LAKIREDDY BALIREDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

(Approved by AICTE, Accredited by NBA, Affiliated to JNTUK, Kakinada and ISO 9001: 2008 Certified)

ACADEMIC REGULATIONS, COURSE STRUCTURE AND DETAILED SYLLABUS

2010 - 2011

M.TECH – COMPUTER SCIENCE AND ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

L.B.Reddy Nagar, MYLAVARAM – 521 230
Krishna District, Andhra Pradesh State
## I-SEMESTER

### Scheme of Instruction
<table>
<thead>
<tr>
<th>Code No.</th>
<th>Name of the Course</th>
<th>Periods per Week</th>
<th>Scheme of Examination</th>
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### ELECTIVE- I

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### II-SEMESTER

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**ELECTIVE - IV**

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*Department of Computer Science and Engineering, Lakireddy Bali Reddy College of Engineering, MYLAVARAM, Krishna (Dist) - 521 230.*
### III SEMESTER

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I SEMESTER
MCS101: DATA STRUCTURES AND ALGORITHMS ANALYSIS

Lecture : 4 Periods/week  Internal Marks : 40
Tutorial  External Marks : 60
Credits : 4  External Examination : 3 Hrs

UNIT - I


UNIT - II


UNIT - III


UNIT - IV


UNIT - V

Dynamic Programming Method - General method, All pairs shortest path problem, Optimal Binary Search Trees, 0/1 Knapsack problem, Traveling salesman problem, Back tracking Method - General Method, 8-Queens Problem, Sum of subsets, Graph coloring, Hamiltonian cycle, Branch and Bound Method - General Method, 0/1 Knapsack problem, Traveling salesperson.

TEXT BOOKS

REFERENCES

MCS102: DATABASE MANAGEMENT SYSTEMS

Lecture : 4 Periods/week
Internal Marks : 40
Tutorial
External Marks : 60
Credits : 4
External Examination : 3 Hrs

UNIT – I

Databases and Database users: Characteristics, Actors, Advantages, implications.
Database systems concepts and Architecture: Data Models, Schemas and Instances, DBMS Architecture and Data Independence, Languages and Interfaces, Environment, Classification. Data modeling using the Entity-Relationship model.

UNIT – II


UNIT – III


UNIT – IV


UNIT – V

TEXT BOOK


REFERENCES

MCS103: COMPUTER ORGANIZATION

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UNIT - I


UNIT – II

BASIC COMPUTER ORGANIZATION AND DESIGN: Introduction codes, Computer Registers, Computer Instructions, Timing and Control, Instruction cycle, Memory-Reference Instruction, Input-Output and Interrupt, Design of Basic Computer, Design of Accumulator Logic. MICRO PROGRAMMED CONTROL: Control Memory, Address Sequencing, Micro-Program example, Design of Control Unit.

UNIT – III

CENTRAL PROCESSING UNIT: General registers Organization, Stack Organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control, Reduced Instruction Set Computer (RISC). COMPUTER ARITHMETIC: Addition and Subtraction, Multiplication Algorithms, Division Algorithms Floating-point Arithmetic operations.

UNIT – IV

MEMORY ORGANIZATION: Memory Hierarchy, Main Memory, Auxiliary memory, Associative Memory Cache Memory, Virtual Memory, Memory Management hardware.

UNIT – V


TEXT BOOK


REFERENCES

MCS104: COMPUTER NETWORKS

Lecture : 4 Periods/week
Internal Marks : 40
Tutorial
External Marks : 60
Credits : 4
External Examination : 3 Hrs

UNIT - I


UNIT - II

Data link layer: DLL design issues- Elementary data link protocols- sliding window protocols. Medium Access Control Sublayer: Channel allocation problem- multiple access protocols- Ethernet- Data link layer switching.

UNIT - III

Network layer: Network layer design issues- Routing algorithms- congestion control algorithms-Quality of service- Internetworking- network layer in the Internet.

UNIT - IV

Transport layer: Transport service- Elements of transport protocols- Internet transport protocols: TCP & UDP.

