

BABA FARID GROUP OF INSTITUTIONS



“The Computer Science degree at BFIT offers the latest, cutting edge education for various industrial and applied fields. The program prepares students for careers in high-tech, computer and Internet driven industries, businesses, education systems, military and local and the government, where interdisciplinary, dynamic and innovative professionals trained in latest technologies are increasingly sought. Students are given a strong background computer hardware and software, as well as skills to conduct independent applied research or develop an industrial project. The program stresses interdisciplinary applications. The “emphasis” is on breadth of knowledge in computer, with the aim of preparing students for a wide range of possible industry, academic, and research positions.”

—Arvinder Singh Hira

In-Charge, Department of Information Technology



MS101: Computer Fundamental & Programming in 'C'

Introduction to Computers: Computer Hardware Components, Disk Storage, memory, keyboard, mouse, printer, monitor, CD etc and their function, comparison based analysis of various hardware components. Basic operating system concepts: MS DOS, WINDOWS, functional knowledge of these operating system. Introduction to Basic commands of DOS, Managing file and directories in various operating system, Introduction to internet, Basic terms related with Internet, TCP/IP.

Programming in C :History, Introduction to C Programming Languages, structure of C programs, compilation and execution C program, debugging techniques, data types and Sizes, declaration of variables, Modifiers, identifiers and keywords, Symbolic constants, storage classes (automatic, external, register and statics) Enumerations, command line parameters, Macros, The C preprocessor

Operators : Unary operators, Arithmetic & logical operators, Bit wise operators, Assignment operators and expressions, Conditional expressions, precedence and order of evaluation, Control statements :if-else, switch, break, continue, the comma operator, go to statement.

Loops: for, while, do while.

Functions: built-in and user defined, function declaration, definition and function call, parameter passing call by value, call by reference, recursive function, multifile programs.

Arrays : Linear arrays, multi dimensional arrays, Passing arrays to functions, Arrays and strings.

Structure and Union: Definition and differences, self referential structure and address of (&) operator, pointer to pointer, dynamic memory Allocation. calloc and malloc functions, array of pointers, function of pointers, structures and pointers.

MS102: Mathematical Foundation of Computer Science

Relation : Type and compositions of Relation, Pictorial representation of relation, Equivalence relation, Partial ordering relation.

Function: Types Composition of function, Recursively defined function.

Mathematical Induction: Pano's Axioms, Mathematical Induction, Discrete Numeric Functions and Generating functions, simple Recurrence relation with constant coefficients, linear recurrence relation with constant coefficients, Asymptotic Behavior of functions.

Algebraic Structure: Properties, semi group, monoid, group, abelian group, properties of group, Subgroup, Cyclic group, cosets, permutation groups, Homomorphism, Isomorphism and Automorphism of groups.

Propositional Logic: Proposition, first order logic, basic logical operation, tautologies, contradiction, algebra of proposition, logical implication logical equivalence, normal forms, interface theory, predicates and quantifiers posets, hasse diagram.

Lattices : Introduction, ordered set, Hasse diagram of partially ordered set, Consistent enumeration, Isomorphic ordered set, well ordered set, lattices, properties of lattices, Bound lattices, Distributive lattices and complemented lattices.

MS103: Digital electronic & computer system architecture

Representation of information & basic building blocks: introduction to computer, computer hardware generation, number system: binary, octal, hexadecimal, character codes (BCD), ASCII, EBCDIC and their conversion. Logic gates, Boolean algebra k-map simplification, Half adder, full adder, subtractor, decoder, encoders, multiplexer, demultiplexer, carry look ahead adder, combinational logic design, flip-flops, registers, counters (synchronous & asynchronous), ALU, micro-operation, ALU-chip, faster algorithm and implementation (multiplication & division). Basic organization: operational flow chart (fetch, execute, instruction cycle), organization of central Processing units, hardware & micro programmed control unit, single origination, general Registers organization, Stack Organization, addressing mode, Instruction formats, data transfer & Manipulation I/O Organization, Bus architecture, Programming Registers. Memory organization memory hierarchy .main memory (RAM/ROM, chips) Auxiliary memory Associative memory, Cache Memory, Virtual Memory, Memory Management Hardware, hit/miss ratio, magnetic disk and its performance magnetic tape etc..... I/O Organization : peripheral device, I/O interface, modes of transfer .Priority Interrupt, Direct memory access, Input Output Processor, and serial communication, I/O controllers, Asynchronous data transfer, Strobe Control, Handshaking,

