GOVERNMENT COLLEGE OF TECHNOLOGY
(An Autonomous Institution Affiliated to Anna University)
Coimbatore - 641 013

Regulations, Curriculum And Syllabi For
M.E. (COMPUTER SCIENCE AND ENGINEERING)
(Full Time / Part Time)

2012 Regulations

OFFICE OF THE CONTROLLER OF EXAMINATIONS,
GOVERNMENT COLLEGE OF TECHNOLOGY
THADAGAM ROAD, COIMBATORE - 641 013

PHONE 0422 - 2433355  FAX : +91 0422 - 2433355
email : gctcoe@gmail.com
### CURRICULUM FOR CANDIDATES ADMITTED DURING 2012-2013 AND ONWARDS
BRANCH: M.E. (COMPUTER SCIENCE AND ENGINEERING) - FULL TIME

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# CURRICULUM FOR CANDIDATES ADMITTED
# DURING 2012-2013 AND ONWARDS
# BRANCH: M.E. (COMPUTER SCIENCE AND ENGINEERING) - PART TIME

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<td>OPEN SOURCE SYSTEMS</td>
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</table>
UNIT I LOGIC AND SET THEORY

UNIT II RELATIONS, GRAPHS AND TREES

UNIT III DIGRAPHS AND BOOLEAN ALGEBRA
Digraphs: DAGs, Weighted digraphs- Formal languages and Finite state machines-Boolean Algebra and Combinatorial Circuits: Boolean algebra, Functions, Logic gates, Minimization of Combinatorial circuits, Don’t care condition.

UNIT IV NON-MARKOVIAN QUEUES AND QUEUE NETWORKS
Markovian models - Birth and Death Queuing models – steady state results: Single and multiple server queuing models-queues with finite waiting rooms- Finite source- Finite source models - Little’s formula.

UNIT V QUEUEING THEORY
M/G/1 queue- Pollaczek- Khintchine formula, series queues-open and networks.

LECTURE: 45 TUTORIAL: 15 TOTAL: 60

Reference Books
UNIT I PIPELINE AND INSTRUCTION - LEVEL PARALLELISM
Concepts and challenges - Data hazards and dynamic scheduling - Dynamic Hardware prediction - Compiler support for ILP – Hardware support for parallelism. Studies of ILP - Power PC620.

UNIT II MULTIPLE ISSUE PROCESSORS
VLIW & EPIC – Advanced compiler support – Hardware support for exposing parallelism – Hardware versus software speculation mechanisms – IA 64 and Itanium processors – Limits on ILP.

UNIT III MULTIPROCESSORS AND THREAD LEVEL PARALLELISM

UNIT IV MEMORY HIERARCHY AND V I/O DESIGN

Storage Systems: Types of storage devices, Buses & their types, performance I/O performance measures. Reliability, Availability and RAID. Interfacing to an Operating system. Designing an I/O system. Unix file system performance

UNIT V MULTI-CORE ARCHITECTURES

LECTURE: 45 TUTORIAL: 0 TOTAL: 45

Reference Books
UNIT I INTRODUCTION TO PHYSICAL AND DATA LINK LAYER
Motivation-Goals of networking - Need for a layered architecture, Network hardware - Network software, Flow and error control: Error detection and correction - Elementary data link protocols, piggy backing - MAC protocols - Ethernet – FDDI-Bridges.

UNIT II NETWORK ARCHITECTURE
Layering & Protocols - OSI & Internet Architecture – direct Link Networks : Hardware Blocks, Framing, Error Detection, Reliable transmission, Ethernet (802.3), Token Rings(802.5), Wireless (802.11) - Network Adaptors.

UNIT III NETWORK LAYER
Switching and Forwarding, Bridges and LAN Switches, Cell Switching, Switching Hardware, Internetworking: Service Model, Global Addresses, datagram Forwarding in IP, Address Translation Protocol, DHCP, ICMP, Virtual Networks and Tunnels, Routing : Network as a Graph, Distance Vector, Link State, Metrics, Routing for Mobile Hosts, Global Internet : Sub netting, Classless Routing, Inter domain Routing, Routing Areas, IPV6, Multicast.

