

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY UGC AUTONOMOUS Bhaskar Nagar, Moinabad(M), RR Dist , Telangana-500075
COMPUTER SCIENCE AND ENGINEERING
COURSE STRUCTURE – R14

I B.Tech – I Semester

Sl. No	Code	Subject	L	T-P-D	C
1	C110A	English	3	0-0-0	3
2	C110B	Mathematics - I	4	1-0-0	4
3	C110C	Engineering Physics	3	1-0-0	3
4	C115A	Computer Programming	3	1-0-0	3
5	C113E	Engineering Drawing - I	1	0-0-3	3
6	C1101	Computer Programming Lab	0	0-3-0	2
7	C1102	Engineering Physics Lab	0	0-3-0	2
8	C1104	Engineering Workshop	0	0-3-0	2
9	C1105	English Lab	0	0-3-0	2
		Total	14	3-12-3	24

I B.Tech – II Semester

Sl. No	Code	Subject	L	T-P-D	C
1	C120A	Technical English	3	0-0-0	3
2	C120B	Mathematics - II	4	1-0-0	4
3	C120D	Engineering Chemistry	3	0-0-0	3
4	C125A	Data Structures	3	1-0-0	3
5	C120F	Professional Ethics	3	0-0-0	3
6	C120E	Mathematical Methods	4	1-0-0	4
7	C1201	Data Structures Lab	0	0-3-0	2
8	C1203	Engineering Chemistry Lab	0	0-3-0	2
9	C1204	IT Workshop	0	0-3-0	2
		Total	20	3-9-0	26

II B.Tech – I Semester

Sl. No	Code	Subject	L	T-P-D	C
1	C210A	Probability and Statistics	3	1-0-0	3
2	C216A	Mathematical Foundations of Computer	3	1-0-0	3
3	C215A	Advanced Programming in C++ and Java	4	1-0-0	4
4	C210B	Environmental Studies	3	0-0-0	3
5	C212C	Basic Electrical Engineering	4	0-0-0	4
6	C214C	Electronic Devices and Circuits	4	0-0-0	4
7	C2105	Electronic Devices and Circuits Lab	0	0-3-0	2
8	C2112	Basic Electrical Engineering Lab	0	0-3-0	2
9	C2113	Advanced Programming Lab	0	0-3-0	2
		Total	21	3-9-0	27

II B.Tech – II Semester

Sl. No	Code	Subject	L	T-P-D	C
1	C226C	Digital Logic Design & Computer Organization	3	1-0-0	3
2	C225A	Database Management Systems	4	0-0-0	4
3	C226A	OOPS Through PYTHON	4	1-0-0	4
4	C225B	Operating Systems	4	0-0-0	4
5	C226B	Design and Analysis of Algorithms	3	1-0-0	3
6	C2219	OOPS Through PYTHON Lab	0	0-3-0	2
7	C2220	Operating Systems Lab	0	0-3-0	2
8	C2221	Database Management Systems Lab	0	0-3-0	2
9	C2222	Comprehensive Assignment	0	0-0-0	2
10	C2223	Gender Sensitization	0	0-3-0	2
		Total	18	3-12-0	28

III B.Tech – I Semester

Sl. No	Code	Subject	L	T-P-D	C
1	C316D	Principles of Programming Languages	3	1-0-0	3
2	OPEN ELECTIVE:		3	0-0-0	3
3	C315A	Formal Languages and Automata Theory	3	1-0-0	3
4	C315B	Web Technologies	4	1-0-0	4
5	C315C	Computer Networks	4	0-0-0	4
6	C315D	Distributed Computing	4	0-0-0	4
7	C3112	Web Technologies Lab	0	0-3-0	2
8	C3113	Computer Networks Lab	0	0-3-0	2
9	C3114	Multi-core Programming Lab	0	0-3-0	2
		Total	21	3-9-0	27

III B.Tech – II Semester

Sl. No	Code	Subject	L	T-P-D	C
1	C326H	Software Engineering	3	0-0-0	3
2	C325A	Linux Programming	4	1-0-0	4
3	C326G	Object Oriented Analysis and Design	4	1-0-0	4
4	ELECTIVE - I:		3	0-0-0	3
	C326I	Information Retrieval Systems			
	C326J	Computer Forensics			
	C325B	Semantic Web and Social Networks			
	C326C	Ad hoc and Sensor Networks			
5	C325C	Compiler Design	4	1-0-0	4
6	C3215	Linux Programming Lab	0	0-3-0	2
7	C3216	Case Tools Lab	0	0-3-0	2
8	C3217	Compiler Design Lab	0	0-3-0	2
9	C3218	Industrial Internship	0	0-0-0	2
Total			18	3-9-0	26

IV B.Tech – I Semester

Sl. No	Code	Subject	L	T-P-D	C
1	C415A	Information Security	4	0-0-0	4
2	C416J	Software Testing Methodology	4	0-0-0	4
3	C415B	Data Warehousing and Data Mining	4	1-0-0	4
4	ELECTIVE - II:		3	0-0-0	3
	C416D	Software Architecture and Design			
	C415C	Database Security			
	C416K	Web Services			
	C415D	Quantum Computing			
5	ELECTIVE - III:		3	0-0-0	3
	C416F	Software Project Management			
	C415E	Image processing and Pattern			
	C415F	Mobile Computing			
	C416L	Soft Computing			
6	C415G	Computer Graphics	3	1-0-0	3
7	C4113	Software Testing Lab	0	0-3-0	2
8	C4114	Data Warehousing and Mining Lab	0	0-3-0	2
9	C4115	Soft Skills Lab - I	0	0-3-0	2
Total			21	3-9-0	27

IV B.Tech – II Semester

Sl. No	Code	Subject	L	T-P-D	C
1	C420A	Management Science for Engineers	4	0-0-0	4
2	ELECTIVE – IV:		3	1-0-0	3
	C425A	Cloud Computing			
	C425B	Enterprise Computing			
	C426A	Advanced Mobile Computing			
	C426B	Visual Programming Techniques			
3	ELECTIVE – V:		3	1-0-0	3
	C425C	Big Data Analytics			
	C426C	Internet of Things			
	C426D	Cyber Security			
	C425D	Machine Learning			
4	C4221	Soft skills Lab -II	0	0-3-0	2
5	C4222	Industry Oriented Mini Project	0	0-0-0	2
6	C4223	Seminar	0	0-6-0	2
7	C4224	Project Work	0	0-15-0	10
8	C4225	Comprehensive Viva	0	0-0-0	2
		Total	10	2-24-0	28

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

L – Lecture, T – Tutorial, P – Practical, D – Drawing, C – Credits.

OPEN ELECTIVE:	
C316O	Intellectual Property Rights
C316P	Disaster Management
C315O	e-Commerce
C313Q	Fundamentals of Operation Research

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
PROBABILITY & STATISTICS

(Common to Civil,MECH,CSE,IT,Mining)

B.Tech. CSE	L	T-P-D	C
II Year - I Semester	3	1-0-0	3

UNIT - I :

Probability

Review of Probability. Definitions of Random variables (Discrete and continuous).

Distributions

Binomial, Poisson & normal distributions related properties . Sampling distributions –Sampling distribution of means (σ known and Unknown).