MS104: Structured System Analysis and Design

System Concept and Information System Environment: The System Concept, Definition, Characterizes of System, Element of a system, Open and closed system, Formal and informal system Computer based information system, Management information system, Decision support system, general business Knowledge and Interpersonal Communicational system. The system Development Life cycle: Recognition of needs, Impetus for system change, feasibility Study, analysis, design, Implementation, post implementation and maintenance. The Role of the system Analyst: Historical Perspective, Academic & Personal qualification, the multifaceted role of the analyst, The analyst/user interface, Behavioral issues. System Planning & Initial Investigation: Strategies for Determining Information Requirement, Problem Definition & Project initiation, Background Analysis, Review of written Documents, Onsite Observations, Interviews & Questionnaires, Fact Analysis, Performance Analysis, Efficiency Analysis, Service Analysis. Information Gathering: Kind of information needed. Information about the firms, Information gathering Tools, The art of interviewing, Arranging the Interview, Guides to successful Interview, Types of Interviews and Questionnaires, The Structured and Unstructured Alternatives. The Tools of Structured Analysis: The Dataflow Diagram (DFD), Data Dictionary, Decision Trees and Structured English. Feasibility Study: System performance, Economic Feasibility, Technical Feasibility, Behavioral Feasibility, Steps in Feasibility Analysis. Input/ Output and Forms Design: Input Design, CRT Screen Design, Output Design, Requirement form Design.

MS105: Accounting and Financial Management

Accounting: Principles, Concepts and conventions, double entry system of accounting, Ledger posting and Trial balance. Final Accounts: Trading, profit and loss accounts and balance sheet of sole proprietary concern with normal closing entries. Introduction to manufacturing account of partnership firms, limited company.

Financial Management: Meaning, role and scope of financial management. Basic financial concepts: Time value of money, present value, future value of a series of cash flows, annuity, Practical application of compounding and present value techniques. Long-term source of finance: Introduction to shares, debenture, preference shares.

Capital Budgeting: Meaning Importance, Difficulties, Introduction to Evolution techniques:- Traditional techniques (ARR Payback method) . Discounting cash flow techniques (Present value, NPV, IRR) Ratio analysis: Meaning, Advantages, and Limitations of ratio analysis, Types of ratios and their usefulness.

Costing : Nature ,importance and types of cost Marginal costing :Nature ,scope and importance of marginal costing ,Break – even analysis , its uses and limitations ,constructions of break –even charts, Practical applications of marginal costing .Inventory control system :The need cost of inventory, method of inventory costing.

Introduction to computerized Accounting System: Coding logic and codes required, master files, transactions files , introduction to documents used for data collection .Processing of different files and outputs obtained

MS201: DATA STRUCTURE USING ‘C’

Introduction: Basic Terminology, Elementary Data Organization, Data Structures Operations, Algorithm Complexity and Time-Space trade-off. Arrays: Array Definition, Representation and Analysis, Single and Multidimensional Arrays, Address Calculation, application of arrays, Character String in C, Character string operation, Array as Parameters, Ordered list, Sparse Matrices, and Vector. Stacks: Array Representation and Implementation of stack, Linked representation of stack, Operations Associated with Stacks, Application of Stack, Conversion of Infix to Prefix and Postfix Expressions, Evaluation of postfix expression using stack. Recursion: Recursive definition and processes, recursion in C, example of recursion, Tower of Hanoi Problem, simulation recursion Backtracking, recursive algorithms, principles of recursion, removal of recursion.

