# J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B. TECH. ELECTRONICS AND COMPUTER ENGINEERING

(COURSE STRUCTURE 2014-2015)

I YEAR I – SEMESTER

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Note: All End Examinations (Theory and Practical) are of three hours duration.

T- Tutorial      L— Theory      P— Practical      D— Drawing      C— Credits

Note: Candidate will register for 211 credits and shall obtain 204 credits for award of Degree.

HOD-ECM
ELECTRONICS & COMPUTER ENGINEERING SYLLABUS DETAILS (R14)

J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
DEPARTMENT Of ELECTRONICS & COMPUTER ENGINEERING.
II Year B.Tech – I Sem.

SWITCHING THEORY AND LOGIC DESIGN

Unit-1 Number System & Boolean Algebra and Switching Functions
Number systems: Base conversion methods, Complements of numbers, Codes- binary code, binary coded decimal & its properties, unit distance code, alpha numeric code, error detecting & correcting codes.
Boolean Algebra: Basic theorems & properties, switching functions, canonical & standard forms, algebraic simplification Digital logic gates, properties of XOR gates, universal gates, multilevel NAND/NOR realisations.

Unit-2 Minimization & Design Of Combinational Circuits

Unit-3 Sequential Machine Fundamentals

Unit-4 Sequential Circuit Design & Analysis
Introduction, State Diagram, Analysis of synchronous sequential circuits, Approaches to Design of synchronous sequential Finite State Machines, Design Aspects, State reduction, Design steps, realization of Flip Flops.
Counters-Design of single mode counter, ripple counter, ring counter, shift registers, shift register sequences, ring counter using shift register.

Unit-5
Sequential Circuits- Finite state machine-capabilities & limitations, Mealy & Moore model, minimization of completely specified machines, partition techniques & merger chart methods, concept of minimal cover table.
Algorithmic State Machines- Salient features of the ASM chart, simple examples, system design using data path & control sub systems, control implementations, examples of weighing machine & binary multiplexer.
TEXT BOOKS:
1. Switching & finite automata theory-Zvi kohavi, 2ed., TMH.

REFERENCES:
II Year B.Tech. ELECTRONICS & COMPUTER ENGINEERING-I Sem.

COMPLEX ANALYSIS

Unit-1 Linear ODE With Variable Coefficients And Series Solutions(Second Order Only)
Equations Reducible to constant coefficients-Cauchy’s & lagrange’s differential equations, motivation for series solutions, ordinary point & regular singular point of a differential equation,Transformation of non-zero singular point.Series solution to differential equations around zero.

Unit-2 Special Functions

Unit-3 Complex Functions – Differentiation & Integration

Unit-4 Power Series Expansions Of Complex Functions & Contour Integration
Radius of convergence – Expansion in Taylor’s series, Maclaurin’s series and Laurent series. Singular point – Isolated singular point – pole of order m – essential singularity. Residue – Evaluation of residue by formula and by Laurent series - Residue theorem. Evaluation of integrals of the type: (a) Improper real integrals $\int_{-\infty}^{\infty} f(x) dx$ (b) $\int_{c}^{c + 2\pi} f(\cos \theta, \sin \theta) d\theta$

Unit-5 Conformal mapping
Transformation of $z$-plane to $w$-plane by a function, Conformal Transformation, Standard Transformations-Translation, rotation & magnification, inversion & reflection, Transformations like $\log z$, $z^2$ & bilinear transformation, it’s properties, determination of bilinear transformation mapping 3 given points.

TEXT BOOKS:

REFERENCES:
J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
DEPARTMENT OF ELECTRONICS & COMPUTER ENGINEERING.

II Year B.Tech I-Sem.

ELECTRONIC DEVICES AND CIRCUITS

Unit-1

Special Purpose Electronic Devices: Principle of Operation & characteristics of tunnel diode(with the help of energy band diagram). Varactor diode, SCR & Semiconductor Photo diode.

Unit-2 Rectifiers and Filters
The p-n junction as a Rectifier, Half wave Rectifier, Full wave Rectifier, Bridge Rectifier, Harmonic components in a Rectifier Circuit, Inductor Filters, Capacitor Filters, L-Section Filters, π-Section Filters, Comparison of Filters, Voltage Regulation using Zener Diode.

