
UNIT 2 - AI Production Systems, Search and Control Strategies:

UNIT 3-Knowledge Representations:
First order predicate calculus, Clause form representation of WFFs, resolution principle & unification, inference mechanism, semantic networks, frame systems and value inheritance, scripts, conceptual dependency.

UNIT 4-Natural Language Processing:
Overview of linguistics, grammars and languages, Parsing techniques: Chart Parsers, transition nets, augmented transition nets, WASP Parser.

UNIT 5-Expert systems:
Introduction and applications of expert systems, Rule-based System Architecture, Non-production system architecture, Expert system shells, dealing with uncertainty: Bayesian reasoning and fuzzy reasoning, Introduction to Some of the AI Techniques like neural networks, genetic algorithms, machine learning, pattern recognition, Robotics etc.

Books:
1. Introduction to AI and Expert Systems: D.W. Patterson PHI.
502MCA: Computer Graphics & Multimedia

UNIT 1: Introduction: Computer graphics, definition, classification & applications, development of hardware & Software for computer graphics. Refresh Cathode ray tubes, Random and raster scan devices, DVST, plasma panel display, LED and LCD monitors, laser devices, printers, plotters, display processors, raster and random scan system.

Output primitives: DDA along with, Bresenhan's line drawing algorithm, antialiasing, circle generation: Midpoint algorithms, ellipse, other curves, character generation, area filling scan line algorithm, boundary fill flood fill algorithm, attributes of output primitives line attributes, area fill attributes, character attributes.

UNIT 2: Two-dimensional Transformations and Clipping: Translation scaling rotation reflection shear, matrix representation and homogeneous coordinates composite transformation commands. Viewing coordinates window, view port, window to view transformation line clipping Cohan Sutherland algorithm polygon clipping: Sutherland-hodgeman algorithm.

UNIT 3: Three-dimensional concepts: Three dimensional viewing, three dimensional object presentation: polygons, curved line & surfaces quadrangle (sphere, ellipsoid), surfaces, design of curves & surfaces, bezier's methods. Bsling methods; three dimensional transformation: Translation, scaling composite transformation, rotation, about arbitrary axis, projection: parallel, perspective.


Books:
503MCA SIMULATION AND MODELLING

UNIT 1-Definition of simulation: Type of simulation, (continuous & discrete) Definition of models, Types of models, Comparing model data with real system data. Why to use simulation? Simulation is used for solving real life problem.

UNIT 2-Limitation of simulation technique, Phases of simulation model, Data generation, Book keeping, Events Type simulation (numerical problems), Generation of random numbers, Monte Carlo simulation (Numerical problem).

UNIT 3-Continuous system simulation: Continuous system models, Differential equation, Hybrid computer, continuous system simulation languages (CSSLS), simulation of an autopilot, real time simulation. Probability concept in simulation: numerical evaluation of continuous probability Function, continuous uniformly distributed random numbers, non uniform continuous distributed random numbers, the Rejection method, discrete simulation language, simulation of telephone system.

UNIT 4-Simulation: Application to Inventory Control, Queuing problem, Capital budgeting, Financial Planning, Advantages and disadvantages of simulation, scope of simulation techniques.

UNIT 5-Introduction to SIMSCRIPT: SIMSCRIPT programs, SIMSCRIPT system concept, organization of SIMSCRIPT programs, Names and labels, SIMSCRIPT statement, defining the telephone system model, referencing variables, the MAIN routine, the Arrival events, the Timing routine, the closing event, Disconnect event.

References:
1. System Simulation, G. Gorden, PHI
2. Introduction to simulation, T.A. Payer, Mcgraw Hill
4. Operation research by Heera and Gupta
5. Operation research by S.D. Sharma, Keolar nath publications.
504-E1MCA Theory of computation

Unit 1: Mathematical preliminaries: set, relations and functions, graphs and trees, string, alphabet and language, principle of induction, predicate and propositional calculus. Theory of automata: definition and description, DFA, NFA, transition system, 2DFA, equivalence of DFA, N DFA, regular expression, regular grammar, FSM with output. Minization of finite automata.


Unit 3: Context free grammar and PDA: properties unrestricted grammar & their equivalence, derivation tree simplifying CFG, unambiguity CFG, normal form for CFG, push down automata, 2 way PDA, relation of PDA with CFG, Determinism and non determinism in PDA, and related theorems, parsing & pushdown. Automata.

Unit 4: Turning Machine: model, design, representation of TM, language accepted by TM, universal TM, deterministic and non-deterministic, TM as acceptor/ generator, algorithms, multidimensional, multitacks, multilape, halt problems in TM.


