KRISHNA UNIVERSITY
FACULTY OF ENGINEERING
SCHEME OF INSTRUCTION AND EXAMINATION
w.e.f. 2013-2014

**INFORMATION TECHNOLOGY**
**III B.Tech., SEMESTER – I**

| Sl. No | Subject Code | Subject | Scheme of Instruction | | | Scheme of Examination | | | Total | Credits |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Periods per week | | | University Exam Duration in Hours | Max Marks | | | |
| | | | Lecture | Tutorial | Practical / Drawing | | Sessional | University | | |
| 1 | 11CSE/INF311 | Formal Languages and Automata Theory | 4 | | -- | 3 | 30 | 70 | 100 | 4 |
| 2 | 11CSE/INF312 | Operating Systems | 4 | 1 | -- | 3 | 30 | 70 | 100 | 4 |
| 3 | 11CSE/INF313 | Database Management Systems | 4 | 1 | -- | 3 | 30 | 70 | 100 | 4 |
| 4 | 11CSE/INF314 | Computer Networks | 4 | 1 | -- | 3 | 30 | 70 | 100 | 4 |
| 5 | 11CSE/INF315 | Java Programming | 4 | | -- | 3 | 30 | 70 | 100 | 4 |
| 6 | 11CSE/INF316 | Professional Ethics and Human Values. | 4 | | -- | 3 | 30 | 70 | 100 | 4 |
| 7 | 11CSE/INF351 | Relational Database Applications Lab | - | | 3 | 3 | 30 | 70 | 100 | 2 |
| 8 | 11CSE/INF352 | Computer Networks Lab | -- | | 3 | 3 | 30 | 70 | 100 | 2 |
| 9 | 11CSE/INF353 | Java Programming Lab | -- | | 3 | 3 | 30 | 70 | 100 | 2 |
| 10 | 11GEN000 | Counseling, Proctor System, Activities of the Association | - | | 2 | -- | -- | -- | -- | -- |
| | | **TOTAL** | **24** | **3** | **11** | | **270** | **630** | **900** | **30** |

## 11CSE/INF 311 FORMAL LANGUAGE AND AUTOMATA THEORY

| | | | |
|---|---|---|---|
| Lectures | : 4 periods/week | Sessional marks | : 30 |
| Tutorials | : 0 | University Marks | : 70 |
| Credits | : 4 | University Exam | : 3 hours |

**UNIT – I** **(13 periods)**

**Automata:** Introduction to Automata, The central concepts of automata theory - Alphabets, Strings, Languages.

**Finite Automata:** An Informal picture of finite automata, Deterministic finite automata (DFA) - Definition of DFA, DFA processing strings, Notations for DFA, Extended transition function, the language of DFA, Non deterministic finite automata (NFA) – Definition of NFA, Extended transition function, the language of NFA,Equivalence of DFA and NFA Finite

**Automata with $\in$ transitions:** Use of $\in$ - transition, notation for an $\in$ - NFA, Epsilon closures, extended transitions and languages, Applications, Finite Automata with outputs(mealy to moore machines,moore to mealy machines).

**UNIT – II** **(11 periods)**

**Regular Expressions and Languages:** Regular expressions, finite automata and regular expressions, Algebraic laws of regular expressions.

**Properties of Regular Languages:** Proving languages are not regular – Pumping lemma for regular languages, Applications of the pumping lemma, Closure Properties of Regular Languages, Equivalence and minimization of automata – Minimization of DFA

**UNIT – III** **(11 periods)**

**Context Free Grammars:** Context Free Grammars, Parse Trees, Constructing parse trees, derivations and parse trees, ambiguous grammars.

**Context free languages:** Examination of null, $\in$ , unit productions, Normal form's for context- Free grammars(CNF,GNF), The pumping lemma for context free languages.

**UNIT – IV** **(11 periods)**

**Properties of Context free languages:** closure properties for context free languages, Decision properties for CFL's.

**Pushdown Automata:** Definition of the Pushdown automata, the languages of PDA, Equivalences of PDA's and CFG's.

**UNIT – V** **(09 periods)**

**Introduction to Turing Machines:** The Turing Machine, programming techniques for Turing machines,techiniques for turing machine model.

**Undecidability:** a language that is not recursively enumerable, an undecidable problem that is RE, Undecidability problems about TM, Post's Correspondence problem.

