 - Abstract Data Types
Lecture 40 - More on ADT
Lecture 41 - Stacks: Last In First Out
Lecture 42 - Queues: First In First
Lecture 43 - Trees
Lecture 44 - Tree Traversal
Lecture 45 - Binary Search
Lecture 46 - Heaps
Lecture 47 - Graphs and Representations
Lecture 48 - Greedy Algorithms
Lecture 49 - Dynamic Programming
Lecture 50 - Matrix Chain Multiplication
Lecture 51 - Hash Tables
Lecture 52 - Graph Algorithms: Dijkstras Algorithm and Prims Algorithm
Lecture 53 - Graph Traversals: BFS,DFS and Articulation Points
Lecture 54 - File I/O
Lecture 55 - Modular Programming
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