



CS 101 : Introduction to Computing and It's Applications

Computer System, Classification of computers, Transistors, Integrated Circuits(LSI, VLSI), Operation of processor, Number System, Digital Circuits, ALU, Memory Chips(RAM, ROM, DRAM), storage Devices, Memory Hierarchy, I/O Devices, Bus System, Operating System: Windows and Linux, Network communication infrastructure, Protocols, Wireless LAN Mobile Computing, Web Technology, The Internet and Intranet, WWW, Java fundamentals, Multimedia Application, e-Commerce.

Text/Reference Books:

1. **Fundamentals of computer** : V.Rajaraman
2. **The Essential Guide to computing**: *The Story of Information Technology*, E.Garrison Walters, PHI, 2001.
3. **Introduction to Computing System**: *From Bits to Gates to C and Beyond*. Yale N. Patt and Sanjay J. Patel, Prentice Hall India, 1999.

CS 102 : Mathematical Foundation

Discrete structures and Significance, Fundamental Discrete Structure, Sets, Sequences, Product Set, Relation and Computing Significance, Permutation, Combination, Recurrence Relations, Fundamental proof Techniques, Partial Orders and Poset, External Elements Lattices, Finite Boolean Algebras, Boolean Function and Polynomial, Propositions, Logical Connectives and Operation, Conditionals, Bi-conditionals, Contradiction, Contrapositive. Tautology, contingency and Contradiction, Transformation to Propositional Forms Reasoning Using Equivalence Transformation. Rules of Substitution and Inferences, Normal Forms: DNF, CNF, PDNF, PCNF, Graph, it's types and Computing Significance, Graph as a DATA Structure, Eulerian and Hamiltonian Paths, and Circuits. Alphabets, Strings and Languages, Discrete Automation.

Text/ References Books:

1. **Discrete Math Structure**: *Kolman et al, PHI, 2000*
2. **Science of Programming**: *Gries D. Narosa, 2001*
3. **Intro. To Theory of Automata, Language and Computation**: *Ullman et al, Narosa, 1999*
4. **Theory of Computer Science**: *Misra, PHI, 2002*
5. **Fundamentals of theory of Computation**: *Lewis et al, PHI, 2000*

CS 103 : Programming in C Language

Algorithms and Flow-charts, Programming Languages, Compilation, Linking, Testing, Debugging and Documentation. Introduction to C language; Character set, Variables and Identifiers, Built in data type, Arithmetic operator and expression, Constant and Literals, Relational operator and logical connectivity, Sample assignment statement, Basic Input/ Output statement, Simple C program, Conditional statement and loops. Decision making within a program, Different conditional statement in C, Looping statement in C, Structured programming, Nested loop, Infinite loop. Array and Pointer, Static and Dynamic memory allocation, Function: Modular programming and Functions, Structure, Union and File system, Graphics in C.

Text/ Reference Books:

1. **Programming in C**: *Reema Thareja, Oxford.*
2. **Programming in ANSI C** : *E. Balagurusamy*
3. **C How to Program**: *Deital & Deital, Pearson Edition, Third Edition, 2001*
4. **Programming in C** : *Denis Ritchie, TMH, Fourth Edition, 2002*

CS 104 : Statistical Techniques

1. Probability and Probability Distributions

Various definition of Probability, Additive and Multiplicative theorems, Independent event, Probability distribution, Mathematical expectation, Additive and Multiplicative theorems of expectation, Binomial, Poisson and Normal distributions, Fitting of probability distributions.

2. Descriptive Statistics

Measure of central tendency, Dispersion, Measures of dispersion, Moments. Product moment correlation coefficient, Rank correlation, Linear regression, Properties of regression coefficient, Multiple linear regression.

3. Numerical Methods

Transcendental and Polynomial Equation: Iterative method, Regula-Falsi method.

Newton-Raphson method,

Roots of Polynomial: Graeffe's and Bairstow methods,

Solution of system of linear algebraic equations: Gauss elimination, Gauss-Jordan method, Data fitting, Method of least squares.

4. Tests of Significance

Null and alternative hypotheses, one tail and two tail tests, Two types of error. Large sample tests, Small sample tests: Test of single mean, test of equality of two means, Paired test, Test of goodness of fit, test of independence of attributes, test of variance.

5. Sampling Techniques and Analysis of Variance

Sampling and Complete enumeration, Simple random sampling, Stratified random sampling, Proportional and Optimum allocations

ANOVA: One way and two way classifications.

Text / reference Books:

1. **G.W. Snedcor, W.G. Cochran:** *“Statistical Methods”*, 6 Edn, East West Press.
2. **S.C. Gupta:** *“Introduction to Mathematical Statistics”*, 1973, Sultan Chand.
3. **S.C. Chapra and R.P. Canale:** *“Numerical Methods for Engineers”*, 2002 TMH.

CS 105 : Business Data Processing and File Systems

Basic Ideas of the System: System and its Characteristics, Introduction Systems and Technology, Business system, data processing and technology, Business System Context, Environment. Framework for a system in Business, Role of IT in Business Data Processing. System Related Challenges for Business: Improving Business Processes. Benefiting from Trends and Innovations, Maximizing Benefit from Information, Extending Human Skills, Extracting the most from Surrounding Infrastructure, responding to System related Risk, Building and Maintaining Systems, Analyzing System in Business Terms: Need for Framework and Models, Business and BP as System, IS and Business Processes, Analyzing IS and Business Point of View, Strategy for Analyzing, Description and Evaluation of B-Process Architecture, Linking B-Process and Product Performances, Evaluation of B-Process Performances, Evaluation of B-Product Performances, Information Technology in Business, Information and its Determinations. IT and its Functions, IT Trend and Limitations, IT Performance Variable, Computer System Architecture and Trend, Software and Programming, Programming as a B-Process, Major Developments in Programming, Structured Programming, Principles and Techniques of Programming, Program Planning Tools, Testing and Verification, File System and BDP tools, File and other Structures, File Type, Organization and Operations, File Management, Introduction to Suitable BDP tools.

Text / Reference Books:

1. **Information Systems: A Management Perspective**, Alter S. Pearson
2. **Data Processing: Schaum's Outline Series**, Martin M. Lipschuts
3. **Data Processing and Information Technology** C.S. French, BPB publication, 1996