UNIT - V


TEXT BOOK

REFERENCES

M.TECH (COMPUTER SCIENCE AND ENGINEERING), A.Y.2010-2011
UNIT - I


UNIT - II


UNIT - III


UNIT - IV

Input Modeling: Data Modeling, Identifying the Distribution with Data, Parameter Estimation, Goodness-of-Fit Tests, Selecting Input models without Data, Multivariate and Time series Input Models. Verification and Validation of Simulation Models: Model Building, verification and validation, verification of simulation models, calibration and validation of Models

UNIT - V


TEXT BOOK

MCS1052: SOFTWARE ENGINEERING

Lecture : 4 Periods/week  Internal Marks : 40
Tutorial  External Marks : 60
Credits : 4    External Examination : 3 Hrs

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UNIT – I


UNIT – II


UNIT – III


UNIT – IV


UNIT – V

TEXT BOOK

REFERENCES
MCS1053: PROGRAMMING LANGUAGES

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UNIT - I


UNIT – II

Syntax and Semantics: general Problem of describing Syntax and Semantics, formal methods of describing syntax - BNF, EBNF for common programming languages features, parse trees, ambiguous grammars, attribute grammars, denotational semantics and axiomatic semantics for common programming language features.

UNIT – III

Data types: Introduction, primitive, character, user defined, array, associative, record, union, pointer and reference types, design and implementation uses related to these types. Names, Variable, concept of binding, type checking, strong typing, type compatibility, named constants, variable initialization. Abstract Data types: Abstractions and encapsulation, introductions to data abstraction, design issues, language examples, C++ parameterized ADT, object oriented programming in small talk, C++, Java, C#, Ada 95

UNIT - IV

Expressions and Statements: Arithmetic relational and Boolean expressions, Short circuit evaluation mixed mode assignment, Assignment Statements, Control Structures – Statement Level, Compound Statements, Selection, Iteration, Unconditional Statements, guarded commands.

UNIT – V

Subprograms and Blocks: Fundamentals of sub-programs, Scope and lifetime of variable, static and dynamic scope, Design issues of subprograms and operations, local referencing environments, parameter passing methods, overloaded sub-programs, generic subprograms, parameters that are sub-program names, design issues for functions user defined overloaded operators, co routines. Concurrency: Subprogram level concurrency, semaphores, monitors, massage passing, Java threads, C# threads.
TEXT BOOKS


REFERENCES

1. Programming languages – Ghezzi, 3/e, John Wiley
2. Programming Languages Design and Implementation – Pratt and Zelkowitz, Fourth Edition PHI/Pearson Education
3. Programming languages – Watt, Wiley Dreamtech
MCS1054: SOFTWARE PROJECT MANAGEMENT

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UNIT – I

Introduction to Software Project Management, An Overview of Project Planning: Select Project, Identifying Project scope and objectives, infrastructure, project products and characteristics. Estimate efforts, Identify activity risks, Allocate resources.

UNIT – II


UNIT – III


UNIT – IV


UNIT – V


TEXT BOOK


REFERENCES

2. S. A. Kelkar; “Software Project Management”; PHI.
MCS1061: AUTOMATA AND COMPILER DESIGN

Lecture : 4 Periods/week  
Internal Marks : 40

Tutorial  
External Marks : 60

Credits : 4  
External Examination : 3 Hrs

UNIT - I

Formal Language and Regular Expressions: Languages, Definition Languages, regular expressions, Finite Automata – DFA, NFA. Conversion of regular expression to NFA, NFA to DFA.

Overview of Compilation: Phases of Compilation – Lexical Analysis, pass and Phases of translation, interpretation, bootstrapping, data structures in compilation – LEX lexical analyzer generator

UNIT - II

Context Free grammars: Context free grammars, derivation, parse trees, ambiguity grammars

Top down Parsing: Top down parsing – Backtracking, LL (1), recursive descent parsing, Predictive parsing, Preprocessing steps required for predictive parsing.

UNIT - III

Bottom up parsing: Shift Reduce parsing, LR and LALR parsing, Error recovery in parsing, handling ambiguous grammar, YACC – automatic parser generator.

UNIT - IV

Semantic analysis: Syntax directed translation, S-attributed and L-attributed grammars, Type checker. Intermediate code – abstract syntax tree, polish notation and three address codes, translation of simple statements and control flow statements

Run time storage: Storage organization, storage allocation strategies scope access to now local names, parameters, language facilities for dynamics storage allocation.