UNIT IV BROAD BAND NETWORK MANAGEMENT

UNIT V NETWORK MANAGEMENT APPLICATIONS

LECTURE: 45 TUTORIAL: 0 TOTAL:45

Reference Books
12CS04 NETWORKS AND ELECTIVE LAB

LIST OF EXPERIMENTS

1. Study of establishing LAN using 8/16 port Switch/Hub
2. Study of standard Network protocol headers by sniffing through Open source tools like wireshark or Ethernet
3. Simulation of ARP/RARP
4. Study of creating account and file transfer using FTP
5. Study of network simulators NS2 / Qualnet
6. Simulation of mobile IP protocol using NS2 / Qualnet
7. Three experiments based on Elective – I
8. Three experiments based on Elective – II

TOTAL : 45
UNIT I DISTRIBUTED SYSTEM


UNIT II DISTRIBUTED DEADLOCK


UNIT III RESOURCE MANAGEMENT


UNIT IV FAILURE RECOVERY


UNIT V MULTIPROCESSOR AND DATABASE OPERATING SYSTEM


LECTURE: 45 TUTORIAL: 15 TOTAL: 60
Reference Books


UNIT I  INTRODUCTION  (9)
Role of algorithms – growth of functions – recurrences – Dynamic programming – Greedy algorithm – amortized
analysis.

UNIT II DATA STRUCTURES  (9)

UNIT III ADVANCED DATA STRUCTURES  (9)

UNIT IV  GRAPH ALGORITHMS  (9)
Elementary Graph Algorithms – Minimum Spanning trees – Single source shortest paths - All Pairs shortest paths –
Maximum Flow.

UNIT V ADVANCED ALGORITHMS  (9)
Sorting Networks - Matrix Operations – Linear Programming - Number theoretic Algorithms –NP completeness –
Approximation Algorithms.

LECTURE: 45  TUTORIAL: 15  TOTAL : 60

Reference Books
    2007.
    Freeman, 1979.
12CS07 ADVANCED DATABASE TECHNOLOGY

UNIT I  INTRODUCTION

UNIT II  DISTRIBUTED DBMS

UNIT III  QUERY PROCESSING AND OPTIMIZATION

UNIT IV  PARALLEL DATABASE AND DISTRIBUTED OBJECT DATABASE SYSTEMS

UNIT V CURRENT ISSUES

LECTURE: 45 TUTORIAL: 0 TOTAL:45

Reference Books
12CS08 ALGORITHMS AND ELECTIVE LAB

LIST OF EXPERIMENTS

1. Implementation of insertion and deletion in Binary Search Tree
2. Implementation of insertion and deletion in Red-Black Trees
3. Implementation of Recursive and Iterative Greedy Algorithm
4. Implementation and correctness of Huffman’s Algorithm
5. Implementation of insertion, deletion and searching from B-Tree
6. Implement the operations of Binomial Trees and Binomial Heaps
7. Three experiments based on Elective – I
8. Three experiments based on Elective – II

TOTAL: 45
12CS09 PARALLEL ALGORITHMS

UNIT I INTRODUCTION
Introduction to parallel computers – Shared memory multi processors – Interconnection Networks.

UNIT II FUNDAMENTAL OF PARALLEL ALGORITHMS
Concurrency platforms – Ad hoc techniques for parallel algorithms – Non serial Parallel algorithms

UNIT III ALGORITHM ANALYSIS
z-Transform analysis – Dependence Graph analysis – Computational Geometry analysis

UNIT IV APPLICATIONS
Pattern matching – Motion estimation for video compression – Multiplication over GF (2m) – Polynomial division over GF(2)

UNIT V CASE STUDY

LECTURE: 45 TUTORIAL: 0 TOTAL : 45

Reference Books :
12CS12 FUZZY LOGIC AND NEURAL NETWORKS

UNIT I

UNIT II
Training Algorithm for Pattern Association-Hebb rule and Delta Rule, Heteroassociative, Auto associative and Iterative Auto Associative Net, Bidirectional Associative Memory- Storage and Retrieval Algorithms-Neural Network based on Competition: Fixed weight Competitive Nets-Kohonen Self-Organizing Maps-Linear vector Quantization

UNIT III

UNIT IV
Properties and operations on Classical and Fuzzy sets-Crisp and Fuzzy Relations-Cardinality, Properties and operations, Composition, Tolerance and Equivalence relations, Simple Problems. Membership functions: Features of membership functions-Standard forms and Boundaries- Fuzzyfication, membership value assignments, Fuzzy to Crisp Conversions, Lambda Cuts for fuzzy sets and relations, Defuzzification methods.