### TEXT BOOKS


1. John.E.Hopcroft, R.Motwani, & Jeffery.D Ullman, "Introduction to Automata Theory,Languages and Computations", Second Edition, , Narosa publication
2. G.P.Saradhi Varma and M.Tirupathi Rao, "Theory Of Computation Formal Language & Automata Theory ", First edition ,Scitech publications.


### REFERENCE BOOKS


1. Cohen, 'Computer Theory',
2. KLP Mishra & N.Chandrasekharan, 'Theory of Computation', PHI.
3. H.R.Lewis, C.H.Papadimitriou, "Elements of The theory of Computation".

## 11CSE/INF 312 OPERATING SYSTEMS

| | | | |
|---|---|---|---|
| Lectures | : 4 periods/week | Sessional marks | : 30 |
| Tutorials | : 1 | University Marks | : 70 |
| Credits | : 4 | University Exam | : 3 hours |

**UNIT I** **(15 periods)**

**Computer System Overview**: Basic Elements, Processor Registers, Instruction Execution, Interrupts, The Memory Hierarchy, Cache Memory, I/O Communication Techniques.

**Operating System Overview**: Objectives and Functions, Evolution, Major Achievements, Developments Leading to Modern OS, MS Windows Overview,

**Process Description & Control**: Process, States, Description, Control

**UNIT II** **(15 periods)**

**Threads, SMP and Microkernels**: Processes and Threads, Symmetric Multiprocessing, Microkernels, Thread and SMP Management

**Concurrency: Mutual exclusion and Synchronization**: Principles of Concurrency, Mutual Exclusion, Semaphores, Monitors, Message Passing, Readers /Writers Problem.



**UNIT III** **(15 periods)**

**Concurrency: Deadlock and Starvation**: Principles of Deadlock, Prevention, Avoidance and Detention of Deadlocks, An integrated Deadlock strategy, Dining Philosophers Problem

**Memory Management**: Requirements, Partitioning, Paging, Segmentation.

**Virtual Memory**: Hardware and Control Structures, OS Software, Windows Memory Management.

**UNIT IV** **(15 periods)**

**Uniprocessor Scheduling**: Types of Processor Scheduling, Scheduling Algorithms.

**Multiprocessor and Real-Time Scheduling**: Multiprocessor Scheduling, Real-Time Scheduling.

**I/O Management and Disk Scheduling**: I/O Devices, Organization of the I/O Function, OS Design Issues, I/O Buffering, Disk Scheduling, RAID, Disk Cache Windows I/O.

**File Management**: Overview, Organization and Access, Directories, Sharing, Record Blocking, Secondary Storage Management, Windows File System.



**UNIT V** **(10 periods)**

**Concepts of Unix Operating System**:

Traditional UNIX Systems, Modern UNIX Systems, UNIX SVR Process management,

Process Life Cycle, UNIX Memory Management, Traditional UNIX Scheduling, UNIX SVR 4 Scheduling, UNIX File Management.

**TEXT BOOKS**

1. William Stallings, “Operating Systems – Internals and Design Principles”, 5/e, Pearson.
2. Silberschatz & Galvin, ‘Operating System Concepts’, 5th edition, John Wiley & Sons (Asia) Pvt.Ltd.,2001.

**REFERENCE BOOKS**

1. Charles Crowley, ‘Operating Systems : A Design-Oriented Approach’, TMH 1998 edition.
2. Andrew S.Tanenbaum, ‘Modern Operating Systems’, 2nd edition, 1995, PHI.

## 11CSE/INF 313 DATA BASE MANAGEMENT SYSTEMS

| | | | |
|---|---|---|---|
| Lectures | : 4 periods/week | Sessional marks | : 30 |
| Tutorials | : 1 | University Marks | : 70 |
| Credits | : 4 | University Exam | : 3 hours |

**UNIT – I** **(14 periods)**

Databases and Database Users: Introduction - An Example - Characteristics of the Database Approach - Actors on the Scene - Workers behind the Scene - Advantages of Using the DBMS Approach - A Brief History of Database Applications - When Not to Use a DBMS

Database System Concepts and Architecture : Data Models, Schemas, and Instances - Three-Schema Architecture and Data Independence - Database Languages and Interfaces - The Database System Environment - Centralized and Client/Server Architectures for DBMSs - Classification of Database Management Systems