UNIT - V

Code optimization: Consideration for Optimization, Scope of Optimization, local optimization, loop optimization, frequency reduction, folding, DAG representation.


TEXT BOOKS


REFERENCES

Modern Compiler Construction in C, Andrew W. Appel Cambridge University Press.
Compiler Construction, LOUDEN, Thomson.
MCS1062: DIGITAL IMAGE PROCESSING

Lecture : 4 Periods/week  
Internal Marks : 40
Tutorial  
External Marks : 60
Credits : 4  
External Examination : 3 Hrs

UNIT – I


UNIT – II


UNIT – III


UNIT – IV


UNIT – V


TEXT BOOK


REFERENCES

MCS1063: ARTIFICIAL INTELLIGENCE

Lecture : 4 Periods/week
Internal Marks : 40

Tutorial
External Marks : 60

Credits : 4
External Examination : 3 Hrs

UNIT – I


UNIT – II


UNIT – III

KNOWLEDGE REPRESENTATION: First order logic – representation revisited – Syntax and semantics for first order logic – Using first order logic – Knowledge engineering in first order logic - Inference in First order logic – prepositional versus first order logic – unification and lifting – forward chaining – backward chaining - Resolution - Knowledge representation - Ontological Engineering - Categories and objects – Actions - Simulation and events - Mental events and mental objects

UNIT – IV


UNIT - V


TEXT BOOK
REFERENCES

MCS1064: COMPUTER GRAPHICS

Lecture : 4 Periods/week
Internal Marks : 40

Tutorial
External Marks : 60

Credits : 4
External Examination : 3 Hrs

UNIT – I


UNIT – II


UNIT – III


UNIT – IV

Three Dimensional Concepts and Object representations: 3D display methods-3DGraphics-Polygon Surfaces- Curved Lines and Surfaces- Quadratic Surfaces-Super Quadrics-Blobby Objects-Spline Representations- Cubic Spline methods-Bézier Curves and Surfaces- B Spline Curves and Surfaces.

UNIT – V

TEXT BOOK


REFERENCES

1. David F. Rogers; "Procedural Elements for Computer Graphics"; TMH
MCS151 : DATA STRUCTURES AND ALGORITHMS LAB

Lecture : 3 Periods/week
Internal Marks : 40

Tutorial
External Marks : 60

Credits : 2
External Examination : 3 Hrs

1. Write an interactive C program to create a linear linked list of customer names and their telephone numbers. The program should be menu-driven and include features for adding a new customer, deleting an existing customer and for displaying the list of all customers.

2. Write a C program to merge two circular linked lists.

3. Write a C program to create a circular linked list so that the input order of data items is maintained. Add the following functions to carry out the following operations on circular linked lists: a. Count the number of nodes. Write a C program to implement Polynomial ADT.

4. Write a C program that will remove a specified node from a given doubly linked list and insert it at the end of the list. Also write a function to display the contents of the list.

5. Write a C program to implement a queue in which insertions, deletions and display can be performed.

6. Write a program for evaluating post fixed expressions using array and linked list implementation of list ADT

7. Write a C program to construct a binary tree and do inorder, preorder and postorder traversals, printing the sequence of vertices visited in each case.

8. Sort a sequence of n integers using Quick sort technique and then search for a key in the sorted array using Binary search technique.