Unit-3 Bipolar Junction Transistor & UJT

Unit-4 Transistor Biasing and Stabilization
Operating Point, The DC and AC Load lines, Need for Biasing, Fixed Bias, Collector Feedback Bias, Emitter Feedback Bias, Collector - Emitter Feedback Bias, Voltage Divider Bias, Bias Stability, Stabilization Factors, Stabilization against variations in $V_{BE}$ and $\beta$, Bias Compensation using Diodes and Transistors, Thermal Runaway, Thermal Stability.

Unit-5 Field Effect Transistor & FET Amplifiers
TEXT BOOKS:
3. Introduction to Electronic Devices and Circuits - Rober T. Paynter, PE.

REFERENCES:
Unit-1

**Oops Concepts:** Data abstraction, encapsulation, inheritance, benefits of inheritance, Polymorphism, Classes & objects, procedural & object oriented programming paradigm.

**Java Programming:** History of Java, Java buzzwords, data types, variables, scope and life time of variables, arrays, operators, expressions, control statements, type conversion and casting, simple java program, concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, parameter passing, recursion, nested and inner classes, exploring string class.

Unit-2

**Inheritance**
Hierarchical abstractions, Base class object, subclass, subtype, substitutability, forms of inheritance- specialization, specification, construction, extension, limitation, combination, benefits of inheritance, costs of inheritance. Member access rules, super uses, using final with inheritance, polymorphism- method overriding, abstract classes, the Object class.

**Interfaces**
differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces.

**Packages**
Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages.

**Inner Classes**
Uses of Inner classes, local inner classes, anonymous inner classes, static inner classes, examples.

Unit-3

**Exception handling**
Dealing with errors, Concepts of exception handling, benefits of exception handling, Termination or resumptive models, exception hierarchy, checked & unchecked exceptions, usage of try, catch, throw, throws and finally, & rethrowing exceptions, exception specification, built in exceptions, creating own exception sub classes.

**Multithreading**
Differences between multithreading and multitasking, thread life cycle, creating threads, thread priorities, synchronizing threads, interthread communication, producer consumer pattern.
Unit-4
Collection Frame Work In Java
Introduction to Java collections, Overview of Java collection Frame work, Generics, commonly used collection classes - Array list, linked list, vector, Hashtable, Stack, Enumeration, Iterator, String, tokenizer, Random, Scanner, properties.

Files
Streams - Byte streams, character streams, text I/O, binary I/O, random access file operations, file management using file class.

Connecting To Database
JDBC type 1 to 4 drivers, connecting to a database, querying a database & processing the results.

Unit-5
GUI Programing With Java

Event Handling
Events, Event sources, Event classes, Event Listeners, RelationB/W event sources & event listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.

Applets
Inheritance hierarchy for applets, Concepts of Applets, differences between applets and applications, life cycle of an applet, passing parameters to applets, applet security issues.

TEXT BOOKS:
1. Java; the complete reference, 7th editon, Herbert schildt, TMH.

REFERENCES:
1. Introduction to Java programming , Y. Daniel Liang, pearson education.
2. Thinking in Java, Bruce Eckel, pearson education.
3. Oop’s through Java, P. Radha Krishna, Universities Press.
Unit-1 Introduction to Electrical Circuits


Unit-2 Single Phase A.C Circuits

Unit-3 Network theorems
Tellegen’s, Superposition, Reciprocity, Thevenin’s, Norton’s, Maximum Power Transfer, Millman’s and Compensation theorems for d.c. and a.c. excitations.

Unit-4 DC Machines
Dc Machine- Principle & operation of DC generators , Different types of DC generators EMF equation of DC machine, OCC characteristics of DC shunt generator principle of operation Dc motor, back emf and torque equation of DC shunt motor torque speed characteristic of dc shunt motor , simple problems.

Unit-5 AC Machines
Principle, construction and operation if 1-phase transformer, emf equation operation of transformer on no load and load, equivalent circuit, OC & SC tests on 1-phasetransformer, transformer regulation,1- phase synchronous generator, Principle,construction & operation,characteristics.Principle operation of 1- phase induction motor,characteristics(elementary treatment only).