UNIT - II:

Testing of Hypothesis

Testing of Hypothesis I: Tests of hypothesis point estimations – interval estimations. Large samples, Null hypothesis - Alternate hypothesis type I, & type II errors – critical region, confidence interval for mean testing of single variance. Difference between the mean.

Testing of Hypothesis II: Confidence interval for the proportions. Tests of hypothesis for proportions single and difference between the proportions.

UNIT - III :

Small samples

Confidence interval for the t- distribution – Tests of hypothesis – t - distributions, F- distributions, χ^2 distribution. Test of Hypothesis.

UNIT - IV:

Correlation & Regression: Coefficient of correlation – Regression Coefficient – The lines of regression – The rank correlation

Curve Fitting: Fitting of straight-second degree curve- exponential curve-power curve by method of Least squares.

UNIT - V:

Queuing Theory: Arrival Theorem - Pure Birth process and Death Process M/M/1 Model .

Time Series Analysis: Time series – utility of time series analysis, components of time series. Preliminary adjustments before analyzing time series. Measurement of trend by the method of least squares, method of moments.

Text Books:

1. Grewal B.S, “Higher Engineering Mathematics”, Khanna publications, 42nd edition 2012
2. Advanced Engineering Mathematics by Jain and S.R.K. Iyengar, Narosa Publications.

Reference Books:

1. Engineering Mathematics-I by T.K.V. Iyanar & B.Krishna Gandhi & Others, S.Chand
2. Engineering Mathematics-I by G.Shankar Rao, I.K.International Publications.
3. KREYSZIG. E, “Advanced Engineering Mathematics” JohnWiley & Sons Singapore, 10th edition, 2012.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE
(Common for CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - I Semester	3	1-0-0	3

UNIT - I:

Mathematical Logic:

Statements and notations, Connectives, Well formed formulas, Truth Tables, tautology, equivalence implication, Normal forms, Quantifiers, universal quantifiers.

Predicates:

Predicative logic, Free & Bound variables, Rules of inference, Consistency, proof of contradiction, Automatic Theorem Proving.

UNIT - II:

Relations:

Properties of Binary Relations, equivalence, transitive closure, compatibility and partial ordering relations, Lattices, Hasse diagram.

Functions:

Inverse Function Composition of functions, recursive Functions, Lattice and its Properties.

Algebraic structures:

Algebraic systems Examples and general properties, Semi groups and monoids, groups, sub groups, homomorphism, Isomorphism.

UNIT - III:

Elementary Combinatorics:

Basis of counting, Combinations & Permutations, with repetitions, Constrained repetitions, Binomial Coefficients, Binomial Multinomial theorems, the principles of Inclusion – Exclusion. Pigeon hole principles and its application.

UNIT - IV:

Recurrence Relation:

Generating Functions, Function of Sequences Calculating Coefficient of generating function, Recurrence relations, solving recurrence relation by substitution and Generating funds. Characteristics roots solution of In homogeneous Recurrence Relation.

UNIT - V:

Graph Theory:

Representation of Graph, DFS, BFS, Spanning Trees, planar Graphs. Graph Theory and Applications, Basic Concepts Isomorphism and Sub graphs, Multi graphs and Euler circuits, Hamiltonian graphs, Chromatic Numbers.

Text Books:

- 1. Elements of DISCRETE MATHEMATICS-** A computer Oriented Approach- C L Liu, D P Mohapatra. Third Edition, Tata McGraw Hill.
- 2. Discrete Mathematics** by RK Bisht, HS Dhami, Oxford University Press.

Reference Books:

1. **Discrete Mathematics for Computer Scientists & Mathematicians**, J.L. Mott, A. Kandel, T.P. Baker, PHI.
2. **Discrete and Combinational Mathematics- An Applied Introduction-5th Edition** – Ralph. P.Grimaldi.Pearson Education
3. **Discrete Mathematics and its Applications**, Kenneth H. Rosen, Fifth Edition.TMH.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
ADVANCED PROGRAMMING IN C++ AND JAVA
(Common to CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - I Semester	4	1-0-0	4

UNIT - I:

C++ Overview- Concepts of Classes ,Objects, C++ Programming Structure, Constructors and destructors, parameter passing methods, method and Constructor Over Loading, Inline functions, static class members, this pointer, friend functions, Operator Overloading, Generic Programming- Function and class templates, I/O Streams.

UNIT - II:

Overview Of Java Language : Java History – Features of java, java Programming Structure, Java Tokens, Constants, Variables, Expressions, Overview of arrays and strings, Concept of Classes ,objects, accessing class members, constructors ,overloading of methods and constructors, This ,static members, String Buffer class, Wrapper classes, Command Line Arguments.

UNIT - III:

Inheritance and Interfaces: Defining a sub class, inheritance types, sub class constructor, Final, super, Runtime polymorphism in java, runtime polymorphism using virtual functions in C++. Abstract methods and classes, visibility control, Defining Interfaces, extending interfaces, implementing interfaces.

Packages: Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, Exploring java.io, java.util.

UNIT - IV:

Exception Handling and Multithreaded Programming: Types of errors-Compile time and Run time errors, Exceptions, Types of Exceptions, Syntax of Exception handling code, Multiple catch statements, Using finally statement, Throwing our own exceptions.

Introduction to threads: Creating Threads, life cycle of a thread, Thread priority, synchronization, and daemon Threads.

UNIT - V:

Applet Programming: Introduction, how applet differ from applications, building applet code, applet life cycle, passing parameters to applets.

Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse, window and keyboard events, Adapter classes.

Swing - Introduction, components, containers, exploring swing- JApplet, JFrame and JComponent, Icons and Labels, text fields, buttons – The JButton class, Check boxes, Radio buttons, Combo boxes, Tabbed Panes, Scroll Panes, Trees, and Tables.

Text Books:

1. **Object Oriented Programming with C++**, 6e, E Balagurusamy ,Tata McGraw-Hill Education
2. **Java: the complete reference**, 7th editon, Herbert schildt, TMH.

Reference Books:

1. **C++: The Complete Reference**, 5th Edition, Herbert schildt, TMH.
2. **Understanding OOP with Java**, updated edition, T. Budd, Pearson eduction.
3. **Object Oriented Programming with JAVA**, 4e, E Balagurusamy ,Tata McGraw-Hill Education.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
ENVIRONMENTAL STUDIES

(Common to EEE,ECE,CSE,IT,ECM)

B.Tech. CSE	L	T-P-D	C
II Year - I Semester	3	0-0-0	3

UNIT - I:

Ecosystems & Natural Resources, Biodiversity:

Classification of Resources: Living and Non-Living resources, Renewable and Non-Renewable resources. Water resources: use and over utilization, Land resources, land degradation, Forest resources, Mineral resources uses & Exploitation Energy resources: growing energy needs, use of alternate energy sources. Concept of ecosystem, Classification of ecosystem, Functions of ecosystem, Food chains, Food webs and ecological pyramids, Flow of energy, Biogeochemical cycles, Biomagnifications, carrying capacity.

