Syllabus for Computer Science Engineering

Courses Offered by Career Avenues - GATE Coaching by IITians.

Mathematical Logic:

Propositional Logic; First Order Logic.

Probability:

Conditional Probability; Mean, Median, Mode and Standard Deviation; Random Variables; Distributions;

Set Theory & Algebra:

Sets; Relations; Functions; Groups; Partial Orders; Lattice; Boolean Algebra.

Combinatorics:

Permutations; Combinations; Counting; Summation; generating functions; recurrence relations; asympto

Graph Theory:

Connectivity; spanning trees; Cut vertices & edges; covering; matching; independent sets; Colouring; Pl

Linear Algebra:

Algebra of matrices, determinants, systems of linear equations, Eigen values and Eigen vectors.

Numerical Methods:

LU decomposition for systems of linear equations; numerical solutions of non-linear algebraic equations

Calculus:

Limit, Continuity & differentiability, Mean value Theorems, Theorems of integral calculus, evaluation of d

Computer Science and Information Technology

Digital Logic:

Logic functions, Minimization, Design and synthesis of combinational and sequential circuits; Number re

Computer Organization and Architecture:

Machine instructions and addressing modes, ALU and data-path, CPU control design, Memory interface

Programming and Data Structures:

Programming in C; Functions, Recursion, Parameter passing, Scope, Binding; Abstract data types, Arra

Algorithms:

Analysis, Asymptotic notation, Notions of space and time complexity, Worst and average case analysis;

Theory of Computation:

Regular languages and finite automata, Context free languages and Push-down automata, Recursively

Compiler Design:

Lexical analysis, Parsing, Syntax directed translation, Runtime environments, Intermediate and target co

Operating System:

Processes, Threads, Inter-process communication, Concurrency, Synchronization, Deadlock, CPU sche

Databases:

ER-model, Relational model (relational algebra, tuple calculus), Database design (integrity constraints, n

Information Systems and Software Engineering:

information gathering, requirement and feasibility analysis, data flow diagrams, process specifications, in

Computer Networks:

ISO/OSI stack, LAN technologies (Ethernet, Token ring), Flow and error control techniques, Routing alg

Web technologies:

HTML, XML, basic concepts of client-server computing.