9. Write a C Program for Checking balanced parenthesis using array implementation of stack ADT

10. Write a program for Checking balanced paranthesis using linked list implementation of Stack ADT

11. Write a C program to Search tree ADT-Binary search ADT

12. Write a C program to Heap sort

13. Write a C program to Quick sort

14. Write a C Program to implement Merge Sort

15. Write a C Program to implement Shell Sort

16. Write a C Program to implement Multiway Merge Sort

17. Write a C Program to implement Poly Phase Merge Merge Sort

18. Write a C Program to implement hashing methods
MCS152 : DATA BASE MANAGEMENT SYSTEMS LAB

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<td>: 3 Hrs</td>
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1. Draw an ER diagram to capture the requirements as stated below:
   A database is needed to capture information pertaining to the running of various clubs by the recreation cell of an institution. Details such as name, date of birth, gender are needed for each member. Club details are needed such as the activity type (oratorical, music, dance, instrumental music etc) and contact phone number.
   Team details required to include team name and the days on which the team practices. Tutor details such as tutor name, address and telephone number are also needed, along with details of the skill each tutor is qualified in. Rules governing the involvement of members and tutors in the teams and clubs are as follows:
   Members may head only one team and every team has to have a head. Tutors teach at least one team and every team has at least one tutor.
   Every member must belong to at least one team and each team has a number of members. Every team must belong to a club and clubs must have at least one team.
   Every club has a member who is the president but a member may only be president of one club.
   Draw the ER Diagram for the above requirement. Map the ER diagram to the Relational Model. Create tables identified and insert five tuples in each of the tables created. The students are required to carefully take care of the constraints on each of the table.

2. Consider the following three tables – SAILORS, RESERVES and BOATS having the following attributes SAILORS (Salid, Salname, Rating, Age) RESERVES (Salid, Boatid, Day) BOATS (Boatid, Boat-name, Color) Use the above schema and solve the queries using SQL
   i) Find the name of sailors who reserved green boat.
   ii) Find the colors of boats reserved by "Ramesh"
   iii) Find the names of sailors who have reserved a red or green boat.
   iv) Find the Salid’s of sailors with age over 20 who have not registered a red boat.

3. Consider the following relational database schema:
   STUDENT (Student_id, Sname, Major, GPA) FACULTY (Faculty_id, fname, dept, designation, salary) COURSE (Course_id, Cname, Faculty_id) ENROL (Course_id, Student_id, grade) Use the above schema and solve the queries using SQL
   i) List the names of all students enrolled for the courses “CS-53”
   ii) List the names of students enrolled for the courses “CS-53” and have received “A” grade.
   iii) List all the departments having an average salary of above Rs20,000.
   iv) Give a 15% raise to salary of all faculty.
   v) List the names of all faculty members beginning with “R” and ending with letter “U”.

Regulations and Syllabi for DipIETE (CS) Examination 61
4. Write the SQL commands to create a database schema for the following relational schema:

CUSTOMER (CUST_ID, CUST_NAME, ANNUAL_REVENUE, CUST_TYPE)
CUST_ID must be between 100 and 10,000 ANNUAL_REVENUE defaults to $20,000 CUST_TYPE must be manufacturer, wholesaler, or retailer
SHIPMENT (SHIPMENT#, CUST_ID, WEIGHT, TRUCK#, DESTINATION, SHIP_DATE)
Foreign Key: CUST_ID REFERENCES CUSTOMER, on deletion cascade Foreign Key: TRUCK# REFERENCES TRUCK, on deletion set to null
DESTINATION REFERENCES CITY, on deletion set to null WEIGHT must be under 1000 and defaults to 10 TRUCK (TRUCK#, DRIVER_NAME) CITY (CITY_NAME, POPULATION)
Perform the following queries:
   a) What are the names of customers who have sent packages (shipments) to Sioux City?
   b) What are the names and populations of cities that have received shipments weighing over 100 pounds?
   c) List the cities that have received shipments from customers having over $15 million in annual revenue.

5. Consider the following schema for the COMPANY relational database Schema.

Perform the following queries:
   a) For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birthday.
   b) For each employee, retrieve the employee's name, and the name of his or her immediate supervisor.
   c) Make a list of all project numbers for projects that involve an employee whose last name is 'Smith' as a worker or as a manager of the department that controls the project.

Regulations and Syllabi for DipITE (CS) Examination 62
   d) Retrieve all employees in department '3' whose salary is between 10,000 and 20,000

6. Consider the Insurance database given below. The primary keys are underlined and the datatypes are specified.

PERSON (driver – id #: String, name: string, address: strong) CAR (Regno: string, model: string, year: int) ACCIDENT (report-number: int, date: date, location: string) OWNS (driver-id #:string, Regno:string) PARTICIPATED (driver-id: string, Regno:string, report-number:int, damage-amount:int)
   a) Create the above tables by properly specifying the primary keys and the foreign keys.
   b) Enter at least five tuples for each relation.
   c) Demonstrate how you I. Update the damage amount for the car with a specific Regno in the accident with report number 12 to 25000.
   II. Add a new accident to the database.
   d) Generation of suitable reports.