UNIT - II:

Species, Ecosystem Diversity, Hotspots, Value Of Biodiversity, Threats To Biodiversity, Conservation Of Biodiversity: In-Situ And Ex-Situ Conservation & Environmental Pollution And Control:

Classification of pollutions and pollutants, causes, effects of water, air, noise pollution, Introduction to control technologies: Water (primary, secondary, tertiary), Air(particulate and gaseous emissions), Soil(conservation and remediation), Noise(controlling devices) Solid waste, (Municipal) types, collection and disposal methods, characteristics of e-waste & hazardous waste, biomedical waste management. Biological disasters, pandemic and epidemics, Biological warfare.

UNIT - III:

Global Environmental Problems And Global Efforts:

Green house effect, Green House Gases (GHG), Global Warming, Sea level rise, climate change and their impacts on human environment. Ozone depletion and Ozone depleting substances (ODS). Deforestation and desertification, International conventions/protocols: Earth Summit, Kyoto Protocol and Montreal Protocol, green-belt-development, Concept of Green Building, Clean Development Mechanism (CDM). Biological disasters, pandemic and epidemics, Biological warfare.

UNIT - IV:

Environmental Impact Assessment (Eia) And Environmental Management Plan:

Definition of Impact, classification of impacts, methods of baseline data acquisition. Impacts on different components: such as human health resources, air, water, flora, fauna and society, EIA guide lines as per ministry of environment & forest, impact assessment methodologies. Environmental Impact Statement (EIS). Environmental management plan (EMP).

UNIT - V:

Environmental Policy, Legislation, Rules And Regulations & Towards Sustainable Future:

Concept of Sustainable Development, Threats to Sustainability, Strategies for achieving Sustainable development, Environmental Ethics, Environmental Economics, Concept of Green Computing, Green chemistry and low Carbon life styles.: National Environmental Policy, Environmental Protection Act: Air (Prevention and control of pollution) Act-1981, Water (Prevention and control of pollution) Act-1974, Water pollution Cess Act-1977, Forest Conservation Act, solid waste (biomedical waste and hazardous waste)management and handling rules.

Text Books:

1. **TEXT BOOK OF ENVIRONMENTAL Science and Technology** by M.Anji Reddy 2007
2. **Principles of Environmental Science and Engineering** by P.Venugopal Rao

Reference Books:

1. **Introduction to Environmental Studies** by K.Mukkanti
2. **Tata McgrawHill** : Introduction to Environmental Studies by Benny Joseph
3. **Environmental Studies** by Erach Bharucha 2005, University Grants Commission, University Press.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

BASIC ELECTRICAL ENGINEERING
(Common to CSE, IT & Mining branches)

B.Tech. CSE	L	T-P-D	C
II Year - I Semester	4	0-0-0	4

UNIT - I:

Introduction to Electrical Circuits: ohm's law, basic circuit components, Kirchhoff's laws. Simple problems.

Network Analysis: Basic definitions, types of elements, types of sources, resistive networks, inductive networks, capacitive networks, series parallel circuits, star delta and delta star transformation. Network theorems- Superposition, Reciprocity Thevenin's, Norton's, Maximum power transfer theorems and simple problems.

UNIT - II:

Alternating Quantities:

Principle of ac voltages, waveforms and basic definitions, root mean square and average values of alternating currents and voltage, form factor and peak factor, phasor representation of alternating quantities, the J operator and phasor algebra, analysis of ac circuits with single basic network element, single phase series circuits.

UNIT - III:

D.C Generators and D.C motors:

Principle of operation of dc machines, types of D.C generators, e.m.f equation in D.C generator. Principle of operation of dc motors, types of D.C motors, losses and torque equation, losses and efficiency calculation in D.C generator.

UNIT - IV:

A.C. Machines :

Transformer- Principles of operation, Constructional Details, Ideal Transformer and Practical Transformer, Losses, Transformer Test, Efficiency and Regulation Calculations (All the above topics are only elementary treatment and simple problems). Three phase induction motor, principle of operation, slip and rotor frequency, torque (simple problems).

UNIT - IV:

Basic Instruments:

Introduction, classification of instruments, operating principles, essential features of measuring instruments, Moving coil permanent magnet (PMMC) instruments, Moving Iron of Ammeters And Voltmeters (elementary Treatment only) Single phase dynamo wattmeter.

Text Books:

1. **Basic Electrical & Electronics Engineering** by D.P.Kothari & I.J.Nagarath, TMH, 2013.
2. **Basic Electrical Engineering** - by M.S.Naidu and S. Kamakshiah – TMH.

Reference Books:

1. **Basic Electrical Engineering** - by T.K.Nagasarkar and M.S. Sukhija Oxford University Press.
2. **Electrical and Electronic Technology**-by Hughes – Pearson Education
3. **Theory and Problems of Basic Electrical Engineering** by D.P.Kothari & I.J. Nagrath PHI.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

ELECTRONIC DEVICES AND CIRCUITS

(Common to EEE,ECE,CSE,IT,ECM)

B.Tech. CSE	L	T-P-D	C
II Year - I Semester	4	0-0-0	4

UNIT - I:

P-N Junction Diode

Qualitative Theory of p-n Junction, p-n Junction as a Diode, Diode Equation, Volt-Ampere Characteristics, Temperature dependence of VI characteristic, Ideal versus Practical – Resistance levels (Static and Dynamic), Transition and Diffusion Capacitances, Diode Equivalent Circuits, Load Line Analysis, Breakdown Mechanisms in Semi Conductor Diodes, Zener Diode Characteristics.

UNIT - II:

Special Purpose Electronic Devices

Principle of Operation and Characteristics of Tunnel Diode (with the help of Energy Band Diagram) and Varactor Diode, Principle of Operation of Schottky Barrier Diode, SCR, and Semiconductor Photo Diode. Introduction to UJT and UJT characteristics

Diode Applications: 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 - III:

Bipolar Junction Transistor

The Junction Transistor, Transistor Current Components, Transistor as an Amplifier, Transistor Construction, BJT Operation, BJT Symbol, Common Base, Common Emitter and Common Collector Configurations, Limits of Operation , BJT Specifications.

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 β , Bias Compensation using Diodes and Transistors, Thermal Runaway, Thermal Stability.

UNIT - IV:

Small Signal Low Frequency BJT Models

BJT Hybrid Model for CE, CB and CC Configuration, simplified H- parameter model Determination of h-parameters from Transistor Characteristics, Comparison of CB, CE, and CC Amplifier Configurations, Conversion of h-parameters CE to CB, CE to CC, vice versa.

UNIT - V:

Field Effect Transistor

The Junction Field Effect Transistor (Construction, principle of operation, symbol) – Pinch-off Voltage - Volt-Ampere characteristics, Biasing of FET, FET as Voltage Variable Resistor, Comparison of BJT and FET. The JFET Small Signal Model, Generalized FET amplifier, common source Amplifier, common Gate Amplifier and common Drain Amplifier,

MOSFET: MOSFET (Construction, principle of operation, symbol), MOSFET Characteristics in

Enhancement and Depletion modes.

Text Books:

1. **Electronics Devices and Circuits** by David Bell Oxford press.
2. **Millman's Electronic Devices and Circuits** – J. Millman, C.C.Halkias, and Satyabrata Jit, 2ed. 1998, TMH.