TEXT BOOKS:
1. Electrical Engineering Fundamental by Vincent Deltoro. PHI.
2. Electrical Circuits by Chakravathi, Dhanapat Rai & son.

REFERENCE BOOKS:
J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
DEPARTMENT OF ELECTRONICS & COMPUTER ENGINEERING.

II Year B.Tech. ELECTRONICS & COMPUTER ENGINEERING-I Sem.

ENVIRONMENTAL STUDIES

Unit-1 Ecosystems:
Definition, Scope and Importance of ecosystem, Concept of ecosystem, Classification of ecosystems, structure and structural components of ecosystem, Functions of eco system, Food chains, Food webs and ecological pyramids, Flow of energy, Biogeochemical cycles, Biomagnification, Ecosystem value, Services and carrying capacity, field visits.

Unit-2 Natural Resources:
Classification of resources: living and non-living resources, renewable and non-renewable resources. Water resources: use and over utilization of surface and ground water, floods and droughts, dams: benefits and problems. Minerals resources: use and exploitation, environment effects of extracting and using mineral resources case studies. Energy resources: growing energy needs, renewable and non-renewable energy resources, use of alternate energy sources case studies.

Unit-3 BioDiversity & Biotic Resources:
Introduction, definition, genetic, species and ecosystem diversity, Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and intrinsic values, India as mega diversity nation, Hotspots of biodiversity, field visits, Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, conservation of biodiversity: in-situ and ex-situ conservation. National biodiversity act.

Unit-4 Environmental Pollution & Control:

Global Environmental Problems & Global Efforts:
Unit-5
Environmental Policy, Legislation & Environmental Impact Assessment (EIA):

Towards Sustainable Future:
Concept of sustainable development, threats to sustainability, population and its explosion, crazy consumerism, environmental education. urban sprawl, human health, environmental ethics, environmental economics, concept of green building, Ecological food print, life cycle assessment (LCA), Low carbon life cycle.

TEXT BOOKS:
2. Environmental studies by Erach Bharucha 2005, university grants commission, university press.

REFERENCES:
PART A: (Only for Viva-voice Examination)
ELECTRONIC WORKSHOP PRACTICE (in 3 lab sessions):
1. Identification, Specifications, Testing of R, L, C Components (Color Codes), Potentiometers, Switches (SPDT, DPDT, and DIP), Coils, Gang Condensers, Relays, Bread Boards, PCB’s
2. Identification, Specifications and Testing of Active Devices, Diodes, BJT’s, Low power JFET’s, MOSFET’s, Power Transistors, LED’s, LCD’s, SCR, UJT.
3. Study and operation of
   • Multimeters (Analog and Digital)
   • Function Generator
   • Regulated Power Supplies
   • CRO.

PART B: (For Laboratory Examination – Minimum of 10 experiments)
1. Forward & Reverse Bias Characteristics of PN Junction Diode.
2. Zener diode characteristics and Zener as voltage Regulator.
3. Input & Output Characteristics of Transistor in CB Configuration.
4. Input & Output Characteristics of Transistor in CE Configuration.
5. Half Wave Rectifier with & without filters
6. Full Wave Rectifier with & without filters
7. FET characteristics
12. SCR characteristics.
13. UJT Characteristics

PART C:
Equipment required for Laboratories:
1. Regulated Power supplies (RPS) - 0-30 V
2. CRO’s - 0-20 MHz
3. Function Generators - 0-1 MHz
4. Multimeters
5. Decade Resistance Boxes/Rheostats
6. Decade Capacitance Boxes
7. Ammeters (Analog or Digital) - 0-20 μA, 0-50μA, 0-100μA, 0-200μA, 0-10 mA.
8. Voltmeters (Analog or Digital) - 0-50V, 0-100V, 0-250V
9. Electronic Components - Resistors, Capacitors, BJTs, LEDs, SCRs, UJTs, FETs, MOSFETs, diodes Ge& Si type, Transistors – npn, pnp type).
Objectives:

- To make the student learn an object oriented way of solving problems.
- To teach the student to write programs in Java to solve the problems

Recommended Systems/Software Requirements:

- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space
- JDK Kit. Recommended

**Week 1:**

a) Write a Java program that prints all real solutions to the quadratic equation \( ax^2 + bx + c = 0 \). Read in \( a, b, c \) and use the quadratic formula. If the discriminate \( b^2 - 4ac \) is negative, display a message stating that there are no real solutions.

b) The Fibonacci sequence is defined by the following rule:

The first two values in the sequence are 1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and non recursive functions to print the nth value in the Fibonacci sequence.