References:
1) Marvin L. Minskay "Computation. Finite and Infinite machine", PHI.
2) Hopcroft and Ullman "Introduction to automata theory, languages & comutation", Narasha PH
3) Lewish "Theory of computation", PHI
4) Mishra and Chander shekhar "Theory of computer science"(A L &C), PHI
504-E2MCA ERP AND BPR ALLIED CONCEPTS

UNIT 1 - Introduction to ERP - Evolution of ERP, Growth of ERP Market, advantages of ERP, ERP & Related technologies, BPR, M&O, GIS, GIS, Data Warehousing & Data Mining, CRM, Supply Chain Management.

UNIT 2 - Business Functions, Processes & Data Requirements - Functional Areas of operation, Marketing & sales, Production & Materials Management, Accounting & Finance, Human Resources, Marketing Information System & Sales Order Process, Sales Quotations & Orders, Order Filling, Accounting & Invoicing, Payment & Returns, Sales & Distribution in ERP, Pre-sales activities, Sales order processing, Inventory Sourcing, Delivery, Billing, Payment, CRM (Customer Relationship Management).

UNIT 3 - Production & Materials Management Information System - Materials Requirement Planning (MRP), Manufacturing Resource Planning (MRP-II), Bill of Materials (BOM), JIT & Kanban, CAD/CAM, Product Data Management, Make-to-Order (MTO), Make-to-Stock (MTS), Assemble-to-Order (ATO), Engineer-to-Order (ETO), Configure-to-Order (CTO), Accounting & Finance - Accounting & finance activities creating financial statements, Operational Decision Making Problem, Credit Management, Product Profitability Analysis, ERP & Inventory Cost, Accounting Activity, Activity based costing & ERP.

UNIT 4 - ERP Implementation Life Cycle - Pre-evaluation screening, Package evaluation, Project Planning phase, Gap Analysis, Reengineering, Configuration, Implementation team training, Testing, Going live, End user training, Post-implementation, Role of vendors & consultants.

UNIT 5 - Business Process Reengineering (BPR) & its Implementation - BPR, five step methodology to implement BPR, Development process vision & determining process objectives, defining the processes to be reengineered, understanding & measuring the existing processes, identifying the IT levels, designing the prototype & implementing it.

BOOKS:
2. Business Process Reengineering - Jayaraman, Natarajan & Pagnostanaghi
3. ERP: Concepts & Practice - J K Garg & Venkitakrishnan
4. Enterprise Resource Planning - Lee, Leon
504-E3MCA MANAGERIAL ECONOMICS


References:

505-E4MCA - Data warehousing and data mining

UNIT 1: Introduction to Data Mining: Data Mining features, business context, technical context, approaches to data mining. Types of Data Mining: Direct & Undirected, Virtuous Cycle.


UNIT 3: Introduction to Data Warehouse: Data warehousing concepts, Goals & objectives, Issues involved in Data Warehousing. The three C's of Data Warehousing: Commitment, Completeness & Connectivity, OLAP, Types of Data Warehouse.

Constructing a Data Warehouse System:


UNIT 5: Testing the Data Warehouse: Introduction, developing the test plan, testing backup recovery, testing the operational environment, testing the database, testing the application, Logistics of the text. Security: Requirements, performance, impact of security, security impact on design.

References:

1. "Data Warehousing" by Amitesh Sinha.
2. "Data Warehousing in the real world" by Sam Anahory & Dennis Murray.
MCA Internet and its application

Unit 1 Introduction of Networking

Unit 2 Introduction of Browser and WebPage
Browser, Features of browser, types of browser, use of browser, About IE and its versions, Mozilla, AOL.
What is webpage and its uses, structure of webpage.

Unit 3 HTML
What is HTML and its use, HTML TAGS, URL, head, body, anchor link, tables, frameset, span, div, image, audio, buttons, submit, reset, cancel, lists, font.

Unit 4 HTML FORMS
What is Forms, Use of forms, method, action, POST, GET etc. Events mouse over, click, mouse down, Form Designing, Introduction of DHTML.

Unit 5:
Good web design, the process of web publishing, document overview, header elements, website hosting, HTTP & URL, search engines, FTP, downloading ad uploading FTP, site promotions.

References:
1) Thomas A. Powell "The complete reference HTML", TMH.
3) Joel sklar "Principles of Web design", Vikash publication
4) K. Kalata "Internet programming Thomson learning".