Reference Books:

1. **Electronic Devices and Circuits** – R.L. Boylestad and Louis Nashelsky, 9 ed., 2006, PEI/PHI.
2. **Integrated Electronics** – J. Millman and Christos C. Halkias, 1991 ed., 2008, TMH.
3. **Electronic Devices and Circuits** – K. Lal Kishore, 2 ed., 2005, BSP.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
ELECTRONIC DEVICES AND CIRCUITS LAB
(Common for CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - I Semester	0	0-3-0	2

PART A: (Only for Viva-voce 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)

- EXPERIMENT 1.** Forward & Reverse Bias Characteristics of PN Junction Diode.
EXPERIMENT 2. Zener diode characteristics and Zener as voltage Regulator.
EXPERIMENT 3. Input & Output Characteristics of Transistor in CB Configuration.
EXPERIMENT 4. Input & Output Characteristics of Transistor in CE Configuration.
EXPERIMENT 5. Half Wave Rectifier with & without filters
EXPERIMENT 6. Full Wave Rectifier with & without filters
EXPERIMENT 7. FET characteristics
EXPERIMENT 8. Measurement of h parameters of transistor in CB, CE, CC configurations
EXPERIMENT 9. Frequency Response of CC Amplifier.
EXPERIMENT 10. Frequency Response of CE Amplifier.
EXPERIMENT 11. Frequency Response of Common Source FET amplifier
EXPERIMENT 12. SCR characteristics.
EXPERIMENT 13. UJT Characteristics

PART C:

Equipment required for Laboratories:

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

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
BASIC ELECTRICAL ENGINEERING LAB
(Common to CSE, IT & Mining branches)

B.Tech. CSE	L	T-P-D	C
II Year - I Semester	0	0-3-0	2

Any Ten of the experiments are required to be conducted as compulsory experiments :

- EXPERIMENT 1.** Verification of Thevenin's and Norton's theorem
- EXPERIMENT 2.** Verification of Maximum power transfer theorem.
- EXPERIMENT 3.** Verification of Super position & Reciprocity theorem
- EXPERIMENT 4.** Swinburne's Test on D.C. Shunt machine.
- EXPERIMENT 5.** Brake test on D.C. Shunt motor
- EXPERIMENT 6.** Speed control of D.C. Shunt motor by
 - a).** Armature voltage control **b).** Field control
- EXPERIMENT 7.** O.C. & S.C. Test on 1- Φ transformer
- EXPERIMENT 8.** Break test on 3-phase induction motor.
- EXPERIMENT 9.** Load test on DC series Generator.
- EXPERIMENT 10.** Open circuit characteristics of DC shunt generator.
- EXPERIMENT 11.** Separation of core losses of a single phase transformer
- EXPERIMENT 12.** Calibration and Testing of single phase energy Meter

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
ADVANCED PROGRAMMING LAB
(Common to CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - I Semester	0	0-3-0	2

EXPERIMENT 1. a) Write a C++ program implement the concept of Class and Object.
b) Write a C++ program to find the Fibonacci sequence The first two values in the sequence are 1 and 1.

EXPERIMENT 2. a) Write a C++ program to implement method overloading and constructor overloading.
b) Write a C++ program to implement Friend function.

EXPERIMENT 3. Write a C++ program to implement the concept of operator overloading(Unary and Binary operators).
a) Write a C++ program to implement the concept of types of Inheritance.

EXPERIMENT 4. Write a C++ program to implement the concept of Runtime polymorphism using virtual function.
a) Write a C++ program to implement the concept of Class and Function Template.

EXPERIMENT 5. 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 discriminant $b^2 - 4ac$ is negative, display a message stating that there are no real solutions.
a) Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.

EXPERIMENT 6. a) Write a Java program to multiply two given matrices.
b) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers.

EXPERIMENT 7. Write a java program to implement concept of implementing Interfaces and Extending Interface.
b) Write a java program to create user defined package and import it.

EXPERIMENT 8. a) Write a program to implement Exception Handling Mechanism in C++ and Java.
b) Write a java program to create User defined Exception.

EXPERIMENT 9. Write a java program to create Multiple threads using Thread Class and Runnable Interface.
b) Write a java program to implement the concept of Thread Priorities.

EXPERIMENT 10. a) Develop an applet that displays a simple message.

b) Write a program to demonstrate passing parameter to an applet.

EXPERIMENT 11. a) Write a java program to Handle Window events using interfaces and adapter classes.

b) Write a java program to Handle Mouse and Keyboard Events.

EXPERIMENT 12. 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 start.

a) Write a Java program that allows the user to draw lines, rectangles and ovals.

EXPERIMENT 13. Write a java program to create an abstract class named Shape that contains an empty method named number Of Sides (). Provide three classes named trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method number Of Sides () that shows the number of sides in the given geometrical figures.

a) 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 table component.

Text Books:

1. **Object Oriented Programming with C++**, 6e, E Balagurusamy ,Tata McGraw-Hill Education
2. **Java: the complete reference**, 7th editon, Herbert schildt, TMH.

Reference Books:

1. **C++: The Complete Reference**, 5th Edition, Herbert schildt, TMH.
2. **Java How to Program**, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI.
3. **Programming with Java**, M.P.Bhave and S.A.Patekar, Pearson Education.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION
(Common for CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - II Semester	3	1-0-0	3

UNIT - I:

Basic Structure of Computers

Computer Types, Functional units, Basic operational concepts, Bus structures, Software, Performance, multiprocessors and multi computers, Computer Generations. Data Representation: Binary Numbers, Fixed Point Representation. Floating – Point Representation. Number base conversions, Octal and Hexadecimal Numbers, complements, Signed binary numbers, Binary codes.

UNIT - II:

Digital Logic Circuits - I

Basic Logic Functions, Logic gates, universal logic gates, Minimization of Logic expressions. Flip-flops, Combinational Circuits. Digital Logic Circuits -II: Registers, Shift Registers, Binary counters, Decoders, Multiplexers, Programmable Logic Devices.

UNIT - III:

Computer Arithmetic

Algorithms for fixed point and floating point addition, subtraction, multiplication and division operations. Hardware Implementation of arithmetic and logic operations, High performance arithmetic. Instruction Set & Addressing: Memory Locations and Addresses, Machine addresses and sequencing, Various Addressing Modes, Instruction Formats, Basic Machine Instructions. IA-32 Pentium example.

UNIT - IV:

Processor Organization

Introduction to CPU, Register Transfers, Execution of Instructions, Multiple Bus Organization, Hardwired Control, Micro programmed Control Memory Organization: Concept of Memory, RAM, ROM memories, memory hierarchy, cache memories, virtual memory, secondary storage, memory management requirements.

UNIT - V:

Input / Output Organization

Introduction to I/O, Interrupts- Hardware, Enabling and disabling Interrupts, Device Control, Direct memory access, buses, interface circuits, standard I/O Interfaces.

Text Books:

1. **Computer Organization** – Carl Hamacher, Zvonko Vranesic, Safwat Zaky, fifth edition, McGraw Hill.
2. **Computer Architecture and Organization-** An Integrated Approach, Miles Murdocca, Vincent Heuring, Second Edition, Wiley India.

