MCA – 611 MATHEMATICS –III

Probability Theory Conditional Probability, Baye's Theorem. Non-Linear Regression, Multiple Correlations and Regression, Random Numbers: Algorithms for Generation of Random Numbers, Discrete Random Variables, Acceptance and Rejection Techniques. Random Variables and Distributions-Random Variables, Continuous Random Variables, Probability Density Functions. The Discrete Uniform, Distributions, Binomial, Poisson, Hyper Geometric Distributions. Continuous Probability Distributions, Uniform, Exponential and Normal Distributions. Hypothesis Testing-Testing of Statistical Hypothesis, Null Hypothesis, Tests of Hypothesis and Significance, One Failed Proportions, Chi-Square, T, Z and F Tests, Losses and Risks. Analysis of Variance- One Way and Two-Way. Matrix Decomposition, Singular Value Decomposition, PCA References: "Mathematical Statistics", J.E. Freund & R.E. Walpole; "Probability and Statistics with reliability queuing and Computer Science Applications" by K.S. Trivedi; "Introduction to Mathematical Statistics", F. Kreyzic; "Statistical Analysis: Computer Oriented Approach" A.A. Affi;"Statistics" Schaum's Series, M.R. Spiegel." "Basic Principal Component Analysis", I.T. Jouiffe Springer;

MCA-612 UNIX AND ITS INTERNALS

General Overview of The System, Internal Representation of Files, Structures of Processes and Process Control, Process Scheduling, System Calls, Memory Management Policies, I/O Subsystem, The Inter-Process Communication. References: "UNIX Utilities", Tare, McGraw-Hill;"UNIX Operating System", Subhajit Das;"Unix Operating System", Maurice J Bach, Prentice-Hall; "Unix Shell Programming", Yashavant P. Kanetkar, BPB Publications; "Unix" Stephen Prata;

MCA –613 WINDOWS PROGRAMMING AND SCRIPTING LANGUAGE

Introduction to Windows Program. Message Processing, Menu and Accelerators. Handling Icons, Cursor and Bitmaps, Dialog Box & Child Window Controls, Working With Text and Font and Graphics, Consoles, Multitasking Process and Threads, Advance Window, Advance Features of Windows Programming Like GDI Metafiles, Clipboard Drag and Drops Sound API, Scripting Languages, Programming Through Vbscript, Java Scripts, Web Application Development Using Databases.

References: "Windows Programming", Charles Petzold, Microsoft process; "Windows Programming", Herbett Schildts, Osborne;

MCA – 614 ANALYSES AND DESIGN OF ALGORITHM

Algorithm and its characteristics, Asymptotic Notations, Divide and Conquer Approach- Searching and Sorting, Matrix Operations, Recurrence Relations, Augmenting Data Structure, Dynamic Programming, Greedy Algorithm, Amortized Analysis, Branch & Bound Techniques, Linear Programming Problems, Tree and Graph- Minimum Spanning Tree, Shortest Path, NP hard and NP Complete Problems. References: "Fundamentals of Computer Algorithms" Ellis Horowitz & Sartaj sehni galgotia; "Introduction to Algorithms",Cormen, Leiserson, Rivets, PHI; "Algorithm Design", Michael T. Goodrich & Roberto Tamassia; "Introduction to the Design & Analysis of Algorithms", Anany Levitin, Addison Wesley; "Analysis and Design of Algorithm", Ullman, TMH;

MCA – 615 DATA BASE MANAGEMENT SYSTEM

Introduction to Database Design and Data Models, The Relational Model, Relational Algebra and Calculus, SQL, Embedded and Dynamic SQL, Query Processing and Optimization, Database Design Issues and Normalization, Transaction Processing and Concurrency Control, Failure and Recovery Systems, Security and Authorization, Design of Object Oriented Databases. References: "Data Base Management System", Raghu Ramakrishnan & Johannes Gehrke, McGraw-Hill;"Database System Concept", Henry F. Korth Abraham Silber Schatz, McGraw-Hill;"Database System Concept" , C.J. Date, Addison Welsey;"SQL PL/SQL - The Programming Language of Oracle", Ivan bayross, BPB Publications;"Fundamental of Database Systems", Elmasi, R. & Navathe, AddisonWesley.

MCA-616 Minor Project – I The students are require to develop small projects in Database, Window Programming etc.