UNIT V

LECTURE: 45 TUTORIAL: 0 TOTAL: 45

Reference Books
1. Laurene Fausett, "Fundamentals of Neural Networks", Pearson Education India, New Delhi, 2004
UNIT I EVOLUTIONARY COMPUTATION


UNIT II GENETIC PROGRAMMING APPLICATIONS


UNIT III SWARM INTELLIGENCE – FUNDAMENTALS


UNIT IV SWARM INTELLIGENCE SEARCHERS, CLEANERS AND HUNTERS

SWARMs of Self-Organizing Polymorphic Agents - SWARM Simulation of RTES/BTeV - Searchers, Cleaners and Hunters- The Dynamic Cooperative Cleaners (DCC) Problem- Cleaning protocol – Dynamic cooperative cleaners - Cooperative Hunters- Physical k-clique-Physical Graphs- Physical clique finding protocol-Exploration in Physical Environments.

UNIT V SWARM INTELLIGENCE - APPLICATIONS


LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books
UNIT I  NEURAL NETWORKS  
Supervised Learning Neural Networks-Perceptrons-Adaline-Back propagation-Multilayer perceptrons-Radial Basis Function Networks- Unsupervised Learning and Other Neural Networks-Competitive Learning Networks-Kohonen Self-Organizing Networks-Learning Vector Quantization-Hebbian Learning.

UNIT II  FUZZY SET THEORY  

III NEURO FUZZY MODELING  

UNIT IV GENETIC ALGORITHMS  

UNIT V  ARTIFICIAL INTELLIGENCE SYSTEMS  
AI search algorithms-Hill Climbing-Best first search-Breath first search-Depth First search-Predicate calculus-Predicate logic-Resolution in predicate logic-Semantic networks-The Frame problem.

LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books

12CS15 ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM

UNIT I INTRODUCTION

UNIT II SEARCHING TECHNIQUES
Informed search and exploration-Heuristic functions-Local search algorithms and optimization problems-Local search in continuous phases-Online search agents and unknown environments-Constraint satisfaction problems-Back tracking search for CSPs-Local search for CSPs-Adversial search.

UNIT III KNOWLEDGE REPRESENTATION
First order logic- syntax and semantics-Knowledge engineering in first order logic-Inference in first order logic-Propositional vs First order inference-Unification and lifting-Forward chaining-Backward chaining-Resolution-Knowledge representation

UNIT IV LEARNING

UNIT V EXPERT SYSTEMS
Introduction to expert system-Expert system tools: Knowledge representation-Nature of expert system tools-Stages in development of expert system tools-Examples-Building an expert system: Choosing tools, acquiring knowledge-Expert system building process.

LECTURE: 45   TUTORIAL: 0   TOTAL: 45

Reference Books
12CS16 ADVANCED COMPILER DESIGN

UNIT I OVERVIEW

UNIT II CODE GENERATION
Issues in design of a code generator- Target language- Addresses in the target code-Basic blocks and flow graphs-Optimization of basic blocks-A simple code generator-Peep hole optimization-Register allocation and assignment-Instruction selection by tree rewriting- Optimal code generation for expressions-Dynamic programming code generation.

UNIT III MACHINE INDEPENDENT OPTIMIZATIONS
The principal sources of optimization-Introduction to Data flow analysis-Foundations of data flow analysis-Constant propagation-Partial redundancy elimination-Loops in flow graphs-Region based analysis-Symbolic analysis

UNIT IV INSTRUCTION LEVEL PARALLELISM
Processor Architectures-Code scheduling constraints - Basic block scheduling-Global code scheduling- Software pipelining.