Queues: Array and linked representation and implementation of queues, Operations on Queue: Create, Add, Delete, Full and Empty, Circular Queue, Dequeue, and Priority Queue. Link List: Representation and implementation of Singly linked lists, Two-way Header List, Traversing and Searching of Linked list, Overflow and Underflow, Insertion and deletion to from linked list, Insertion and deletion Algorithms, Doubly linked list, Garbage Collection and Compaction.

Trees: Basic terminology, Binary Tree, Binary tree representation algebraic Expressions, Complete Binary Tree, Extended Binary Tree, Array and Linked Representation of Binary trees, Traversing Binary trees, Threaded Binary trees. Traversing Threaded Binary tree, Huffman

algorithm, Searching and Hashing: Sequential Search, comparison and analysis, Hash table, Hash function, Collection Resolution Strategies, hash table Implementation.

Sorting: Insertion Sort, Bubble sorting, Quick sort, Two way Merge Sort, Heap Sort, Binary Search trees : Binary Search(BST), insertion and Deletion in BST, Complexity of search Algorithm, Path Length, AVL Tree, B-trees.

File Structures: Physical Storage Media File Organization, organization of records into blocks, Sequential Files, Indexing and hashing, Primary indices, Secondary indices, B+ Tree index B Tree index Files, indexing and Hashing Comparisons.

MS202 : Relational Database Management System

Introduction: An overview of database management system, Database System Vs File System, Database System concepts and architecture, data models schema and instances, data independence and data base language and interfaces, Data definition language, DDL, Overall Database structure, Data modeling using the Entity Relationship Model: ER Model concepts, notation for ER Diagram, mapping constraints, keys, concepts of super key, candidate key, primary key, Generalization, aggregation, reduction of an ER diagrams to tables, extended ER model, relationships of higher degree.

Relational Data Model and Language: Relational data model concepts, integrity constraints: entity integrity, referential integrity, keys constraints, domain constraints, relational algebra, relational calculus, tuple and domain calculus.

Introduction to SQL: characteristics of SQL, Advantages of SQL, SQL data types and literals, Types of SQL Commands, SQL operators and their procedure, Tables, views and indexes Queries and sub queries, Aggregate functions, insert, update and delete operations, Joins, Unions, Intersections, Minus, Cursors in SQL. PL/ SQ, Trigger and Clusters.

Database Design & Normalization: Functional dependencies, normal forms, first, second, third normal forms, BCNF, inclusion dependencies, loss less join decompositions, normalization using FD, MVD, and JDs. Alternative approaches to database design.

Transaction Processing Concepts: Transaction system, testing of serializability, Serializability of schedules, conflict and view serializable schedule, recoverability, Recovery from transaction failures, deadlock handling.

Concurrency Control Techniques: Concurrency control, locking Techniques for concurrency control.

MS203 : OPERATING SYSTEM

Introduction: Definition & Types of operating system, Batch System, multi programming, time-sharing parallel, distributed and real-time systems, Operating system structure, Operating system components & services, System calls, system programs, Virtual machines.

Process Management: Process concept, Process scheduling, Cooperating processes, threads, Interprocess, communication, CPU scheduling criteria, Scheduling algorithms, Multiple-processor scheduling, Real-time scheduling & algorithm evaluation.

Process Synchronization & Deadlocks: The Critical-Section problem, synchronization hardware, semaphores, classical problems of synchronization, Critical regions, Monitors, Deadlocks-System model, characterization, Deadlock prevention, Avoidance & detection, Recovery from deadlock, Combined approach to deadlock handling.

Storage Management: Memory Management-Logical & physical address space swapping , contiguous allocation, paging Segmentation with paging in MULTICS & Intel 386, Virtual Memory , Demand paging & all its performance , page replacement algorithms allocation of frames, Thrashing, Page size & Other consideration , Demand segmentation, File systems secondary storage structure , File concept , access methods , directory implementation , Efficiency & performance, recovery , Disk structure, disk scheduling methods , Disk management , Recovery , Swap space management, Disk reliability.