Data Modeling Using the Entity-Relationship (ER) Model : Using High-Level Conceptual Data Models for Database Design - An Example Database Application - Entity Types, Entity Sets, Attributes, and Keys - Relationship Types, Relationship Sets, Roles, and Structural Constraints - Weak Entity Types - Refining the ER Design for the COMPANY Database - ER Diagrams, Naming Conventions, and Design Issues

**UNIT – II** **(12 periods)**

**The Relational Data Model and Relational Database Constraints :** Relational Model Concepts - Relational Model Constraints and Relational Database Schemas - Update Operations, Transactions, and Dealing with Constraint Violations - Relational Database Design Using ER-to-Relational Mapping

**The Relational Algebra and Relational Calculus :** Unary Relational Operations: SELECT and PROJECT - Relational Algebra Operations from Set Theory - Binary Relational Operations: JOIN and DIVISION - Additional Relational Operations - The Tuple Relational Calculus - The Domain Relational Calculus

**SQL-99: Schema Definition, Constraints, Queries, and Views :** SQL Data Definition and Data Types - Specifying Constraints in SQL - Schema Change Statements in SQL - Basic Queries in SQL - More Complex SQL Queries - INSERT, DELETE, and UPDATE Statements in SQL - Views (Virtual Tables) in SQL

**UNIT – III** **(12 periods)**

**Disk Storage, Basic File Structures:** Introduction - Secondary Storage Devices - Buffering of Blocks - Placing File Records on Disk - Operations on Files - Files of Unordered Records (Heap Files) - Files of Ordered Records (Sorted Files) - Types of Single-Level Ordered Indexes - Multilevel Indexes - Dynamic Multilevel Indexes Using B-Trees and B+-Trees - Indexes on Multiple Keys

**Functional Dependencies and Normalization for Relational Databases** : Informal Design Guidelines for Relation Schemas - Functional Dependencies - Normal Forms Based on Primary Keys - General Definitions of Second and Third Normal Forms, Boyce-Codd Normal Form

**Relational Database Design Algorithms and Further Dependencies :** Properties of Relational Decompositions - Algorithms for Relational Database Schema Design - Multivalued Dependencies and Fourth Normal Form - Join Dependencies and Fifth Normal Form.

**UNIT – IV** **(10 periods)**

**Introduction to Transaction Processing Concepts and Theory:** Introduction to Transaction Processing - Transaction and System Concepts - Desirable Properties of

Transactions - Characterizing Schedules Based on Recoverability - Characterizing Schedules Based on Serializability

**Concurrency Control Techniques:** Two-Phase Locking Techniques for Concurrency Control - Concurrency Control Based on Timestamp Ordering – Multiversion Concurrency Control Techniques - Validation (Optimistic) Concurrency Control Techniques - Granularity of Data Items and Multiple Granularity Locking

**UNIT – V** **(12 periods)**

**Database Recovery Techniques :** Recovery Concepts - Recovery Techniques Based on Deferred Update - Recovery Techniques Based on Immediate Update - Shadow Paging

**Database Security :** Introduction to Database Security Issues - Discretionary Access Control Based on Granting and Revoking Privileges - Mandatory Access Control

## TEXT BOOK

1. Ramez Elmasri and Navate ,Fundamentals of Database Systems, 5th edition, Pearson Education.

## REFERENCE BOOKS

1. C.J.Date ,Introduction to Database Systems, Pearson Education
2. Raghurama Krishnan, Johannes Gehrke ,Data base Management Systems, 3rd Edition, TMH.
3. Silberschatz, Korth, ,Data base System Concepts, 5th edition, McGraw hill.

**11 CSE/INF 314** **COMPUTER NETWORKS**

| | | | |
|---|---|---|---|
| Lectures | : 4 periods/week | Sessional marks | : 30 |
| Tutorials | : 1 | University Marks | : 70 |
| Credits | : 4 | University Exam | : 3 hours |

**UNIT-I** **(12 periods)**

**INTRODUCTION**: **Uses of Computer Networks**: Business Applications, Home Applications, Mobile Users, Social Issues, **Network Hardware:** LANs, MANs, WANs. **Network Software:** Protocol Hierarchies, Design Issues for the Layers, Connection –Oriented and Connectionless Services, Service Primitives, The Relationship of Services to Protocols.
**Reference Models:** The OSI Reference Model, The TCP/IP Reference Model.
**Example Networks:** The Internet, Connection-Oriented Networks (X.25, Frame Relay & ATM), Ethernet.
**Network Layer**: **Network Layer Design Issues**: Store-and-Forward Packet Switching, Services Provided to the Transport Layer, Implementation of Connectionless Service, Implementation of Connection-Oriented Service, Comparison of Virtual-Circuit & Datagram Subnets.