UNIT V OPTIMIZING FOR PARALLELISM AND LOCALITY

LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books
12CS17 COMPUTER NETWORK AND SECURITY

UNIT I INTRODUCTION AND SYMMETRIC CIPHERS

UNIT II NUMBER THEORY

UNIT III PUBLIC KEY ENCRYPTION AND HASH FUNCTIONS

UNIT IV NETWORK SECURITY

UNIT – V LEGAL AND ETHICAL ISSUES AND ADVANCED TOPICS

LECTURE: 45  TUTORIAL: 0  TOTAL:45

Reference Books
12CS18 CRYPTOGRAPHY AND CRYPTANALYSIS

UNIT I INTRODUCTION TO CRYPTOGRAPHY (9)
Basic cryptographic Techniques: Classical encryption techniques, Stream Cipher, Block Ciphers Shannon’s Theory: Elementary probability theory, Entropy, Product Cryptosystems. Finite fields: Euclidean Algorithm, Finite fields of the form GF(p) and GF(2n), Fermat’s and Euler’s theorem, Chinese remainder theorem, Discrete Logarithms.

UNIT II SYMMETRIC ENCRYPTION (9)

UNIT III ASYMMETRIC ENCRYPTION (9)

UNIT IV CRYPTANALYSIS TECHNIQUES (9)

UNIT V COMPLEXITY ANALYSIS (9)
Complexity analysis of Brute force and other cryptanalysis techniques. Reducing search space and complexity of cryptanalysis using Genetic algorithms

LECTURE: 45  TUTORIAL: 0  TOTAL:45

Reference Books
UNIT 1   SHORTEST PATH PROBLEMS

UNIT II   MAX-FLOW AND MIN-COST FLOW PROBLEM

UNIT III   SIMPLEX METHODS, DUAL ASCENT METHODS AND AUCTION ALGORITHMS FOR MIN-COST FLOW

UNIT IV   NONLINEAR NETWORK

UNIT V CONVEX SEPARABLE AND INTEGER CONSTRAINTS NETWORK PROBLEMS

Lecture: 45  Tutorial: 0  Total: 45

Reference Books
UNIT I  INTRODUCTION

UNIT II  OPTICAL NETWORK

UNIT III  IP ROUTING

UNIT IV MPLS TRAFFIC ENGINEERING AND MULTILAYER NETWORKS

UNIT V PREVENTING DISASTER
Fire – Human Resources – Backups – Virus Containment – Healthy and Safety – Terrorism

LECTURE: 45  TUTORIAL: 0 TOTAL: 45

Reference Books
UNIT I HIGH SPEED NETWORKS

UNIT II CONGESTION AND TRAFFIC MANAGEMENT

UNIT III TCP AND ATM CONGESTION CONTROL

UNIT IV INTEGRATED AND DIFFERENTIATED SERVICES

UNIT V PROTOCOLS FOR QOS SUPPORT

Lecture: 45 Tutorial: 0 Total: 45

Reference Books
12CS22 DIGITAL IMAGE PROCESSING AND APPLICATIONS

UNIT I  FUNDAMENTALS OF IMAGE PROCESSING  (9)

UNIT II  IMAGE ENHANCEMENT AND RESTORATION  (9)

UNIT III  IMAGE SEGMENTATION AND FEATURE ANALYSIS  (9)

UNIT IV  MULTI RESOLUTION ANALYSIS AND COMPRESSIONS  (9)

UNIT V  APPLICATIONS OF IMAGE PROCESSING  (9)

LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books
12CS23  DATA COMPRESSION

UNIT I  INFORMATION THEORETIC FOUNDATION  (9)
Lossy and Lossless compression – Modeling and Coding. Entropy, conditional entropy, information, channels. Data models:
static and adaptive Coding: Fano, Huffman, Golomb, Rice, Tunstall – Applications of Huffman Coding.

UNIT II  CODING TECHNIQUES  (9)
– Inverse Filtering – Geometric Spatial transformation – image rest ration technique.

UNIT III  LOSSLESS LOSSY IMAGE COMPRESSION  (9)
Multi resolution – CCITT Group 3 and 4 – JBIG, JBIG2. Lossy coding – Distortion- Rate distortion- Linear system
models. Image Compression Standards: JGEG, JPEG 2000 and MPEG.

UNIT IV  SCALAR AND VECTOR QUANTIZATION  (9)
Uniform and Nonuniform quantizers : Adaptive quantization: Forward Adaptive Quantization – Backward Adaptive
Quantization. Entropy coded quantization: Lloyd-Max quantizer. Vector Quantization: LBG quantizer – Tree Structured
quantizer – Trellis coded quantization.