Reference Books:

1. **Computer Systems Architecture** – M.Moris Mano, IIIrd Edition, Pearson
2. **Computer Organization and Architecture** – William Stallings Sixth Edition, Pearson
3. **Digital Logic Design & Computer Organization with Computer Architecture for Security-**
Nikrouz Faroughi, McGrawHill Education

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
DATABASE MANAGEMENT SYSTEMS
(Common for CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - II Semester	4	1-0-0	4

UNIT - I:

Data base System Applications, data base System VS file System – View of Data – Data Abstraction – Instances and Schemas – data Models – the ER Model – Relational Model – Other Models – Database Languages – DDL – DML – database Access for applications Programs – data base Users and Administrator – Transaction Management – data base System Structure – Storage Manager – the Query Processor

ER diagrams – Beyond ER Design Entities, Attributes and Entity sets – Relationships and Relationship sets – Additional features of ER Model – Concept Design with the ER Model

UNIT - II:

Introduction to the Relational Model

-Integrity Constraint Over relations – Enforcing Integrity constraints – Querying relational data – Logical data base Design – Introduction to Views – Destroying /altering Tables and Views.

Relational Algebra

-Selection and projection set operations – renaming – Joins – Division – Examples of Algebra overviews – Relational calculus – Tuple relational Calculus – Domain relational calculus – Expressive Power of Algebra and calculus.

UNIT - III:

Form of Basic SQL Query

-Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries Set – Comparison Operators – Aggregative Operators – NULL values – Comparison using Null values – Logical connectivity"s – AND, OR and NOT – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL Triggers and Active Data bases.

Schema refinement

-Problems Caused by redundancy – Decompositions – Problem related to decomposition – reasoning about FDS – FIRST, SECOND, THIRD Normal forms – BCNF – Lossless join Decomposition – Dependency preserving Decomposition – Schema refinement in Data base Design – Multi valued Dependencies – FORTH Normal Form.

UNIT - IV:

Transaction Concept

-Transaction State- Implementation of Atomicity and Durability – Concurrent – Executions – Serializability- Recoverability– Implementation of Isolation – Testing for serializability- Lock – Based Protocols – Timestamp Based Protocols- Validation- Based Protocols – Multiple Granularity.

Recovery and Atomicity

-Log – Based Recovery – Recovery with Concurrent Transactions – Buffer Management – Failure with loss of nonvolatile storage-Advance Recovery systems- Remote Backup systems.

UNIT - V:

Data on External Storage

-File Organization and Indexing – Cluster Indexes, Primary and Secondary Indexes – Index data Structures – Hash Based Indexing – Tree base Indexing – Comparison of File Organizations – Indexes and Performance Tuning- Intuitions for tree Indexes – Indexed Sequential Access Methods (ISAM) – B+ Trees: A Dynamic Index Structure.

Advanced Database Management System

Introduction to Distributed Database-Reference Architecture, fragmentation, Allocation, Joins

Text Books:

1. **Data base Management Systems**, Raghurama Krishnan, Johannes Gehrke, TATA McGrawHill 3rd Edition
2. **Data base System Concepts**, Silberschatz, Korth, McGraw hill, V edition.

Reference Books:

1. **Data base Systems design**, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.
2. **Fundamentals of Database Systems**, Elmasri Navrate Pearson Education
3. **Introduction to Database Systems**, C.J.Date Pearson Education

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
OOPS THROUGH PYTHON
(Common for CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - II Semester	4	0-0-0	4

UNIT - I:

Programming paradigms; Structured programming vs object oriented programming, OOPs fundamentals- class, object, abstraction, , encapsulation, polymorphism, and inheritance; Introduction to Python Getting started to Python- an interpreted high level language, interactive mode and script mode. Variables, Expressions and Statements Values and types, Variables and keywords, statements, evaluating expressions, operators and operands, order of operations, composition. Functions function calls, type conversion, type coercion, pre-defined functions, composition, user define functions, flow of execution, passing parameters, function parameters and scope. Conditionals and recursion modulus operator, Boolean expression, logical operators, conditional execution, alternative execution, chained and nested conditionals, return statement; Recursion, infinite recursion.

UNIT - II:

Python data structures Strings Creating, initializing and accessing the elements; String operators, comparing strings using relational operators; String functions and methods. **Lists:** Concept of mutable lists, creating, initializing and accessing the elements, traversing, appending, updating and deleting elements; List operations; List functions and Methods, list parameters, nested lists, Matrices.

Dictionaries

Concept of key-value pair, creating, initializing and accessing the elements in a dictionary, dictionary operations traversing, appending, updating and deleting elements, Dictionary functions and methods.

Tuples

Mutability and tuples, Immutable concept, creating, initializing and accessing the elements in a tuple, Tuple functions.

UNIT - III:

Object oriented programming using Python: creating python classes, classes and objects: user defined compound types, attributes, instances as arguments, instances as return values, objects are mutable, copying; classes and functions: pure function, modifiers; Exceptions: raising exceptions, handling exceptions, exception hierarchy.

UNIT - IV:

Classes and methods: object oriented features, optional arguments, initialization method, operator overloading and polymorphism. Inheritance: Basic Inheritance: extending built-ins, overriding and super; Multiple inheritance: the diamond problem, different sets of arguments.

UNIT - V:

Files handling and Exceptions: Text files, writing variables, Directories, Pickling;

Database Programming in Python: Connection module, connect MySQL Data base, perform DDL, DML and DQL operations.

Text Books:

1. **Python 3 Object Oriented Programming**, Dusty Phillips, Packet Publishing, 2010.
2. **Programming in Python 3 - A complete Introduction to the Python Language- Second Edition**, Mark Summerfiels, Addison-Wesley 2010.

Reference Books:

1. **Programming Python- 4th Edition**, Mark Lutz, O'Reilly, 2011.
2. **Object-Oriented Programming in Python**, Michael H, Goldwasser, David Letscher, Pearson Prentice Hall, 2008.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
OPERATING SYSTEM
(Common for CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - II Semester	4	0-0-0	4

UNIT - I:

Operating System Overview:

Overview of Computer Operating Systems, Operating System Functions, Protection and Security, Distributed Systems, Special Purpose Systems, Operating System Structures, Operating System Services and Systems Calls, Operating Systems Generation.

Process Management:

Process Concepts, Threads, Scheduling-Criteria, Algorithms Evaluation, Thread Scheduling.

UNIT - II:

Concurrency:

Process Synchronization, Critical-Section Problem, Peterson's Solution, Synchronization Hardware, Semaphores, Classic Problems of Synchronization, Monitors, Synchronization examples, Atomic Transactions.

Memory Management:

Swapping, Contiguous Memory Allocation, Paging, Page-Table Structure, Segmentation, Virtual Memory, Demand Paging, Page-Replacement Algorithms, Frames Allocation, Thrashing.

UNIT - III:

Principles of Deadlock:

System Model, Deadlock Characterization, Deadlock Prevention, Detection and Avoidance, Recovery from Deadlock. File System Interface, File Concepts, Access Methods and Directory Structure, File System Mounting, File Sharing and Protection.

UNIT - IV:

File System Implementation:

File System Structure, File System Implementation, Directory Implementation, Allocation Methods, Free-Space Management, Efficiency and Performance. Case Studies: UNIX, Linux and Windows.

Mass Storage Overview:

Mass-Storage Structure, Disk Structure, Disk Attachment, Disk Scheduling, Swap-Space Management, RAID Structure, Stable-Storage Implementation, Tertiary Storage Structure.