Security & Case Study: Projection & security-Goals of projection, Domain of projection, Access matrix, Implementation of access Matrix, Revocation of Access rights, Language based projection, The security problems, Authentication, One time passwords, Program threats, system threats, Threat monitoring, Encryption.

MS204 : SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

Introduction: Introduction to software engineering, Importance of software, evolving role of software, software Characteristics, Software Components, Software Applications, Software Crisis, Software engineering problems, Software Development Life Cycle, Software Process.

Software Requirement Specification: Analysis, Principles , Water Fall Model, The Increment Model, Prototyping , spiral Model, Role of management in software development , Role of matrices and measurement , Problem Analysis, Requirement specification , Monitoring and Control.

Software-Design: Design Principles, problem partitioning, abstraction, top down bottom up-design, Structured approach functional versus object oriented approach, design specification & verification, Monitoring & control, Cohesiveness, coupling ,Fourth generation techniques,

Functional independence, Software architecture, Transaction & transaction & transform Mapping, Component level Design.

Coding: Top-down & bottom-up programming, structured programming, information hiding, programming style & internal documentation.

Test principles: Levels of testing, functional testing, structural testing, test plane, test case specification, reliability assessment, software testing strategies, Verification & validation, Unit testing, Integration testing, Alpha & beta testing, system testing & debugging.

Software project management: The management spectrum (The people, the product, the process, the project) Cost estimation, project scheduling, staffing, software configuration management, Structured vs unstructured maintenance, quality assurance., project monitoring, risk management.

Software Reliability & Quality assurance: Reliability issues, Reliability metrics, reliability growth modeling, software quality, ISO 9000 certification for software industry, SEI capability maturity model, comparison between ISO & SEI CMM. CASE (computer aided software engineering): CASE and its scope, CASE support software life cycle, documentation, project management, internal interface, Reverse software engineering, Architecture of CASE environment.

MS205: OBJECT ORIENTED ANALYSIS AND DESIGNING

Object modeling: Objects and classes. Links and Associations. Generalization and Inheritance. Grouping constructs. Aggregation, Generalization as extension and restriction. Multiple inheritance. Meta data, Candidate keys.

Dynamic Modeling: Events and states Nesting. Concurrency. Functional modeling: Data Flow Diagrams, Specifying operations.

Analysis: Object modeling, dynamic modeling, Functional modeling, Adding operations. Iteration.

System design: Subsystems. Concurrency. Allocation to processors and tasks. Management of data stores. Control implementation. Boundary condition. Architectural frameworks.

Object Design: Optimization, implementation to control. Adjustment of inheritance. Design of associations. Documentation. Comparison of methodologies.

Implementation: Using a programming language, a database system. Programming styles, Reusability, extensibility, robustness, programming-in-large, case study.

MS301 INTRODUCTION TO WEB TECHNOLOGY

Introduction: History of web, growth of web, the past decade, protocols governing the web, web applications, development of the web in India, creating web sites for individuals and corporate world, introduction to cyber law of India, international cyber laws.

Web Development Strategies: Web projects, writing web project, identification of objects, target users, web team, assessment of web team, team dynamics, planning and process development, early planning, contents, technical and production planning, communication issues.

Communication with clients, communication breakdowns, development of multi-department & large scale sites, quality assurance & testing, study of technological advances and impact of web teams.

Design strategies for E-Commerce site development: Basic foundation in e-commerce system, creating forms, managing database through web.

Java Programming: Introduction, Operator, Data types, Variables, Methods and Classes, Multi threaded programming, I/O Java applet.

Java Library: String handling, I/O exploring JAVA, Networking, Applet Classes, Event Handling, Introduction to AWT, Working with windows, Graphics, AWT Controls, Layout manager and menu, Images, Additional Packages.

Software Development Using Java: Java Bean, Java Swing, Java Servlets, Migrating from C++ to Java, Application of JAVA, Dynamic Billboard Applet.

Image Menu: An Image based menu, Lavatron Applets, Scrabblets, JDBC, Brief functioning of Upper Layer E-Mail and their applications.