7. Consider the following relations for an order processing database application in a company.

CUSTOMER (cust #: int, cName: string, city: string) ORDER (order #: int, odate: date, cust #: int, ord-Amt: int) ORDER – ITEM (order #: int, Item #: int, qty: int) ITEM (item #: int, unitprice: int) SHIPMENT (order #: int, warehouse#: int, ship-date: date)
WAREHOUSE (warehouse #: int, city: string)
a) Create the above tables by properly specifying the primary keys and the foreign keys.
b) Enter at least five tuples for each relation.
c) Produce a listing: CUSTNAME, #ofOrders, AVG_ORDER_AMT, where the middle column is the total number of orders by the customer and the last column is the average order amount for that customer.
d) List the order# for orders that were shipped from all the warehouses that the company has in specific city.
e) Generation of suitable reports.

8. Consider the following database of student enrollment in courses and books adopted for each course:
a) Create the above tables by properly specifying the primary keys and the foreign keys.
b) Enter at least five tuples for each relation.
c) Produce a list of TEXT BOOKS (include Course #, Book-ISBN, Book-title) in the alphabetical order for courses offered by the 'CS' department that use more than two books.
d) List any department that has all its adopted books published by a specific publisher.
e) Generation of suitable reports.

Regulations and Syllabi for DipIETE (CS) Examination 63

9. The following tables are maintained by a book dealer:
AUTHOR (author-id:int, name:string, city:string, country:string) PUBLISHER
a) Create the above tables by properly specifying the primary keys and the foreign keys.
b) Enter at least five tuples for each relation.
c) Demonstrate how you increase the price of books published by a specific publisher by 10%.
d) Generation of suitable reports.

10. Consider the following database for a banking enterprise:
BRANCH(branch-name:string, branch-city:string, assets:real) ACCOUNT(accno:int, branch-name:string, balance:real) DEPOSITOR(customer-name:string, accno:int)
CUSTOMER(customer-name:string, customer-street:string, customer-city:string) LOAN(loan-number:int, branch-name:string, amount:real) BORROWER(customer-name:string, loan-number:int)
a) Create the above tables by properly specifying the primary keys and the foreign keys.
b) Enter at least five tuples for each relation.
c) Find all the customers who have at least two accounts at the Main branch.
d) Find all the customers who have an account at all the branches located in a specific city.
e) Generation of suitable reports.
II SEMESTER
MCS201: WEB TECHNOLOGIES

Lecture : 4 Periods/week  | Internal Marks : 40
Tutorial  | External Marks : 60
Credits   | External Examination : 3 Hrs

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UNIT - I

Introduction to Java, Classes: Declaring Objects, methods, Constructors, This keyword. Inheritance: Types of Inheritance, using Super, Multi level Hierarchy, Method Overriding, Dynamic Method Dispatch. Packages & Interfaces: Access Protection, Importing Packages

UNIT - II

Exception handling: Types of Exception, Uncaught Exception, Try and catch, Throw, Finally. Multithreaded Programming: creating Thread, Thread Priorities, Synchronizing threads, Inter Thread Communication. Event handling Applets: The Applet class, Applet Architecture, Skeleton, Display Methods, Parameter Passing to Applets.

UNIT - III


UNIT - IV


UNIT - V


TEXT BOOKS

2. Jim Keogh, 'The Complete Reference J2EE'; TMH (for Units-III,IV and V)

REFERENCES

1. Deitel & Deitel 'JAVA – How to program' 6th Edition - PHI
MCS202: OBJECT ORIENTED SOFTWARE ENGINEERING

<table>
<thead>
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<th>Lecture</th>
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<td>3 Hrs</td>
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UNIT - I

Introduction to Classical software Engineering: Historical, Economic and Maintenance aspects. Introduction to OO Paradigm: Different phases in structured paradigm and OO Paradigm. Software Process and different life cycle models and corresponding strengths and weaknesses.

UNIT - II


UNIT - III

Modules to objects: Cohesion and Coupling, Data Encapsulation and Information hiding aspects of Objects. Inheritance, polymorphism and Dynamic Binding aspects. Cohesion and coupling of objects. Reusability, Portability and Interoperability aspects.