UNIT - V:

Protection:

Goals of Protection, Principles of Protection, Domain of Protection Access Matrix, Implementation of Access Matrix, Access Control, Revocation of Access Rights, Capability-Based Systems, Language-Based Protection.

Security:

Security Problem, Program Threats, System and Network Threats Cryptography as a Security Tool, User Authentication, Implementing Security Defenses, Firewalling to protect Systems and

Networks, Computer-Security Classifications, Case Studies: UNIX, Linux and Windows.

Advanced Operating Systems:

Distributed Operating Systems, Multi-Processor Operating Systems, Real-Time Operating Systems and Mobile Operating Systems.

Text Books:

1. **Operating System Concepts-Abraham Silberchatz**, Peter B. Galvin, Greg Gagne, 7th Edition, John Wiley.
2. **Operating Systems- A Concept based Approach**-D.M.Dhamdhere, 2nd Edition, TMH.

Reference Books:

1. **Principles of Operating Systems-Naresh Chauhan**, Oxford Higher Education.
2. **Operating System A Design Approach**-Crowley, TMH.
3. **Modern Operating Systems**-Andrew S Tanenbaum, 2nd Edition Pearson, PHI.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
DESIGN AND ANALYSIS OF ALGORITHMS
(Common for CSE, IT, ECM)

B.Tech. CSE	L	T-P-D	C
II Year - II Semester	3	1-0-0	3

UNIT - I:

Introduction

Algorithm, Pseudo Code for expressing Algorithms, Performance Analysis: Space Complexity, Time Complexity, Asymptotic Notations: Big-oh Notation, Omega Notation, Theta Notation, Little-oh Notation. Disjoint Sets: Disjoint Set Operations, Union and Find Algorithms, Spanning Trees, Connected Components and Biconnected Components.

UNIT - II:

Divide and Conquer

General Method, Applications: Binary Search, Quick Sort, Merge Sort, Strassen's Matrix Multiplication. **Greedy Method:** General Method Applications: Job Sequencing with Deadlines, 0/1 Knapsack Problem, Minimum Cost Spanning Trees: Prim's and Kruskal's Algorithms, Single Source Shortest Path Problem, Huffman Codes.

UNIT - III:

Dynamic Programming

General Method, Principle of Optimality, Applications: Multistage Graphs, Matrix Chain Multiplication, Optimal Binary Search Trees, 0/1 Knapsack Problem, All Pairs Shortest Path Problem, Travelling Sales Person Problem, Reliability Design.

UNIT - IV:

Backtracking

General Method, Applications: N Queens Problem, Recursive Permutation Generator, Sum of Subsets Problem, Graph Coloring, Hamiltonian Cycles.

UNIT - V:

Branch and Bound

General Method, Applications: Travelling Sales Person Problem, 0/1 Knapsack Problem, LC Branch and Bound Solution, FIFO Branch and Bound Solution. NP-Hard and NP-Complete Problems: Basic Concepts, Non-Deterministic Algorithms, NP-Hard and NP-Complete Classes, Cook's Theorem.

Text Books:

- 1. Fundamentals of Computer Algorithms**-Ellis Horowitz, Satraj Sahni and Rajasekharam, Galgotia Publications Pvt. Ltd.
- 2. Introduction to Algorithms**-T.H.Cormen, C.E.Leiserson, R.L.Rivest and C.Stein, 2nd Edition, Pearson Education, PHI Pvt. Ltd.

Reference Books:

1. **Algorithm Design: Foundations, Analysis and Internet Examples**-M.T.Goodrich and R.Tomassia, John Wiley and Sons.
2. **Introduction to Design and Analysis of Algorithms A strategic Approach**-R.C.T.Lee, S.S.Tseng, R.C.Chang and T.Tsai, Mc-Graw Hill.
3. **Design and analysis of Algorithms**-S. Sridhar , Oxford Higher Education.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
OOPS THROUGH PYTHON LAB
(Common for CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - II Semester	0	0-3-0	2

EXPERIMENT 1.

- i. Write a python program to obtain user input data (int, float, string) and display.
- ii. Write a python program to find the roots of a quadratic equation
- iii. Write a python program to perform arithmetic operations (+, -, *, /, %) for given input values and printout the result values.

EXPERIMENT 2.

- i. Write a python programs that use both recursive and non-recursive functions to find the factorial of a given integer
- ii. Operators and Operands in Python: (Arithmetic, relational and logical operators), operator precedence, Expressions and Statements.
- iii. (Assignment statement); Taking input (using raw input () and input ()) and displaying output (print statement); Putting Comments.

EXPERIMENT 3.

- i. Write python programs to perform operation on Strings using following functions: len, capitalize, find, isalnum, isalpha, isdigit, lower, islower, isupper, upper, lstrip, rstrip, isspace, istitle, partition, replace, join, split, count, decode, encode, swapcase.
- ii. Enter the details of 5 students and display the details sequentially.

EXPERIMENT 4.

- i. Write python programs to perform List operators: (joining, list slices)
- ii. Write python programs to perform List functions: len, insert, append, extend, sort, remove, and reverse, pop.
- iii. Write python programs to check whether the string is palindrome or not?

EXPERIMENT 5.

- i. Write python programs to perform Tuple functions: cmp(), len(), max(), min(), tuple()
- ii. Write python programs to check whether the word is present in the tuple or not?
- iii. Write python programs to Take a string as ("1234567890") and create a pair {(1,2),(3,4),(5,6),(7,8),(9,0)} using tuple.

EXPERIMENT 6.

- i. Write python programs to perform Dictionary functions & Methods: cmp, len, clear(), get(), has_key(), items(), keys(), update(), values() .
- ii. Write python programs to Create a list of animal using dictionary variable "animal" and find out if the specific animal present in the list or not?

EXPERIMENT 7.

- i) Write a python program to create a class, its objects and accessing attributes.

ii) Create a Customer class and check the balance and withdraw and deposit some amount.

EXPERIMENT 8. Write a python script to implement exception handling.

- i. Check whether the input no is integer or not.
- ii. Handel the exceptions that are come at the time of division.

EXPERIMENT 9. Write a python script to perform inheritance.

EXPERIMENT 10. Write a python script to perform various FILE handling operations.

Open, close, read, write, copy.

EXPERIMENT 11.

- i) Write a python script to connect to the database and perform DDL operations.
- ii) Create table, insert data into table and display the table data.

EXPERIMENT 12. Write a python script to connect to the database and perform various DML and DQL operations.

Text Books:

1. **Programming in Python 3-** A complete Introduction to the Python Language- Second Edition, Mark Summerfiels, Addison-Wesley 2010.
2. **Programming Python-** 4th Edition, Mark Lutz, O'Reilly, 2011.