**UNIT-II** **(13 periods)**

**Routing Algorithms**: The Optimality Principle, Shortest Path, Routing, Flooding, Distance Vector Routing, Link State Routing, Hierarchical Routing, Broadcast Routing, Multicast Routing, Routing for Mobile Hosts.
**Network Layer: Congestion Control Algorithms**: General Principles of Congestion Control, Congestion Prevention Policies, Congestion Control in Virtual-Circuit Subnets, Congestion Control in Datagram Subnets, Load Shedding, Jitter Control.
**Quality of Service:** Requirements, Techniques for Achieving Good Quality of Service, Integrated Services, Differentiated Services.
**Internetworking**: Networks Differences, Connecting Networks, Concatenated Virtual Circuits, Connection less Internetworking, Tunneling, Internetwork Routing, Fragmentation.

**UNIT-III** **(13 periods)**

**The Network Layer in the Internet**: The IP Protocol, IP Addresses, Internet Control Protocols, OSPF-The Interior Gateway Routing Protocol, BGP-The Exterior Gateway Routing Protocol, Internet Multicasting, Mobile IP,IPv6.

**The Transport Layer**: **The Transport Service**: Services Provided to the Upper Layers, Transport Service Primitives, Berkeley Sockets.
**Elements of Transport Protocols**: Addressing, Connection Establishment, Connection Release, Flow Control and Buffering, Multiplexing, Crash Recovery, Simple transport Protocol.

**UNIT-IV** **(11 periods)**

**The Internet Transport Protocol (UDP)**: Introduction to UDP, Remote Procedure Call, The Real-Time Transport Protocol.
**The Internet Transport Protocols (TCP)**: Introduction to TCP, The TCP Service Model, The TCP Protocol, The TCP Segment Header, TCP Connection Establishment, TCP Connection Release, Modeling TCP Connection Management, TCP Transmission Policy, TCP Congestion Control, TCP Timer Management, Wireless TCP & UDP Transactional TCP.
**Application Layer**: **The Domain Name System(DNS):** The DNS Name Space, Resource Records, Name Servers.

**UNIT-V** **(11 periods)**

**Electronic Mail**: Architecture & Services, The User Agent, Message Formats, Message Transfer, Final Delivery.
**The World Wide Web**: Architectural Overview, Static Web Documents, Dynamic Web Documents, HTTP – Hyper Text Transfer Protocol, Performance Enhancements.
**Multimedia**: Introduction to Digital Audio, Audio Compression, Streaming Audio, Internet Radio, Voice over IP, Introduction to Video, Video Compression, Video on Demand, The MBone – The Multicast Backbone.

**TEXT BOOK**

1. Tanenbaum, "Computer Networks", 4th Edition, (Pearson Education / PHI).

**REFERENCE BOOKS**


1. Kurose & Ross, "Computer Networks" – A Top-down approach featuring the Internet", Pearson Education – Alberto Leon – Garciak.
2. Leon-Gartia, Indra Widjaja, "Communication Networks Fundamental Concepts and Key Architectures", TMH.
3. Nader F.Mir, "Computer and Communication Networks", PHI

**11 CSE/INF 315** **JAVA PROGRAMMING**

| | | | |
|---|---|---|---|
| Lectures | : 4 periods/week | Sessional marks | : 30 |
| Tutorials | : | University Marks | : 70 |
| Credits | : 4 | University Exam | : 3 hours |

**UNIT-I** **(17 periods)**

**Introduction:** Introduction to java, data types, dynamic initialization, scope and life time, operators, control statements, arrays, type conversion and casting, finals & blank finals.

**Classes and Objects** : Concepts, methods, constructors, usage of static, access control, this key word, garbage collection, overloading, nested classes .

**Inheritance:** Basic concepts, access specifiers, usage of super key word, method overriding, final methods and classes, abstract classes, dynamic method dispatch, object class.

**Interfaces:** Differences between classes and interfaces, defining an interface, implementing interface, variables in interface and extending interfaces.