UNIT V  DIFFERENTIAL AND TRANSFORM ENCODING  (9)
Predictive DPCM – Adaptive DPCM – Delta modulation. Transform coding – Basis- inner products – orthogonality and

LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books
UNIT I  LINEAR MODELS FOR REGRESSION AND CLASSIFICATION (9)
Linear basics function models-The Bias-Variance Decomposition-Bayesian Linear Regression-Bayesian model comparison-The Evidence Approximation-Limitations-Fixed Basis Functions-Linear Models For Classification :Discriminant Functions-2 and multiple classes-Least squares-Fishers –Linear Discriminant -Probabilistic Generative models-probabilistic Discriminant models-The Laplace approximation-Bayesian logistic regression.

UNIT II NEURAL NETWORK AND KERNEL METHODS (9)

UNIT III SPARSE KERNEL MACHINES AND GRAPHICAL MODELS (9)

UNIT IV MIXTURE MODELS, EM AND APPROXIMATE INFERENCE (9)

UNIT V SAMPLING METHODS AND CONTINUOUS LATENT VARIABLES SEQUENCE DATA AND COMBINING MODELS (9)

REFERENCE BOOKS
UNIT I

UNIT II
Finger scan – Features – Components – Operation (Steps) – Competing finger scan technologies – Strength and weakness. Types of algorithms used for interpretation - Facial scan - Features – Components – Operation (Steps) – Competing facial scan technologies – Strength and weakness.

UNIT III
Iris scan - Features – Components – Operation (Steps) – Competing iris scan technologies – Strength and weakness. Voice scan - Features – Components – Operation (Steps) – Competing voice scan (facial) technologies – Strength and weakness.

UNIT IV

UNIT V

Reference Books
UNIT I  INTRODUCTION TO MULTIMEDIA  (9)
Media and Data Streams – Sounds/Audio – Images and Graphics – Video and Animation – Multimedia software Tools.

UNIT II  MULTIMEDIA AUTHORING AND TOOLS  (9)

UNIT III MULTIMEDIA COMMUNICATION  (9)

UNIT IV  SYNCHRONIZATION  (9)

UNIT V MULTIMEDIA DATA COMPRESSION  (9)

LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books
12CS27 MOBILE COMMUNICATION TECHNIQUES

UNIT I BASIC CONCEPTS

UNIT II MOBILE RADIO PROPAGATION
Large scale path loss – Introduction, Reflection, Ground reflection, Diffraction, Scattering, Link budget design Outdoor and Indoor propagation models, Signal penetration - small scale fading and Multipath: Impulse response model, parameters, Types of small-scale fading, Statistical models, Multipath shape factors.

UNIT III MODULATION EQUALIZATION DIVERSITY AND CHANNEL CODING
Digital modulation, Line coding, Pulse shaping, Geometric representation, Linear modulation, Constant envelope modulation, Combined linear and Constant envelope, Spread spectrum modulation, Modulation performance, Survey of equalization, Linear and Non-Linear equalization, Adaptive equalization, Diversity, RAKE receiver, Interleaving, Channel coding, Block and convolution codes, Coding gain, Trellis and Turbo Codes.

UNIT IV SPEECH CODING AND MULTI ACCESS TECHNIQUES

UNIT V WIRELESS NETWORKING AND STANDARDS

LECTURE: 45 TUTORIAL: 0 TOTAL: 45

Reference Books
UNIT I WIRELESS MEDIUM

UNIT II WIRELESS MEDIUM ACCESS

UNIT III WIRELESS NETWORK OPERATION

UNIT IV WIRELESS LAN

UNIT V WIRELESS LAN

LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books
M.E. Computer Science And Engineering

12CS29 WIRELESS SENSOR NETWORKS

UNIT I INTRODUCTION AND PHYSICAL LAYER

UNIT II DATA LINK LAYER

UNIT III NETWORK LAYER

UNIT IV LOCALIZATION AND TRACKING

UNIT V SENSOR NETWORK PLATFORMS AND TOOLS

LECTURE: 45 TUTORIAL: 0 TOTAL: 45

Reference Books
12CS30 ADHOC NETWORKS

UNIT – I FUNDAMENTALS

UNIT II AD HOC ROUTING PROTOCOLS

UNIT III MULTICAST ROUTING IN ADHOC NETWORKS

UNIT IV TRANSPORT LAYER– SECURITY PROTOCOLS

UNIT V QOS AND ENERGY MANAGEMENT

LECTURE: 45 TUTORIAL: 0 TOTAL: 45
Reference Books


12CS31 PERVASIVE COMPUTING

UNIT I PERVASIVE ARCHITECTURE (9)

