

M.C.A. (Masters in Computer Applications)

Revised MCA Course Structure-2007 (Modified)

SEMESTER-IV

CS 7015 COMPILER DESIGN

Module -I

Introduction to Compiler: Compilers, Analysis of the source program, The phases of the compiler, Major data structures in a Compiler, Issues in a Compiler Structure, Bootstrapping and Porting .

Module -II

Scanning : Scanning Process, Regular Expression(R.E.), Finite Automata(F.A.), R.E. to DFA , Implementation of Scanner, Use of Lex to generate a Scanner.

Context Free Grammar and Parsing: Parsing Process, The role of a parser, Context Free Grammar, Parse trees and Abstract Syntax trees, Ambiguity, EBNF, Formal properties of Context Free Languages.

Module -III

Top-down Parsing: Top down Parsing by Recursive Descent, LL(1), First and Follow sets, Recursive Descent Parser for a Tiny language, Error Recovery in Top-down Parser.

Module - IV & V

Bottom-up Parsing : Overview of Bottom-up Parsing, LR(0) items and LR(0) Parsing, SLR(1), General LR(1) and LALR(1) Parsing, YACC , Error Recovery in Bottom-up Parser.

Semantic Analysis: Attributes and Attributes Grammars, Algorithms for Attribute Computation, Symbol Table, Data types and Data type Checking, Semantic Analyzer for Tiny language.

Module -VI

Run-time Environments: Memory organization during program execution, Fully static run-time environment, Stack-based run-time environments, Dynamic memory, Parameter passing mechanism, Run-time environment for Tiny language.

Module-VII

Code Generation: Intermediate code and data structures for code generation, Basic code generation techniques, Code generation of Control statements and Logical expressions, Code generation of Procedure and Function calls, Code generation for a tiny language, A survey of code optimization techniques.

Text Book:

1. Kenneth C. Louden -“Compiler Construction – Principle and Practice”, Thomson 2007.

Reference Book:

1. Aho, Sethi, Ullman -“Compiler Principles, Techniques and Tools”, Pearson Education, 2007.

CS 7016 SOFT COMPUTING

Module – I

Introduction to Artificial Intelligence System, Neural Network, Fuzzy Logic & Genetic Algorithm. Fuzzy Set Theory : Fuzzy Versus Crisp, Crisp Set, Fuzzy Set, Crisp Relation, Fuzzy Relations.

Module – II

Fuzzy System: Crisp Logic, Predicate Logic, Fuzzy Logic, Fuzzy Rule Based System, Defuzzification Methods, Applications.

Module – III

Genetic Algorithms, Basic Concepts, Creation Of Offspring, Working Principle, Encoding, Fitness Function, Reproduction.

Module – IV

Genetic Modelling, Inheritance Operations, Cross Over, Inversion And Deletion, Mutation Operator, Bit Wise Operators, Generation Cycle, Convergence Of Genetic Algorithm, Application, Multi Level Optimization, Real Life Problems, Difference And Similarities Between GA And Other Traditional Methods, Advanced In GA.

Module – V

Fundamentals Of Neural Networks, Basic Concepts Of Neural Network, Human Brain, Model Of An Artificial Neuron, Neural Network Architectures, Characteristic Of Neural Networks, Learning Method, Taxonomy Of Neural Network Architectures, History Of Neural Network Research, Early Neural Network Architectures, Some Application Domains.

Module – VI

Back Propagation Network Architecture Of Back Propagation Network, Back Propagation Learning, Illustration, Applications, Effect Of Tuning Parameters Of The Back Propagation Neural Network, Selection Of Various Parameters In BPN, Variations Of Standard Back Propagation Algorithm.