Reference Books

1. **Object-Oriented Programming in Python**, Michael H, Goldwasser, David Letscher, Pearson Prentice Hall, 2008

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
OPERATING SYSTEM LAB
(Common for CSE, IT, ECM)

B.Tech. CSE	L	T-P-D	C
II Year - II Semester	0	0-3-0	2

EXPERIMENT 1. Simulate the following CPU scheduling algorithms

- a) Round Robin b) SJF

EXPERIMENT 2. Simulate the following CPU Scheduling algorithms

- a) FCFS b) Priority

EXPERIMENT 3. Simulate all file allocation strategies

- a) Sequential b) Indexed c) Linked

EXPERIMENT 4. Simulate MVT and MFT

EXPERIMENT 5. Simulate the following File Organization Techniques

- a) Single level directory b) Two level

EXPERIMENT 6. Simulate the following File Organization Techniques

- a) Hierarchical b) DAG

EXPERIMENT 7. Simulate Disk scheduling algorithms

- a) FCFS b) SSTF c) SCAN d) C-SCAN e) LOOK

EXPERIMENT 8. Simulate Bankers Algorithm for Dead Lock Avoidance

EXPERIMENT 9. Simulate Bankers Algorithm for Dead Lock Prevention

EXPERIMENT 10. Simulate all page replacement algorithms

- a) FIFO b) LRU c) LFU Etc. ...

EXPERIMENT 11. Simulate Paging Technique of memory management.

EXPERIMENT 12. Simulate on Allocation of Frames.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
DATA BASE MANAGEMENT SYSTEMS LAB
(Common for CSE, IT)

B.Tech. CSE	L	T-P-D	C
II Year - II Semester	0	0-3-0	2

This lab enables the students to practice the concepts learnt in the subject DBMS by developing a database for an example company named "Roadway Travels" whose description is as follows. The student is expected to practice the designing, developing and querying a database in the context of example database "Roadway travels". Students are expected to use "Oracle" database. Roadway Travels "Roadway Travels" is in business since 1997 with several buses connecting different places in India. Its main office is located in Hyderabad.

The company wants to computerize its operations in the following areas:

- Reservations and Ticketing
- Cancellations Reservations & Cancellation: Reservations are directly handled by booking office. Reservations can be made 30 days in advance and tickets issued to passenger. One Passenger/person can book many tickets (to his/her family). Cancellations are also directly handed at the booking office. In the process of computerization of Roadway Travels you have to design and develop a Database which consists the data of Buses, Passengers, Tickets, and Reservation and cancellation details. You should also develop query's using SQL to retrieve the data from the database.

The above process involves many steps like

1. Analyzing the problem and identifying the Entities and Relationships
2. E-R Model
3. Relational Model
4. Normalization
5. Creating the database
6. Querying. Students are supposed to work on these steps week wise and finally create a complete "Database System" to Roadway Travels.

Examples are given at every experiment for guidance to students.

Experiment – 1.

E-R Model

Analyze the problem carefully and come up with the entities in it. Identify what data has to be persisted in the database. This contains the entities, attributes etc.

Identify the primary keys for all the entities. Identify the other keys like candidate keys, partial keys, if any

Example: Entities:

1. BUS
2. Ticket
3. Passenger

Relationships:

1. Reservation
2. Cancellation

PRIMARY KEY ATTRIBUTES:

1. Ticket ID (Ticket Entity)
2. Passport ID (Passenger Entity)
3. Bus_NO (Bus Entity)

Apart from the above mentioned entities you can identify more. The above mentioned are few.

Note:

The student is required to submit a document by writing the Entities and Keys to the lab teacher.

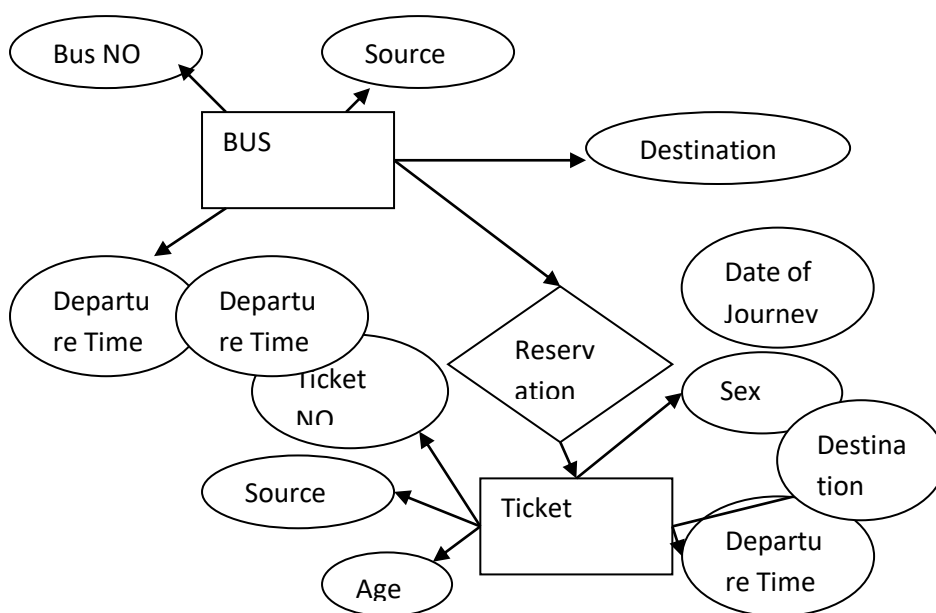
Experiment – 2.

Concept design with E-R Model

Relate the entities appropriately. Apply cardinalities for each relationship. Identify strong entities and weak entities (if any). Indicate the type of relationships (total / partial). Try to incorporate generalization, aggregation, specialization etc wherever required.

Example:

E-R diagram for bus



Note: The student is required to submit a document by drawing the E-R Diagram to the lab

teacher.

Experiment – 3.

Relational Model

Represent all the entities (Strong, Weak) in tabular fashion. Represent relationships in a tabular fashion. There are different ways of representing relationships as tables based on the cardinality. Represent attributes as columns in tables or as tables based on the requirement. Different types of attributes (Composite, Multi-valued, and Derived) have different way of representation.

Example:

The passenger tables look as below. This is an example. You can add more attributes based on your E-R model. This is not a normalized table.

Passenger

Name	Age	Sex	Address	<u>Passport ID</u>	Ticket_id

Note:

The student is required to submit a document by Represent relationships in a tabular fashion to the lab teacher.

Experiment – 4.

Normalization

Database normalization is a technique for designing relational database tables to minimize duplication of information and, in so doing, to safeguard the database against certain types of logical or structural problems, namely data anomalies. For example, when multiple instances of a given piece of information occur in a table, the possibility exists that these instances will not be kept consistent when the data within the table is updated, leading to a loss of data integrity. A table that is sufficiently normalized is less vulnerable to problems of this kind, because its structure reflects the basic assumptions for when multiple instances of the same information should be represented by a single instance only.

For the above table in the First normalization we can remove the multi valued attribute Ticket_id and place it in another table along with the primary key of passenger.

First Normal Form: The above table can be divided into two tables as shown below.

Passenger

Name	Age	Sex	Address	<u>Passport ID</u>

--	--	--	--	--

<u>Passport ID</u>	Ticket_id

--	--

--	--

You can do the second and third normal forms if required. Any how Normalized tables are given at the end.

Experiment - 5.

Installation of Mysql and Practicing DDL and DML commands

Installation of MySQL. In this week you will learn Creating databases, How to create tables, altering the database, dropping tables and databases if not required. You will also try truncate, rename commands etc.