**Week 2:**

a) Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.

b) Write a Java program to multiply two given matrices.

c) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use StringTokenizer class of java.util)

**Week 3:**

a) Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.

b) Write a Java program for sorting a given list of names in ascending order.

c) Write a Java program to make frequency count of words in a given text.

**Week 4:**

a) Write a Java program that reads a file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.

b) Write a Java program that reads a file and displays the file on the screen, with a line number before each line.

c) Write a Java program that displays the number of characters, lines and words in a text file.
Week 5:
a) Write a Java program that:
   i) Implements stack ADT.
   ii) Converts infix expression into Postfix form
   iii) Evaluates the postfix expression

Week 6:
a) Develop an applet that displays a simple message.
b) Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named “Compute” is clicked.

Week 7:
Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, *, % operations. Add a text field to display the result.

Week 8:
a) Write a Java program for handling mouse and key events.

Week 9:
a) Write a Java program that creates three threads. First thread displays “Good Morning” every one second, the second thread displays “Hello” every two seconds and the third thread displays “Welcome” every three seconds.
b) Write a Java program that correctly implements producer consumer problem using the concept of inter thread communication.

Week 10:
Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException Display the exception in a message dialog box.

Week 11:
a) Write a java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green.
   When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.
b) Write a Java program that allows the user to draw lines, rectangles and ovals.

Week 12:
a) Write a java program to create an abstract class named Shape that contains an empty method named numberOfSides ( ).Provide three classes named Trapezoid, Trangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides ( ) that shows the number of sides in the given geometrical figures.
b) Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines
correspond to rows in the table. The elements are separated by commas. Write a java program to
display the table using Jtable component.

TEXT BOOKS:
   Education/PHI
2. Programming with Java, M.P.Bhave and S.A.Patekar, Pearson Education
3. Big Java, 2nd
9. The Art, Philosophy, and Science of OOP with Java, R. Miller, R. Kasparian, SPD.
The following experiments are required to be conducted as compulsory experiments:

1. Verification of locus diagram
2. Series and parallel resonance RL and RC circuits
3. Verification of superposition and reciprocity theorem
4. Verification of thevenin’s and nortans theorem
5. Verification of maximum power transfer theorem
6. Verification of millimans theorem
7. Verification of compensation theorem
8. Transient response of RL and RC circuits
9. OC & SC TEST of 1-phase transformer
10. Swinburne’s test on DC shunt machines
11. Load test on DC shunt motor
12. Determination of self, mutual inductances and co-efficient of coupling
UNIT-I: INTRODUCTION TO PHP:
Declaring variables, data types, arrays, strings, operators, expressions, control structures, functions, reading data from web form controls like text boxes, radio buttons, lists etc., Handling File Uploads, Connecting to database (MYSQL as reference), executing simple queries, handling results, handling sessions and cookies.

FILE HANDLING IN PHP:
File Operations like opening, closing, reading, writing, appending, deleting etc. on text and binary files, listing directories.

UNIT-II:
XML:
Introduction to XML, Defining XML tags, their attributes and values, Document Type Definition, XML Schemas, Document Object Model, XHTML.

Parsing XML Data:
DOM and SAX parsers in Java.

UNIT-III:
INTRODUCTION TO SERVLETS:
Common Gateway Interface (CGI), Lifecycle of a servlet, deploying a servlet. The Servlet API, Reading Servlet parameters, Reading Initialization parameters, Handling HTTP Request & Responses, Using Cookies and Sessions, connecting to a database using JDBC.