UNIT - IV


UNIT - V

IIM Phases: Implementation, Integration and maintenance phases, OOSE aspects in these phases

TEXT BOOKS

1. Object oriented and Classical Software Engineering, 7/e, Stephen R. Schach, TMH
2. Object oriented and classical software Engineering, Timothy Lethbridge, Robert Laganier, TMH

REFERENCES

MCS203: DISCRETE MATHEMATICAL STRUCTURES

Lecture : 4 Periods/week  Internal Marks : 40
Tutorial   External Marks : 60
Credits    External Examination : 3 Hrs

UNIT - I


UNIT - II

Mathematical Induction, Elementary Combinations, Basics of counting, Combinations and permutations with & without repetitions.

UNIT - III

Recurrence relations, Generations Functions, Recurrence relations, Solving recurrence relations, the methods of characteristics roots.

UNIT – IV

Graphs, Relations & Digraphs, Relations & Directed graphs, Equivalence relations, Ordering relations, Lattices & enumerations, Operations on Relations, Paths & Closures, Directed graphs & Adjacency matrices.

UNIT – V


TEXT BOOK


REFERENCES

1. C.L.Liu, ‘Elements of Discrete Mathematics’
2. Rosen, ‘Discrete Mathematics’
MCS204: OPERATING SYSTEMS

Lecture : 4 Periods/week  Internal Marks : 40
Tutorial  External Marks : 60
Credits : 4  External Examination : 3 Hrs

UNIT - I


UNIT - II


UNIT - III

Synchronization-The Critical-Section Problem, Peterson’s Solution, Synchronization Hardware, Semaphores, Classic Problems of Synchronization, Monitors, Atomic Transactions, Deadlocks- System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.

UNIT - IV


UNIT - V

TEXT BOOK

REFERENCES
UNIT – I

Introduction to Business Intelligence:

UNIT – II

Basics of Data Integration (Extraction Transformation Loading), Concepts of data integration need and advantages of using data integration, introduction to common data integration approaches, introduction to ETL using SSIS, Introduction to data quality, data profiling concepts and applications.

UNIT – III

Introduction to Multi-Dimensional Data Modeling:
Introduction to data and dimension modeling, multidimensional data model, ER Modeling vs. multi dimensional modeling, concepts of dimensions, facts, cubes, attribute, hierarchies, star and snowflake schema, introduction to business metrics and KPIs, creating cubes using SSAS

UNIT – IV

Basics of Enterprise Reporting
Introduction to enterprise reporting, concepts of dashboards, balanced scorecards, introduction to SSRS Architecture, enterprise reporting using SSRS

UNIT – V

BI application areas, specification of these areas, BI in the company management, effects of BI applications.

TEXT BOOKS


REFERENCES

MCS2052: NETWORK SECURITY

Lecture : 4 Periods/week    Internal Marks : 40
Tutorial      External Marks : 60
Credits      External Examination : 3 Hrs

UNIT – I

Overview: Services, Mechanisms & Attacks, The OSI security Architecture, A Model for
Network Security. Classical Encryption Techniques: Symmetric Cipher model,
Substitution Techniques, Transposition Techniques, Rotor machines, Steganography.
Block Ciphers & The Data Encryption Standard: DES, Differential and Linear
Cyptanalysis, Block Cipher Modes of Operations. Advanced Encryption Standard:
Evaluation Criteria, AES Cipher.

UNIT – II

Contemporary Symmetric Ciphers: Triples DES, Blowfish, RC5, Characteristics of
Advanced Symmetric Block Ciphers. Introduction to Number Theory: Fermat’s and Euler’s
Theorems. Public-key Cryptography & RSA: principles of Public Key Cryptosystems. RSA
Algorithm.

UNIT – III

Key Management: Diffie-Hellman Key Exchange, Elliptic Curve Arithmetic and
Cryptography. Message Authentication & Hash functions: Authentication Requirements,
Authentication Functions, Message Authentication Codes, hash Functions. Hash
Algorithms: MD5 Message Digest Algorithm, Secure hash Algorithm.