**Packages**: Creating a Package, setting CLASSPATH, Access control protection, importing packages.

**UNIT-II** **(13 periods)**

**Exception Handling:** Concepts of Exception handling, types of exceptions, usage of try, catch, throw, throws and finally keywords, Built-in exceptions, creating own exception sub classes.

**Multithreading :** Concepts of Multithreading, differences between process and thread, thread life cycle, Thread class, Runnable interface, creating multiple threads, Synchronization, thread priorities, inter thread communication, daemon threads, deadlocks, thread groups.

**UNIT-III** **(14 periods)**

**Applets:** Concepts of Applets, life cycle of an applet, creating applets, passing parameters to applets, accessing remote applet, Color class and Graphics

**Event Handling:** Events, Event sources, Event classes, Event Listeners, Delegation event model, handling events.

**UNIT-IV** **(14 periods)**

**AWT:** AWT Components, windows, canvas, panel, File Dialog boxes, Layout Managers, Event handling model of AWT, Adapter classes, Menu, Menu bar.

**Swing-I** – swings introduction, JApplet, JFrame and JComponent, Icons and Labels, text fields, buttons – The JButton class, Check boxes, Radio buttons.

**UNIT-V** **(10 Periods )**

**Swing- II:** Combo boxes, Tabbed Panes, Scroll Panes, Trees, and Tables.

**JDBC Conectivity :** JDBC connectivity , types of Jdbc Drivers, connecting to the database, JDBC Statements, JDBC Exceptions, Manipulations on the database, Metadata .

**TEXT BOOKS**

1. Herbert Schildt ,The Complete Reference Java J2SE 7th Edition, TMH Publishing Company Ltd, NewDelhi.
2. Cay Horstmann, John Wiley and Sons ,Big Java 2nd Edition, Pearson Education.

**REFERENCE BOOKS**

1. H.M.Dietel and P.J.Dietel, Java How to Program, Sixth Edition, Pearson Education/PHI
2. Cay.S.Horstmann and Gary Cornell, Core Java 2, Vol 1, Fundamentals,

Seventh Edition, Pearson Education.
3. Cay.S.Horstmann and Gary Cornell, Core Java 2, Vol 2, Advanced Features, Seventh Edition, Pearson Education.
4. Iver Horton, Wrox ,Beginning in Java 2, Publications.
5. Somasundaram,Java, Jaico.
6. Y.Daniel Liang,Introduction to Java programming, Pearson Publication

## 11CSE/INF 316 PROFESSIONAL ETHICS AND HUMAN VALUES

| | | | |
|---|---|---|---|
| Lectures | : 4 periods/week | Sessional marks | : 30 |
| Tutorials | : --- | University Marks | : 70 |
| Credits | : 4 | University Exam | : 3 hours |

**UNIT – I**

Human Values: Morals, Values and Ethics, Integrity, Work Ethic, Service Learning, Civic Virtue, Respect for Others, Living Peacefully, caring, Sharing, honesty, Courage, Valuing Time, Co-operation, Commitment, Empathy, Self Confidence, Character, Spirituality.

**UNIT – II**

Engineering Ethics: Senses of 'Engineering Ethics', Variety of model issues, Types of inquiry, Moral dilemmas, Moral Autonomy, Kohlberg's theory, Gilligan's theory, Consensus and Controversy, Professions and Professionalism, Professional Idealsand Virtues, Theories about right action, Self-interest, customs and Religion, Uses of Ethical Theories.

**UNIT – III**

Engineering as Social Experimentation: Engineering as Experimentation, Engineers as responsible Experimenters, Codes of Ethics, A Balanced Outlook on Law-the challenger case study.

**UNIT – IV**

Safety, Responsibility and Rights: Safety and Risk-Assessment of Safety and Risk, risk Benefit analysis and reducing risk. Collegiality and Loyalty, Respect for Authority , Collective Bargaining -Confidentiality , Conflicts of Interest , Occupational Crime, Professional Rights ,employee Rights , Intellectual Property Rights (IPR), Discrimination.

**UNIT – V**

Global Issues: Multinational Corporations , Environmental Ethics , Computer Ethics ,Weapons Development, Engineers as Managers , consulting Engineers, Engineers as Expert Witnesses and Advisors, Moral Leadership, Sample Code of Ethics like ASME, ASCE, IEEE, Institution of engineers (India), Indian Institute of Materials Management, Institution of electronics and telecommunication engineers(IETE), India, etc.