UNIT-IV:
INTRODUCTION TO JSP:
The Anatomy of a JSP Page, JSP Processing, Declarations, Directives, Expressions, Code Snippets, Implicit objects, Using Beans in JSP Pages, Using COOKIES and session for session tracking, connecting to database in JSP.

UNIT-V:
CLIENT SIDE SCRIPTING:
Introduction to Javascript: Javascript language-declaring variables, scope of variables, functions, event handlers (on click, onsubmit etc.), Document Object Model, Form validation.
Simple AJAX application.
TEXT BOOKS
1. Programming world wide web-sebesta, pearson.
2. Java: the complete reference, 7th edition, Herbert Schildt, TMH.
3. Core SERVELETS AND JAVA SERVER PAGES VOLUME 1: CORE TECHNOLOGIES
   By Marty Hall and Larry Brown Pearson (Units-5,6,7,8).

REFERENCE BOOKS
1. Web programing, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech
   (Units-1,2,3).
2. Internet & World Wide Web- How to program by Dietel& Nieto PHI/Pearson Education Asia.
4. Murach’s beginning JAVA JDK 5, Murach, SPD.
9. Beginning Web Programming- Jon Duckett WROX.
Unit-1
Single Stage Amplifiers
Classification of Amplifiers – Distortion in Amplifiers, Analysis of CE, CC and CB Configurations with simplified Hybrid Model, Analysis of CE amplifier with Emitter Resistance and Emitter follower, Miller’s Theorem and its dual, Design of Single Stage Amplifier using BJT

Multi Stage Amplifiers

Unit-2 BJT Amplifiers & MOS Amplifiers
BJT Amplifiers-Frequency Response:

MOS Amplifiers:
Basic concepts, MOS Small signal model, Common source amplifier with Resistive load.

Unit-3 Feedback Amplifiers & Oscillators
Feedback Amplifiers:

Oscillators:

Unit-4 Large Signal Amplifiers:

Unit-5 Tuned Amplifiers

TEXT BOOKS:
2. Electronic Devices and Circuits – S.Salivahanan, N.Suresh Kumar, A.Vallavaraj, 2 ed., 2009, TMH.

REFERENCES:
2. Introductory Electronics Devices and Circuits – Robert T.Paynter, 7ed. 2009, PEI.
UNIT-I
Introduction:
Algorithms, pseudo code for expressing algorithms, Performance Analysis - space complexity, Time complexity, Asymptotic Notation - Big oh notation, Omega notation, Theta notation and Little oh notation, Probabilistic analysis, Amortized complexity.

Divide and conquer:
General method, applications - Binary search, Quick sort, Merge sort, Strassen’s Matrix Multiplication.

UNIT-II
Searching and Traversal Techniques:
Efficient non-recursive binary tree traversal algorithms, Disjoint set operations, union and find algorithms, Spanning tree, Graph traversals - Breadth first search and Depth first search, AND/OR graphs, game trees, connected components, Bi-connected components.

UNIT-III
Greedy method:
General method, applications - job sequencing with deadlines, 0/1 knapsack problem, minimum cost spanning tree, Single source shortest path problem.

Dynamic Programming:
General method, applications - Multistage graphs, Optimal binary search tree, 0/1 knapsack problem, All pairs shortest path problem, Travelling sales person problem, Reliability design.

UNIT-IV
Backtracking:
General method, applications - n-queen problem, sum of subsets problem, graph coloring, Hamilton cycles.

Branch and Bound:
General method, applications - Travelling sales person problem, 0/1 knapsack problem - LC Branch and Bound solution, FIFO Branch and Bound solution.

UNIT-V
NP-Hard and NP-Complete problems:
Basic concepts, Non-deterministic algorithms, NP-Hard and NP-Complete classes, NP-Hard problems, Cook’s theorem.
TEXT BOOKS:
2. Design and Analysis Algorithms - Parag Himanshu Dave, Himanshu Bhalchandra Dave Publisher: Pearson

REFERENCES:
Unit-1 Basic Computer Organization
Functions of CPU, I/O units, Memory, Instructions: instruction formats - One Address, Two Addresses, Zero Addresses & Three Addresses & comparison, addressing modes with numeric examples: program control-status bit conditions, conditional branch instructions, program interrupts: Types of interrupts.