UNIT – IV

Digital Signatures & Authentication: Digital Signatures, Authentication Protocols, Digital
Signature standards. Authentication Applications: Kerberos, X.509 Authentication

UNIT – V

Security Payload, Combining Security Associations, Key Management. Firewalls: Firewall
Design Principles, Trusted Systems.

TEXT BOOK


REFERENCES

1. Kahate; “Cryptography and Network Security”; PHI
2. Charlie Kaufman, Radia Perlman, Mike Speciner; "Network Security “; 2nd Edition,
   LPE
MCS2053 : DISTRIBUTED COMPUTING

Lecture : 4 Periods/week  
Tutorial  
Credits : 4

Internal Marks : 40  
External Marks : 60  
External Examination : 3 Hrs

UNIT- I

Introduction to Distributed System: Goals, Hardware concepts, Software concepts, and Client-Server model. Examples of distributed systems, Communication: Layered protocols, Remote procedures call, Remote object invocation, Message-oriented communication, Stream-oriented communication.

UNIT- II

Processes:Threads, Clients, Servers, Code Migration, Software agent, Naming:Naming entities, Locating mobile entities, Removing un-referenced entities, Synchronization:Clock synchronization, Logical clocks, Global state, Election algorithms, Mutual exclusion, Distributed transactions, Consistency and Replication:Introduction, Data centric consistency models, Client centric consistency models, Distribution protocols, Consistency protocols.

UNIT- III


UNIT- IV


UNIT- V

Database Integration, Scheme Translation, Scheme Integration, Query Processing Query Processing Layers in Distributed Multi-DBMSs, Query Optimization Issues. Transaction Management Transaction and Computation Model Multidatabase Concurrency Control, Multidatabase Recovery, Object Orientation And Interoperaibility Object Management Architecture CORBA and Database Interoperaibility Distributed Component Model COM/OLE and Database Interoperaibility, PUSH-Based Technologies
TEXT BOOKS

1. A. Tanenbaum, Distributed Systems: Principles and Paradigms

REFERENCES

MCS2054: ADVANCED COMPUTER ARCHITECTURE

Lecture: 4 Periods/week
Internal Marks: 40
Tutorial
External Marks: 60
Credits: 4
External Examination: 3 Hrs

UNIT-I
Fundamentals of computer design—technology trends—cost—measuring and reporting performance. Quantitative principles of computer design.

UNIT-II
Instruction set principles and examples—classifying instruction set—memory addressing—type and size of Operands—addressing modes for signal processing—operations in the instruction set—instructions for control Flow—encoding an instruction set—the role of compiler

UNIT-III
Instruction level parallelism (ILP)—over coming data hazards—reducing branch costs—high performance instruction delivery—hardware based speculation—limitation of ILP

UNIT-IV
Memory hierarchy design—cache performance—reducing cache misses penalty and miss rate—virtual memory—protection and examples of VM.

UNIT-V
Multiprocessors and thread level parallelism—symmetric shared memory architectures—distributed shared memory—Synchronization—multi threading.

TEXT BOOK
Computer Architecture: A quantitative approach 3rd edition
John L. Hennessy & David A. Patterson Morgan Kufmann (An Imprint of Elsevier)

REFERENCES
MCS2061: CLOUD COMPUTING

<table>
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UNIT - I

Foundations: Introduction to Cloud Computing, Migrating into a Cloud Enriching the 'Integration as a Service' Paradigm for the Cloud Era, Cloud Computing for Enterprise Applications.

UNIT - II


UNIT - III


UNIT - IV


UNIT - V

Applications: Architecting Applications for the Amazon Cloud, Massively Multiplayer Online Game Hosting on Cloud Resources, Building Content Delivery Networks Using Clouds, Resource Cloud Mashups.

TEXT BOOK

MCS2062 : WIRELESS SENSOR NETWORKS

Lecture : 4 Periods/week
Internal Marks : 40

Tutorial
External Marks : 60

Credits : 4
External Examination : 3 Hrs

UNIT - I


UNIT - II


UNIT - III


UNIT - IV

Transport Control protocols for WSN: Traditional transport control protocols, Transport Protocol Design Issues, Examples of Existing transport control protocols, Performance of Transport control protocols

UNIT - V

Middleware for WSN: Introduction, WSN Middleware principles, Existing middleware. Network Management for WSN: Network management design Requirements, Traditional network management models, Networks management design issues, MANNA

TEXT BOOK


REFERENCES

MCS2063 : E-COMMERCE

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</table>

UNIT- I

Overview of Electronic Commerce (EC), Electronic Commerce-Frame work, anatomy of E-Commerce applications, features and functions of e-commerce, e-commerce practices v/s traditional practices, scope and limitations of e-commerce.