References:

1. Sharma & Sharma, “ Developing E-Commerce sites”, Addition Wesley
2. Balaguruswamy E, Programming in JAVA, TMH”
3. Steven Hoizner, “Java2 Black Book” Dreamtech.

MS302 DATA COMMUNICATION AND NETWORKS

Introduction to Computer Networking: Use, advantage, structure of the communications network topologies the telephone network, analog to digital communication. Communication Between Analog Computers & Terminals Layered Protocols, Network & The OSI Models, Traffic control and accountability wide area and local area networks, connection oriented and connectionless networks, classification of communication protocols polling/selection systems, non-priority system priority system, rotation for layered protocols foals of layered protocols, network design

problems, communication between layers, A parametric illustration, introduction to standards organizations and the ISO standard.

Polling/Selection, Satellite and Local area Networks: Binary synchronous control, other BSC system, conversion using satellite communication SPUS, and the Tele-port primary attribute of a LAN, IEEE LAN standards, LAN topology and protocols. Switching and routing in Network: Telephone switching system, message switching, packet switching, packet switching support to circuit switching networks. The X.25 & Digital Networks: Layers of x.25, features of x.25 flow control principles, other packet type, x.25 logical channel states time out and time limits, packet formats, flow control and windows x.25 facilities, other standards layer the pad, communication networks communication between layers, advantage of digital networks, Digital's switching, voice transmission by packet.

Personal Computer Network: Personal computer communications, characteristics, using the personal computers as server linking the personal computer to mainframe computers, semaphores of vendor offerings. File transfer on personal computers, personal computer and local area networks. Personal computer networks and the OSI models. TCP/IP: TCP/IP and internetworking, example of TCP/IP operations, related protocols ports and sockets. The IP address structure, major features of IP, IP datagram, Major IP services. IP source routing, value of the transport layer, TCP, Major features of TCP, passive and active operation, the transmission control block (TCB), route discovery protocols, examples of route discovery protocols, application layer protocols.

References:

1. Tannanbaum, A.S. : Computer Network, PHI – 1995.
2. Martin J.: Computer Network and Distributed processing, 1985.
3. Black : Computer Network; Protocols, Standards and Interface PHI – 1995.
4. Black : Data Network; Concepts, Theory and Practices, PHI
5. Starlings, William : Local Networks; and Introduction Mack Publishing Co.
6. Comer; Internetworking : Principles, Protocols Architecture, PHI with TCP/IP
7. Crichlow : Introduction to Distributed and Parallel Comp.
8. Ahuja : Design and Analysis of Computer Communication Network, McGraw Hill Co.
9. Chorafas: Designing and Implementing Networks, McGraw Hill Co.

MS303 ANALYSIS & DESIGN OF ALGORITHM

Introduction:

Algorithms, Analysis of Algorithms, Design of Algorithms, and Complexity of Algorithms, Asymptotic Notations, Growth of function, Recurrences Sorting in polynomial Time: Insertion sort, Merge sort, Heap sort, and Quick sort Sorting in Linear Time: Counting sort, Radix Sort, Bucket Sort Medians and order statistics

Elementary Data Structure: Stacks, Queues, Linked list, Binary Search Tree, Hash Table
Advanced Data Structure: Red Black Trees, Splay Trees, Augmenting Data Structure Binomial Heap, B-Tree, Fibonacci Heap, and Data Structure for Disjoint Sets Union-find Algorithm, Dictionaries and priority Queues, mergeable heaps, concatenable queues

Advanced Design and Analysis Techniques: Dynamic programming, Greedy Algorithm, Backtracking, Branch-and-Bound, Amortized Analysis

Graph Algorithms : Elementary Graph Algorithms, Breadth First Search, Depth First Search, Minimum Spanning Tree, Kruskal's Algorithms, Prim's Algorithms, Single Source Shortest Path, All pair Shortest Path, Maximum flow and Traveling Salesman Problem
Randomized Algorithms, String Matching, NP-Hard and NP-Completeness Approximation Algorithms, Sorting Network, Matrix Operations, Polynomials & the FFT, Number Theoretic Algorithms, Computational Geometry