**TEXT BOOKS**

1. Mike Martin and Roland Schinzinger, Ethics in Engineering, McGraw Hill, NewYork 1996.
2. Govindarajan. M, Natarajan. S, Senthilkumar. V.S, Engineering Ethics, PHI, 2004.

**REFERENCE BOOKS**

1. Charles D Fleddermann, Engineering Ethics, Prentice Hall, New Jersey, 2004
2. Charles E Harris, Michael S Pritchard and Michael J Rabins, Engineering Ethics Concepts and Cases, Thomson Learning, United States, 2000.
3. John R Boatright, Ethics and the Conduct of Business, PHI,New Delhi, 2003.
4. Edmund G Seebauer and Robert L Barry, Fundamentals of ethics for Scientists and Engineers, Oxford University Press, 2001.

**11 CSE/INF 351** **RELATIONAL DATABASE APPLICATIONS LAB (USINGORACLE: SQL*PLUS, FORMS & REPORT TOOLS)**

| | | | |
|---|---|---|---|
| Practicals | : 3 periods/week | Sessional marks | : 30 |
| Tutorials | : --- | University Marks | : 70 |
| Credits | : 2 | University Exam | : 3 hours |

## LIST OF EXPERIMENTS

**Note: A minimum of TEN experiments shall be done and recorded.**

**I.Simple queries: selection, projection, sorting on a simple table**

i. Distinct output values
ii. Renaming attributes
iii. Computed attributes
iv. Simple-complex conditions (AND, OR, NOT)
v. Partial Matching operators (LIKE, %, _, *, ?)
vi. ASC-DESC ordering combinations
vii. Checking for Nulls

**II.Multi-table queries(JOIN OPERATIONS)**

i. Simple joins (no INNER JOIN)
ii. Aliasing tables – Full/Partial name qualification
iii. Inner-joins (two and more (different) tables)
iv. Outer-joins (restrictions as part of the WHERE and ON clauses)
v. Using where & having clauses

**III.Nested queries**

i. In, Not In
ii. Exists, Not Exists

**IV.Set Oriented Operations**

i. Union
ii. Difference
iii. Intersection
iv. Division

**V.DDL & TCL Commands.**

i. Creating objects: tables, views, users, sequences, Collections etc.
ii. Privilege management through the Grant/Revoke commands
iii. Transaction processing using Commit/Rollback
iv. Save points.

**VI.PL/SQL Programming I**

i. Programs using named and unnamed blocks
ii. Programs using Cursors, Cursor loops and records

**VII.PL/SQL Programming II**

i. Creating stored procedures, functions and packages
ii. Error handling and Exception
iii. Triggers and auditing triggers

**VIII.User Defined Types**

i. Creating Objects
ii. Creating User Defined Operators

**IX.Forms designing**

**X.Generating Reports**

**XI.Data base creation using schema builder**

**XII.Query execution using query builder**

**TEXT BOOKS**


1. **Kevin Loney ,Oracle Database 10g The Complete Reference , TMH Publishing Company Limited.**
2. **Scott Urman, Oracle 9i PL/SQL Programming , TMH Publishing Company Limited.**

**11 CSE/INF 352** **COMPUTER NETWORKS LAB**

| | | | |
|---|---|---|---|
| Practicals | : 3 periods/week | Sessional marks | : 30 |
| Tutorials | : --- | University Marks | : 70 |
| Credits | : 2 | University Exam | : 3 hours |

## LIST OF EXPERIMENTS

**Note: A minimum of FIFTEEN experiments shall be done and recorded**.

**LAB CYCLE – I**

**1.** Write a program to:
a. Read the dotted decimal IP address and print in the binary format.
b. Find the classification of an IP address.
c. Read the binary format IP address and print in the dotted decimal format
d. Find the network id, host id and the Subnet id of a given IP address.
**2.** Write a program to implement:
a. The Error – Detection Technique: Cyclic – Redundancy - Check.
b. Framing Methods: Bit stuffing & Character Stuffing
**3.** Write a program to implement the following Static - Routing algorithms:
a. Shortest – Path Routing (Using Dijkstra's).
b. Multicast Routing (Using Minimum Spanning Tree algorithms).
**4.** Write a program to implement the following Dynamic - Routing algorithm:
a. Distance - Vector Routing (Using Fulkerson – Ford or Bell man Ford).