UNIT- II


UNIT- III


UNIT - IV

Electronic payment systems - Digital Token-Based, Smart Cards, Credit Cards, Risks in Electronic Payment systems. Security of e-commerce: Setting up Internet security, maintaining secure information, encryption, digital signature and other security measures.

UNIT- V

TEXT BOOK

REFERENCES

HEAD
Department of Computer Science and Engineering
Lakireddy Bali Reddy College of Engineering
MYLAVARAM, Krishna (Dist) - 521 230.
MCS2064 : MOBILE COMPUTING

Lecture : 4 Periods/week  Internal Marks : 40
Tutorial     External Marks : 60
Credits : 4        External Examination : 3 Hrs

UNIT - I


UNIT - II

Medium access Control Techniques- SDMA, TDMA, FDMA, CDMA, Comparison. Mobile network Layer: Mobile IP, DHCP

UNIT - III

Mobile Transport Layer: Traditional TCP, Classical TCP Improvements, TCP over 2.5/3G Wireless networks, Performance Enhancing Proxies. Support For Mobility: File Systems,

UNIT - IV


UNIT - V


TEXT BOOK


REFERENCES

MCS251: WEB TECHNOLOGIES LAB.

<table>
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</table>

1. Write programs in Java to demonstrate the use of following components Text fields, buttons, Scrollbar, Choice, List and Check box
2. Write Java programs to demonstrate the use of various Layouts like Flow Layout, Border Layout, Grid layout, Grid bag layout and card layout
3. Write programs in Java to create applets incorporating the following features:
   (a) Create a color palette with matrix of buttons
   (b) Set background and foreground of the control text area by selecting a color from color palette.
   (c) In order to select Foreground or background use check box control as radio buttons
   (d) To set background images
4. Write programs in Java to do the following.
   (i) Set the URL of another server.
   (ii) Download the homepage of the server.
   (iii) Display the contents of home page with date, content type, and expiration date. Last modified and length of the home page.
5. Write programs in Java using sockets to implement the following:
   (i) HTTP request, (ii) FTP, (iii) SMTP, (iv) POP3
6. Write a program in Java for creating simple chat application with datagram sockets and datagram packets.
7. Write programs in Java using Servlets:
   (i) To invoke servlets from HTML forms, (ii) To invoke servlets from Applets
8. Write programs in Java to create three-tier applications using servlets for conducting on-line examination for displaying student mark list. Assume that student information is available in a database which has been stored in a database server.
9. Create a web page with the following using HTML
   (i) To embed a map in a web page, (ii) To fix the hot spots in that map
   (iii) Show all the related information when the hot spots are clicked.
10. Create a web page with the following.
    (i) Cascading style sheets,
    (ii) Embedded style sheets.
    (iii) Inline style sheets, (iv) Use our college information for the web pages.
MCS252: OBJECT ORIENTED SOFTWARE ENGINEERING LAB.

Lecture: 3 Periods/week  Internal Marks: 40
Tutorial  External Marks: 60
Credits: 2  External Examination: 3 Hrs

Prepare the following documents for Five of the Applications listed below using software engineering methodology.


2. Software requirement Analysis Describe the individual Phases / Modules of the project, Identify deliverables.

3. Software Design
   Use work products – Data dictionary, Use case diagrams and activity diagrams, build and test class diagrams,
   Sequence diagrams and add interface to class diagrams, DFD, ER diagrams

4. Software Development and Debugging using any Front end and Back end tool

5. Software Verification and Validation procedures

SUGGESTED LIST OF APPLICATIONS:

1. Student Marks Analyzing System
2. Quiz System
3. Online Ticket Reservation System
4. Payroll System
5. Course Registration System
6. Expert Systems
7. ATM Systems
8. Stock Maintenance
9. Real-Time Scheduler
10. Remote Procedure Call Implementation