UNIT II MOBILE DEVICE TECHNOLOGIES (9)

UNIT III SENSOR NETWORKS AND RFIDS (9)

UNIT IV LOCAL AREA AND WIDE AREA WIRELESS TECHNOLOGIES (9)

UNIT V PROTOCOLS AND APPLICATIONS (9)

LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books
UNIT - I INTRODUCTION TO GRID COMPUTING

UNIT – II GRID COMPUTING ARCHITECTURE

UNIT III GRID PROGRAMMING MODELS

UNIT IV GRID COMPUTING ENVIRONMENTS

UNIT V GRID APPLICATIONS FUTURE TRENDS
Case Studies : eDiamond, Sneha-Samuham, Parset Moset

LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books
UNIT- I INTRODUCTION TO CLOUD COMPUTING AND SERVICES

UNIT- II CLOUD COMPUTING APPLICATIONS
Centralizing Email Communications – Collaborating on Schedules – Collaborating on To-Do Lists – Collaborating Contact Lists – Cloud Computing for the Community – Collaborating on Group Projects and Events – Cloud Computing for the Corporation

UNIT- III CLOUD SERVICES
Collaborating on Calendars, Schedules and Task Management – Collaborating on Event Management – Collaborating on Contact Management – Collaborating on Databases – Storing and Sharing Files

UNIT- IV WEB BASED CLOUD COMPUTING

UNIT- V SECURITY IN CLOUD AND CASE STUDIES

LECTURE: 45 TUTORIAL: 0 TOTAL: 45

Reference Books
UNIT I INTRODUCTION TO VIRTUALIZATION

UNIT II VIRTUALIZATION INFRASTRUCTURE
Hardware Virtualization- Virtual Hardware Overview – Virtual Machine Products - Sever Consolidation – Server Pooling
- Types of Server Virtualization – Business cases for Sever-Virtualization –Selecting server Virtualization Platform

UNIT III NETWORK VIRTUALIZATION
Virtual File Systems – Process Virtualization – Layers in Virtualization – Players in Virtualization - Virtualizing the
Campus WAN Design – - Routing Protocols- Virtualization Aware Routing - Multi-Topology Routing – Case Studies of
Network Virtualization.

UNIT IV DESKTOP VIRTUALIZATION AND STORAGE VIRTUALIZATION
Desktop Virtualization- Preparing a Virtualization Machine Host- Storage Virtualization - iSCSI Architecture – Securing
iSCSI – SAN backup and recovery techniques – RAID – SNIA Shared Storage Model – Classical Storage Model –
Virtual Information Systems.

UNIT V SECURITY
Secure Virtual Infrastructure- Protect Virtual Infrastructure-Prepare Business Continuity -Update Management Structure

LECTURE: 45  TUTORIAL: 0 TOTAL:45

Reference Books
12CS35 SEMANTIC WEB

UNIT- I INTRODUCTION


UNIT- II RDF


UNIT-III ONTOLOGY


UNIT-IV LOGIC AND INFERENCE


UNIT – V APPLICATIONS OF SEMANTIC WEB TECHNOLOGIES


LECTURE: 45 TUTORIAL: 0 TOTAL:45

Reference Books

UNIT I SOA AND WEB SERVICES FUNDAMENTALS
Introduction – Evolution of SOA – Web services and primitive SOA: Web services framework, services as web services, service description, messaging.

UNIT II SOA AND WS EXTENSIONS
Activity management and Composition: message exchange patterns, service activity coordination, atomic transaction, business activities, orchestration, Choreography- Advanced messaging, meta data and security.

UNIT III SOA AND SERVICE ORIENTATION
Principles of service orientation: SO and enterprise, Anatomy, principles, SO and object orientation, native web services and support for SO – Service layers: SOA and contemporary SOA, service layer abstraction, application, business, orchestration service layers, agnostic services, service layer configuration scenarios.