**LAB CYCLE – II**:

To implement the following Client & Server Programs using **'C'** Language.
**5.** Iterative Server (TCP/UDP)
**6.** Simple Authentication Server (TCP/UDP)
**7.** Computational Server (TCP/UDP)
**8.** Concurrent Server (using Child Process/Threads)(TCP/UDP)
**9.** Simple FTP Server (TCP)
**10.** Secure Server(TCP)

**LAB CYCLE – III**:

**11.** Implementation of AES algorithm.
**12.** Implementation of RSA algorithm.
**13.** Key Exchange using Diffie-Hellman Approach.
**14.** Authentication using Digital Signature Algorithm.
**15.** Implementation of Firewalls.
**16.** Develop a simple application using any public key cryptosystems

**11 CSE/INF 353 JAVA PROGRAMMING LAB**

| | | | |
|---|---|---|---|
| Practicals | : 3 periods/week | Sessional marks | : 30 |
| Tutorials | : --- | University Marks | : 70 |
| Credits | : 2 | University Exam | : 3 hours |

**LIST OF EXPERIMENTS**

**Note: A minimum of TEN experiments shall be done and recorded**.

1. Write a java program to demonstrate static member, static method and static block.
2. Write a java program to demonstrate method overloading and method overriding.
3. Write a java program to demonstrate finals, blank finals, final methods, and final classes.
4. Write a java program to demonstrate synchronous keyword.
5. Write a java program to implement multiple inheritance.
6. Write a program to demonstrate packages.
7. Write a java program to crate user defined exception class and test this class.
8. Write am applet program to demonstrate Graphics class.
9. Write GUI application which uses awt components like label, button, text filed, text area, choice, checkbox, checkbox group.
10. Write a program to demonstrate MouseListener, MouseMotionListener, KeyboardListener, ActionListener, ItemListener.
11. Develop swing application which uses JTree, Jtable, JComboBox.
12. Write a JDBC Application to implement DDL and DML commands.

**11 GEN 000**

# Counselling, Proctor system, Activities of the Association

Periods per week: 02 Sessional Marks: Nil

Examination Marks: Nil

Programmes of this nature shall be once-in-a-week (for a duration of three periods), during the 1st, 2nd, 3rd, & 4th year (during all the semesters)

**The events to be conducted –and- the objectives of this kind of a programme are:**

1. A blend of students of 1st, 2nd, 3rd, 4th year B.Tech belonging to the same course (branch) of engineering, in smaller groups under the guidance of a faculty member (of the same course / branch of engineering) shall be there till they complete the four year course of study. (Example: Approximately 06 students of 1st year B.Tech ECE, 06 students of 2nd year B.Tech ECE, 06 students of 3rd year B.Tech ECE and 06 students of 4th year B.Tech ECE are to be attached to one of the faculty members of the department of ECE).
2. During the duration of 2 periods, a combination of a few of the following events shall be organized. On the same lines, during the subsequent week, a combination of a few other events of the following list shall be organized.
3. Blend of students of 1st to 4th year in a smaller group will enable reducing the gap between the so-called senior students and so-called junior students.
4. Periodic counselling
5. Guidance regarding filling-in the examination application forms etc
6. Guidance regarding filling-in scholarship application forms etc.
7. Motivating the students to appear for the competitive examinations such as **GATE** etc -and- guiding the students for such examinations.
8. Under the guidance of the faculty member a few students will be given a task of organizing programmes such as Quiz, Debates, Essay Writing, Elocution, Group discussions. That will enable the students who organize the events enrich their managerial skills as event-managers.
9. Conducting the competitions in one or other events of fine arts, such as Music, Dance, Drama, Mono action etc..
10. Sessions to inculcate in the minds of youth about time-management, morals, ethics.
11. Conducting technical events frequently, in one or other form (say Quiz, Written Test), would enable the students in the group to recollect and remember fundamentals of Engineering subjects.
12. Projects and/or Mini Projects under taken by the 4th / 3rd year students are to be shown (and to be explained) to the students of 2nd / 1st year students of the same course (branch) of Engineering. Such activities will give a platform to pool the ideas for improvisation of technical aspects of the Projects / Mini Projects.
13. Such periodic meetings will not only reduce the gap among the students, but also increase the rapport between the faculty members and students