References

1. Horowitz Sahani, "Fundamentals of Computer Algorithms", Goltgia
2. Coremen Leiserson etal, "Introduction to Algorithms", PHI
3. Brassard Bratley, "Fundamental of Algorithms", PHI
4. M T Goodrich etal, "Algorithms Design", John Wiley
4. A V Aho etal, "The Design and analysis of Algorithms", Pearson Education

MS304 VISUAL BASIC WITH .NET TECHNOLOGY

Introduction to .NET: Writing Window Applications, Windows Graphical User Interface, Programming Languages – Procedural, Event Driven, and Object Oriented, The Object Model, Microsoft's Visual Studio.NET, Writing Visual Basic Projects, Three-Step Process, Visual Basic Application Files.

Visual Studio Environment: IDE Start Page, New Project Dialog, IDE Main Window, Toolbars, Document Window, Form Designer, Solution Explorer Window, Properties Window, Toolbox, Design Time, Run Time, and Break Time.

Writing Visual Basic Project: Workspace Setup, Plan the Project, Define the User Interface, Set Properties, Coding, Testing, Maintenance, Printing. Finding and Fixing Errors: Syntax Errors, Run-Time Errors, Logic Errors, Project Debugging, Naming Rules and Conventions for Objects.

VARIABLES, CONSTANTS AND CALCULATIONS: Data: Variables and Constants, Formatting Data, Handling Exceptions, Displaying Messages in Message Boxes, Counting and Accumulating Sums, DECISIONS AND CONDITIONS, MENUS, SUB PROCEDURES, AND FUNCTIONS, LISTS, LOOPS, AND PRINTING, GRAPHICS, ANIMATION, AND ADDITIONAL TOPICS IN VISUAL BASIC.

MS305 (i) ADVANCE RDBMS

Data Processing Systems. Transaction Processing and Concepts: Transaction system, Testing of seralizability, Seralizability of schedules, conflict and view seralizable schedule, recoverability, Recovery form transaction failures, deadlock handling.

File processing system. File Management system. Components of RDBMS. Database Architecture.

Object Oriented Databases. Distributed Databases. Client/server database. Data Dictionary. Database models. Normalization. The Database Administration. Database Manager responsibilities.

Monitoring Database performance. Database Machine overview.

Designing RDBMS for organization. Object modeling. Perspectives of Data Modelling. Evolving the logical model. Transformation from Logical to Phical model. Concurrency Control Techniques: Concurrency control, locking Techniques for concurrency control. CODD's 12 rules

for a fully relational DBMS. Data Integrity. Redundancy. Primary and Foreign keys. Object database management. Database design and choosing the database server.

SQL and MySQL. Database access and ODBC. Middleware: Kinds of middleware. Sockets-talking to database, virtual database engine defined, web based middleware, Microsoft JET engine,

Database security and Recovery. Data Mining and Warehouse.

References:

1. Adv. DBMS by V.K. Jain, Cyber Tech Publication, 5A/13 Ansari Road, Daryaganj, N.Delhi.-110002
2. Date C.J. "An Introduction to Database System". Addison Wesley
3. Korth, Silbertz, Sudarshan, "Database Concepts" McGraw Hill
4. Elmasri, Navathe, "Fundamentals of Database Systems" Addison Wesley
5. Paul Beynon Davis, "Database Systems" Palgrave Macmillan
6. Bipin C. Desai, "An introduction to Database Systems", Galgotia Pub

MS305 (ii) E-GOVERNANCE

Introduction: Electronic Commerce - Technology and Prospects, Definition of E- Commerce, Economic potential of electronic commerce, Incentives for engaging in electronic commerce, forces behind E-Commerce, Advantages and Disadvantages, Architectural framework, Impact of E-commerce on business.

Network Infrastructure for E- Commerce: Internet and Intranet based E-commerce- Issues, problems and prospects, Network Infrastructure, Network Access Equipments, Broadband telecommunication (ATM, ISDN, FRAME RELAY).