Module – VII

Associative Memory And Adaptive Resonance Theory, Autocorrelators, Heterocorrelators, Multiple Training Encoding Strategy, Exponential BAM, Associative Memory For Real

Coded Pattern Pairs, Applications, Introduction To Adaptive Resonance Theory, ARTI, Character Recognition Using ARII

Text Book:

1. S. Rajasekharan & G. A. Vijayalakshmi – “Neural Network, Fuzzy Logic And Genetic Algorithm Synthesis And Applications”, Prentice Hall Of India PLT, Pai – 2004

Reference Book:

1. Jyh – Shing R Jang, C. T. Sun, E Mizutani – Neuro Fuzzy And Soft Computing – A Computational Approach To Learning And Machine Intelligence”, Prentice Hall Of India – 1997.

CS 7017 COMPUTER NETWORKS

Module – I

Multiple Access: Random Access, CSMA/CD, CSMA/CA, Controlled Access, Reservation, Polling, Token Passing, FDMA, TDMA,CDMA

Module – II

Local Area Networks: Traditional Ethernet, Fast Ethernet, Gigabit Ethernet, Wireless LAN, BLUETOOTH, Virtual Channels, Frame Relay, ATM

Module –III

Networks Layer and IP: IPv4 addresses, IPv6 addresses, Internetworking, IPv4, IPv6, Transition from IPv4 to IPv6, Address Mapping, IGMP, ICMP, Delivery, Forwarding, Unicast Routing Protocols, Multicast Routing Protocols

Module – IV

Transport Layer: Process to Process Delivery, UDP, TCP Congestion Control, QoS, Integrated Services, Differentiated Services

Module – V

Application Layer and its Features: Namespaces, Domain Name Space, Distribution of Name Space, DNS in the Internet, Resolution, DNS Messages, DDNS

Module VI & VII

WWW, HTTP and Multimedia: Architecture, Web Documents, HTTP, HTTP Transaction, Digitizing audio and Video, Audio and Video Compression, Streaming stored audio/video, Streaming live audio/video, Real Time Interactive audio/video, RTP, RTCP, VOIP

Text Book:

1. Forouzan B, ;Data Communications and Networking , 2nd Edition, Tata McGraw-Hill, New Delhi , India 2006

Reference Books:

1. Stallings W.;Data and Computer Communications, 7th Edition, Prentice Hall India , New Delhi – 2007
2. P.C. Gupta- Data Communications and Computer Networks, PHI, New Delhi , 2006.

CS 7018 COMPUTERIZED FINANCIAL ACCOUNTING

Module - I

Origin, People Interested in Accounts, Concepts & Conventions System of Accounting, Accounting Standards Book-Keeping, Double Entry, Classification of Business Accounts, “Golden Rules”, Journal, Subsidiary Books, Ledger Posting & Balancing, Concept of Trial Balance, Errors and Omission, Commission, Principle and Compensating, Final Accounts with Adjustments, Introduction to Financial Accounting, (Tally 7.2), Creating Company Master, Modification & Deletion.

Module - II

Definition, Aims, Traditional vs. Innovative Management Accounting Practices, Development of Throughput Accounting, An Alternative view of Management Accounting, Lean Accounting(Accounting for Lean), Related Qualifications, Concept of Financial Budgeting, Fund Flow, Cash Flow Statement, C-V-P Analysis, MIS in Report Preparation, SFC and DFD, Working of FM Module of SAP Transaction.

Module - III

Voucher Entry: Receipt Voucher, Payments Voucher, Contra Voucher, Journal Voucher, Physical Stock Voucher, Stores Ledger Book Keeping Through MM Module of SAP Transaction.

Module - IV

Inventory Information: Stock Groups, Unit of Memo, Go Down Items, Warehousing, Displaying and Alterting and Stock Keeping.

Module - V

Invoice: Preparation of Invoice, Entry, Inco-Terms, Tax Implication, CENVAT and Concept of CVED, Printing & Display.

Module - VI

Report Generation: Balance Sheet, Profit and Loss Accounts, Stock Summary, Day Book, Accounts Books.

Module - VII

Report Generation: Cash Book, Bank Book, Ledger, Outstanding Register.

Text Books:

1. S.N. Maheshwari- Advance Accountancy, Vikas Publication
2. Amitabh Mukherjee & Md Hanif- Modern Accountancy, TMH Publication