UNIT IV BUILDING SOA: PLANNING AND ANALYSIS

UNIT V BUILDING SOA: TECHNOLOGY AND DESIGN

LECTURE: 45  TUTORIAL: 0  TOTAL:45

Reference Books
12CS37 DATA WAREHOUSING AND DATA MINING  

UNIT I INTRODUCTION TO DATA WAREHOUSE  
Data warehouse environment – Data warehouse design – Granularity – Data warehouse and technology.

UNIT II DATA WAREHOUSE ENVIRONMENT  
Distributed data warehouse - External data and data warehouse - Migration to architectural environment – Data warehouse and web - Unstructured data and data warehouse –Relational and Multi dimensional models.

UNIT III INTRODUCTION TO DATA MINING AND ASSOCIATION RULE MINING  
Data Mining – functionalities-Major issues - Data cleaning-Data Integration and Transformation-Data Reduction-Discretization and concept hierarchy generation- Efficient and scalable frequent item set mining methods-Mining various kinds of association rules-Association mining to correlation analysis-Constraint based association mining.

UNIT IV CLASSIFICATION AND CLUSTER ANALYSIS  
Classification introduction-Issues-Classification by decision tree induction-Bayesian Classification-Rule based classification-Classification by back propagation-other classification methods-Prediction- Cluster analysis-Types of data in cluster analysis-Categorization of major clustering methods- Partitioning methods-Hierarchical Methods-Density Based Methods-outlier analysis.

UNIT V GRAPH MINING AND MULTIMEDIA MINING  
Graph mining- Multirelational data mining-Multidimensional analysis and descriptive mining of complex data objects-Spatial data mining-Multimedia data mining-Text mining-Mining the world wide web-Data mining applications

LECTURE: 45  TUTORIAL: 0  TOTAL: 45

Reference Books
UNIT I

UNIT II

UNIT III
Clock-Driven Scheduling: Notation and Assumptions, Static, Timer Driven Scheduler, General Structure of Cyclic Schedules, Cyclic Executives, Improving the Average Response Time of Aperiodic Jobs, Scheduling Sporadic Jobs, Practical Consideration and Generalizations, Algorithms for Constructing Static Schedules, Pros and Cons of Clock-Driven Scheduling.

UNIT IV

UNIT V

Reference Books
UNIT I     INTRODUCTION
Conventional Software management – Evolution of software economics – Improving software economics: reducing the product size, improving software process and team effectiveness, improving automation, achieving required quality, peer inspection – Old way and the new.

UNIT II   SOFTWARE PROCESS MANAGEMENT FRAMEWORK
Life cycle phases - artifacts of the process – Model based software architecture – workflows of the process – checkpoints of the process.

UNIT III   SOFTWARE MANAGEMENT DISCIPLINES
Iterative process planning: workflow break down structures, guidelines, the cost and schedule estimating process, iteration planning, pragmatic planning – project organizations and responsibilities: line of business and project organizations, evolution of organizations – Process automation: tools, environment.

UNIT IV   PROCESS INSTRUMENTATION AND TAILORING

UNIT V    SOFTWARE MANAGEMENT
State of practice in software management – Change metrics – Case study: CCPDS-R – Process improvement and mapping to the CMM.

Lecture: 45, Tutorial: 0, Total: 45

Reference Books
12CS40 QUANTUM COMPUTING

UNIT 1 FOUNDATION

UNIT II QUBITS AND QUANTUM MODEL OF COMPUTATION

UNIT III QUANTUM ALGORITHMS – I

UNIT IV QUANTUM ALGORITHMS – II

UNIT V QUANTUM COMPUTATIONAL COMPLEXITY AND ERROR CORRECTION

LECTURE: 45, TUTORIAL: 0, TOTAL: 45

Reference Books
UNIT- I  INTRODUCTION
Introduction to Open sources – Need of Open Sources – Advantages of Open Sources– Application of Open Sources. GNU and linux installation – Boot process, Commands Using bash features, The man pages, files and file systems, File security, Partitions, Processes, Managing processes, I/O redirection, Graphical environment, Installing software, Backup techniques

UNIT- II  MYSQL DATABASE

UNIT - III  PHP PROGRAMMING

UNIT- IV  PYTHON PROGRAMMING

UNIT -V  OPEN SOURCE TOOLS AND TECHNOLOGIES

Reference Books