Mobile Commerce: Introduction, Wireless Application Protocol, WAP technology, Mobile Information device, Mobile Computing Applications.

Web Security: Security Issues on web, Importance of Firewall, components of Firewall, Transaction security, Emerging client server, Security Threats, Network Security, Factors to consider in Firewall design, Limitation of Firewalls.

Encryption: Encryption techniques, Symmetric Encryption- Keys and data encryption standard, Triple encryption, Asymmetric encryption- Secret key encryption, public and private pair key encryption, Digital Signatures, Virtual Private Network.

Electronic Payments: Overview, The SET protocol, Payment Gateway, certificate, digital Tokens, Smart card, credit card, magnetic strip card, E-Checks, Credit/Debit card based EPS, online Banking. EDI Application in business, E- Commerce Law, Forms of Agreement, Govt. policies and Agenda.

References

1. Ravi Kalakota, Andrew Winston, "Frontiers of Electronic Commerce", Addison Wesley.
2. Bajaj and Nag, "E-Commerce the cutting edge of Business", TMH
3. P. Loshin, John Vacca, "Electronic commerce", Firewall Media, New Delhi

MS305 (iii) FUZZY LOGIC AND NEURAL NETWORKS

Statistical concepts and Reasoning theories. Probability and Bayes' Theorem. Certainty factors and Rule-Based systems. Bayesian Networks.

Working of Human Mind. Discourse and Pragmatic processing. Semantic Nets and Frames. Fundamentals of Neural networks and Building techniques. Discovery and Analogy. Neural net learning and Genetic learning. Formal learning theory.

A.I. techniques, pattern recognition, Level of, Speech recognition representation in A.I. properties of internal representation. Introduction to Predicate Calculus: Predicates and Arguments, connectives, Simplifications of strategies, extracting answers from Resolution Refutation, Control Strategies.

Dempster-Shafer Theory. Parallelism in Reasoning system. Distributed reasoning systems. Default reasoning, default logic. Logics for non monotonic reasoning. Symbolic techniques for representing and using uncertain knowledge, Definition, concept, and framework of fuzzy logic. Fundamental changes to the idea about Set membership and corresponding changes to the definition of logic operations. Defining fuzzy sets, used in representing a list of propositions.

Commonsense ontologies. Memory organization. Case based reasoning, Perception. Robot Architectures. Graphical representation of networks. Matching. Forward and backward production system. Using deduction systems to generate Robot plans. Heuristic graph search process. Real Life Applications of fuzzy logic and neural networks.

MS305 (iv) ARTIFICIAL INTELLIGENCE

Introduction: Definition and meaning of artificial intelligence, A.I. techniques, pattern recognition, Level of, speech recognition representation in A.I. properties of internal representation.

Production System: Different types of tracing, strategies, graph search strategies, Heuristic graph, search procedure, AND/OR graph, relationship between decompositional and compatible systems, searching Gate Tree, Minmax search game playing, actual game playing.

Introduction to predicate calculus: Predicates and Arguments, connectives, Simplification of strategies, extracting answers from Resolution Refutation. Control strategies.

Rule Based Deduction Systems: Forward and backward deduction system, resolving with AND/OR graph, computation, deduction and program synthesis, central knowledge for rules base deduct systems.

Managing Plans of Action: Plan interpreter, planning decisions, execution monitoring and re-planning domain of application robot motion planning and game playing.

Structural Object Representation: Semantic networks semantic market matching deductive operations on structured objects.

Architectural for A.I. Systems: Knowledge, acquisitions representation IMAGES PROCESSING, Natural language processing.

MS305 (v) DISTRIBUTED AND PARALLEL COMPUTING

Parallel and high-performance computers, Models and parallel computers, Basic communication operations, Performance and scalability, MPT and open MP programming.

Distributed processing potential, Forms of Distributed processing strategies. Hexagon Distributed computing, Client Server model.

References:

1. Kumar, Grama, Gupta and Karypis: Introduction to Parallel Computing, Benjamin Cummings Publishing Co.