Unit-2 Input-Output Organization
Input-Output Interface, I/O bus & modules, I/O Vs memory bus, Isolated Vs memory mapped I/O, Asynchronous data transfer Modes of Transfer-Strobe control, Hand shaking; Asynchronous serial transfer- Asynchronous communication interface, Modes of transfer-Programmed I/O, Interrupt driven I/O, DMA, DMA controller, DMA transfer, IOP-CPU IOP, Communication, Intel 8089 IOP.

Unit-3 Memory Organizations
Memory hierarchy, memories, RAM, ROM chips, Memory Address map, Memory connection to CPU, Associate memory, Cache memory, data cache, instruction cache, miss & hit ratio, Access time, associative, set associative mapping, waiting into cache, introduction to virtual memory.

Unit-4 8086 CPU Pin Diagram
Special functions of general purpose registers, segment register, concept of pipelining, 8086 flag register, Addressing modes of 8086.

Unit-5 8086 Instruction Formats
Assembly language programs involving branch & call instructions, sorting, evaluation of arithmetic expressions.

TEXT BOOKS:

REFERENCES:
J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
DEPARTMENT Of ELECTRONICS & COMPUTER ENGINEERING.
II Year B.Tech – II Sem.
OPERATING SYSTEM

Unit-1 Operating System Introduction
Operating systems objectives & functions, computer system architecture, OS structure, OS operations, evolution of OS-simple batch, multiprogramming, time shared, personal computer, parallel, distributed, real-time & special purpose systems, OS services, User OS interface, system calls, types of system calls, system programs, OS design & implementation, OS structure, virtual machines.

Unit-2 Process & CPU Scheduling

Process Co-ordination
Process Synchronization, critical section problem, peterson’s solution, synchronization hardware, semaphores & classic problems of synchronization, monitors, case studies: linux, windows.

Unit-3 Memory Management & Virtual Memory
Logical & physical address space, swapping, contiguous allocation, paging, structure of page table, segmentation, segmentation with paging, virtual memory, demand paging, performance of demand paging, page replacement, page replacement algorithms, allocation of frames, trashing.

Unit-4 File System Interface
The concept of a file, Access methods, Directory structure, file system mounting, File sharing protection.

File System Implementation

Mass-storage structure
Overview of Mass-storage structure, Disk structure, Disk attachment, Disk scheduling, Swap-space management, Disk management.

Unit-5 Principles of Deadlock
System model, Deadlock characterization, methods of handling deadlocks, Deadlock prevention, Detection and avoidance, Recovery from deadlock.
Protection

TEXT BOOKS:

REFERENCES:
5. An Introduction to Operating Systems, P.C.P, Bhatt, PHI.
I) Design and Simulation in Simulation Laboratory using any Simulation Software
2. Common Source Amplifier.
3. Two Stage RC Coupled CE Amplifier.
4. RC Phase Shift Oscillator Using Transistor.

II) Testing in the Hardware Laboratory (6 Experiments)
A) Any Three Circuits Simulated in Simulation Laboratory
B) Any three of the following
1. Class A Power Amplifier (with transformer load)
2. Class C power Amplifier
3. Single Tunned Voltage Amplifier
4. Hartley & Colpitt’s Oscillator
5. Darlington Pair
6. MOS CS Amplifier

Equipment required for the laboratory
1. For software simulation of electronic circuits
   i) computer systems with latest specifications.
   ii) connected in LAN(optional).
   iii) OS(Windows XP).
   iv) Suitable simulation software.
2. For hardware simulation of electronic circuits
   i) R.P.S(0-30v).
   ii) CRO’s.
   iii) Function Generators.
   iv) Multimeters.
   v) Components.
3. Win XP/Linux etc.
Week-1:
Design the following static web pages required for an online book store web site.

1) HOMEPAGE:
The static home page must contain three frames.
Top frame, left frame, right frame.

2) LOGIN PAGE:

3) CATOLOGUE PAGE:
The catalogue page should contain the details of all the books available in the web site in a table.

Week-2:
4) CART PAGE:
The cart page contains the details about the books which are added to the cart.

5) REGISTRATION PAGE:
create a “registration form” with the following fields

1) Name(text fields)
2) Password(password field)
3) E-mail id(text field)
4) Phone number(text field)
5) Sex(radio button)
6) Date of birth(3 select boxes)
7) Languages known(heck boxes-english,telugu,hindi,tamil)
8) Address(text area)
**Week-3:**
**VALIDATION:**
Write JavaScript to validate the following fields of the above registration page.

1) name

2) password

3) E-mail id

4) Phone number

**Week-4:**
Design a webpage using CSS (cascading style sheets) which includes the following:

1) Use different font, styles:

2) Set a background image for both the page and single elements on the page.

3) Control the repetition of the image with the background -repeat property.

4) Define styles for links as

   A:link

   A:visited

   A:active

   A:hover

5) Work with layers

6) Add a customized cursor

**Week-5:**
Write an XML file which display the book information which includes the following:

1) Title of the book

2) Author Name

3) ISBN number

4) Publisher name

5) Edition

6) Price
Write a document Type Definition (DTD) to validate the above XML file. Display the XML file as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns.

Use XML schemas XSL and CSS for the above purpose.

**Week-6:**
**VISUAL BEANS:**
Create a simple visual bean with a area filled with a color.

The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.

The color of the area should be changed dynamically for every mouse click.

The color should also be changed if we change the color in the “property window”.

**Week-7:**
1) Install TOMCAT web server and APACHE.
While installation assign port number 4040 to TOMCAT and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.

2) Access the above developed sati web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.

Access the pages by using the urls: [http://localhost:4040/rama/books.html](http://localhost:4040/rama/books.html) (for tomcat)


**Week-8:**
**USER Authentication:**
Assume four users user1, user2, user3 and user4 having the passwords pwd1, pwd2, pwd3 and pwd4 respectively. Write a servelet for doing the following.

1. Create a Cookie and add these four user id’s and passwords to this Cookie.

2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies. If he is a valid user (ie., user-name and password match) you should welcome him by name(user-name) else you should display “You are not an authenticated user”. Use init-parameters to do this. Store the user-names and passwords in the webinf.xml and access them in the servelet by using the getInitParameters() method.
**Week-9:**
Install a database(Mysql or Oracle).
Create a table which should contain at least the following fields:name,password,email-id,phone number(these should hold the data from the registration form)

Practice ‘JDBC’ connectivity.

Write a java program/servlet/JSP to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.

Insert the details of the users who register with the web site,whenever a new user clicks the submit button in the registration page(week 2).

**Week-10:**
Write a JSP which does the following job:
Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form.Authenticate the user when he submits the login form using the user name and password from the database(similar to week8 instead of cookies)

**Week-11:**
Create tables in the database which cotain the details of items(books in our case like book name ,price ,Quantity ,Amount) of each category.Modify your catalogue page (week2) I suh a way that you should connect to the database and extract data from the tables and display them in the catalogue page using JDBC.

**Week-12:**
HTTP is a stateless protocol. Session is required to maintain the state. The user may add some items to cart page for the selected items. He can check the cart page for the selected items. He may visit the catalogue again and select some more items.Here our interest is the selected items should be added to the old cart rather than a new cart.
Multiple users can do the same thing at a time(ie,.from different systems in the LAN using the ip-address instead of localhost).This can be achieved through the use of sessions.Every user will have his own session which will have his own session which will be created after his usefull login to the website.When the user logs out his session should get invalidated(by using the method session invalidate ()).

Modify your atalogue ad art JSP pages to achieve the above mentioned functionality using sessions.
1. Simulate the following CPU scheduling algorithms
   a) Round Robin  b) SJF
   c) FCFS         d) Priority
2. Simulate all file allocation strategies
   a) Sequential   b) SJF
   c) Linked
3. Simulate MVT and MFT
4. Simulate all Files Organization Techniques
   a) Single level directory  b) Two level
   c) Hierarchical           d) DAG
5. Simulate Bankers Algorithm for Dead Lock Avoidance
6. Simulate Bankers Algorithm for Dead Lock Prevention
7. Simulate all page replacement algorithms
   a) FIFO           b) LRU
   c) LFU
8. Simulate paging technique of memory management.