Example for creation of a normalized "Passenger" table.

```
CREATE TABLE Passenger (Passport_id INTEGER PRIMARY KEY,
Name VARCHAR (50) Not NULL,
Age Integer Not NULL,
Sex Char,
Address VARCHAR (50) Not NULL);
```

Similarly create all other tables.

Note: Detailed creation of tables is given at the end.

Insert data into the above tables.

DML commands are used to for managing data within schema objects. Some examples:

- SELECT - retrieve data from the a database
- INSERT - insert data into a table
- UPDATE - updates existing data within a table
- DELETE - deletes all records from a table, the space for the records remain

Inserting values into "Bus" table

Insert into Bus values (1234,'hyderabad', 'tirupathi');

Insert into Bus values (2345,'hyderabad', 'Banglore');

Insert into Bus values (23,'hyderabad', 'Kolkata');

Insert into Bus values (45,'Tirupathi', 'Banglore');

Insert into Bus values (34,'hyderabad', 'Chennai');

Inserting values into "Passenger" table:

Insert into Passenger values (1, 45,'ramesh', 45,'M','abc123');

Insert into Passenger values (2, 78,'geetha', 36,'F','abc124');

Insert into Passenger values (45, 90,'ram', 30,'M','abc12');

Insert into Passenger values (67, 89,'ravi', 50,'M','abc14');

Insert into Passenger values (56, 22,'seetha', 32,'F','abc55');

Few more Examples of DML commands

Select * from Bus; (selects all the attributes and display)

UPDATE BUS SET Bus No = 1 WHERE BUS NO=2;

Experiment 6. Querying

In this week you are going to practice queries (along with sub queries) using ANY, ALL, IN, Exists, NOT EXISTS, UNION, INTERSECT, Constraints etc.

Practice the following Queries:

1. Display unique PNR_no of all passengers.
2. Display all the names of male passengers.
3. Display the ticket numbers and names of all the passengers.
4. Find the ticket numbers of the passengers whose name start with 'r' and ends with 'h'.
5. Find the names of passengers whose age is between 30 and 45.
6. Display all the passengers names beginning with 'A'
7. Display the sorted list of passengers names

Experiment – 7. Querying (continued...)

You are going to practice queries using Aggregate functions (COUNT, SUM, AVG, and MAX and MIN),

GROUP BY, HAVING and Creation and dropping of Views.

1. Write a Query to display the Information present in the Passenger and cancellation tables. **Hint:** Use UNION Operator.
2. Display the number of days in a week on which the 9W01 bus is available.
3. Find number of tickets booked for each PNR_no using GROUP BY CLAUSE. **Hint:** Use GROUP BY on PNR_No.
4. Find the distinct PNR numbers that are present.
5. Find the number of tickets booked by a passenger where the number of seats is greater than 1.

Hint: Use GROUP BY, WHERE and HAVING CLAUSES.

6. Find the total number of cancelled seats.
7. Display the details of passengers who travelled within the last 3 months.
8. Create a view for the details of passengers who cancelled their tickets.

Experiment – 8.

Create tables for the following schema. Student(snum: integer, sname: string, major: string, level: string, age: integer) Class(name: string, meets at: time, room: string, fid: integer) Enrolled(snum: integer, cname: string) Faculty(fid: integer, fname: string, deptid: integer)

Experiment – 9. Querying

1. Find the names of all Juniors (Level = JR) who are enrolled in a class taught by I. Teacher.
2. Find the age of the oldest student who is either a History major or is enrolled in a course taught by I. Teacher.
3. Find the names of all classes that either meet in room R128 or have 5 or more students enrolled.
4. Find the names of all students who are enrolled in two classes that meet at the same time.
5. Find the names of faculty members who teach in every room in which some class is taught.
6. Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than 5
7. Print the Level and the average age of students for that Level, for each Level.
8. Print the Level and the average age of students for that Level, for all Levels except JR. 9
9. Print the Level and the average age of students for that Level, whose average age is greater than 20.
10. Find the names of students who are enrolled in the maximum number of classes.
11. Find the names of students who are not enrolled in any class.
12. Count the number of junior level students.
13. Display all the students whose names starts with the letter “p”.
14. Display all the teachers whose names contain letter ‘a’ or ‘l’ in their names.

Experiment – 10. PL/SQL Programs

1. Program to find sum of first ‘n’ natural no.s
2. Program to find reverse of a number
3. Insert the values of areas of a circle into a table called areas taking radius values from 2 to 8.

Experiment – 11. Cursors

In this week you need to do the following: Declare a cursor that defines a result set. Open the cursor to establish the result set. Fetch the data into local variables as needed from the cursor, one row at a time. Close the cursor when done.

Practice the following programs using cursors.

1. Write a cursor program to retrieve the details of all students using cursors (Use students table in experiment 9)
2. Write a PL/SQL block to update the level of students from JL to “junior Level” and SL to “senior Level” and insert a record in new level table.
3. Write a cursor program to display the details of Senior Level students.

Experiment – 12. Procedures

In this session you are going to learn Creation of stored procedure, Execution of procedure and modification of procedure. Practice procedures using the above database.

**Eg: CREATE PROCEDURE myProc()
 BEGIN
 SELECT COUNT(Tickets) FROM Ticket WHERE age>=40;
 End;**

Experiment – 13. Triggers

In this week you are going to work on Triggers. Creation of insert trigger, delete trigger, update trigger. Practice triggers using the above database.

**Eg: CREATE TRIGGER updcheck BEFORE UPDATE ON passenger
 FOR EACH ROW
 BEGIN
 IF NEW.TickentNO > 60 THEN
 SET New.Tickent no = Ticket no;
 ELSESET New.Ticketno = 0;
 END IF;
 END;**

Text Books:

1. **Introduction to SQL**,Rick F.Vander Lans,Pearson education.
2. **Oracle PL/SQL**, B.Rosenzweig and E.Silvestrova,Pearson education.

Reference Books:

1. **Oracle PL/SQL Programming**,Steven Feuerstein,SPD.
2. **SQL & PL/SQL for Oracle 10g**,Black Book, Dr.P.S.Deshpande,Dream Tech.
3. **Oracle Database II g PL/SQL Programming**,M.Laughlin.TMH.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
GENDER SENSITIZATION
(Common to all branches)

B.Tech. CSE	L	T-P-D	C
II Year - II Semester	0	0-3-0	2

UNIT - I:

Gender : Why should we study it?,

Socialization: Making women, Making Men, Introduction, Preparing For Womanhood, Growing up male, First lessons in caste, Different masculinities.

UNIT - II:

Housework : The Invisible Labour,

“My mother does not work”, “Share the load”, Missing Women: Sex Selection and Its Consequences, Declining sex ratio, Demographic consequences, Point of view, Gender and the structure of knowledge, Further reading : Unacknowledged women artists of Telangana, Sexual Harassment: Say No! Sexual harassment, not eve-teasing, Coping with everyday harassment, Further reading. “Chupulu”

UNIT - III:

Women’s Work: Its Politics and Economics,

Fact and fiction, Unrecognized and unaccounted work, Further reading: Wages and conditions of work, Domestic Violence: Speaking Out, Is home a safe place?, When women unite [Film], Rebuilding lives, Further reading: New forums for justice.

UNIT - IV:

Whose History? Questions for Historians and Others,

Reclaiming a past, Writing other histories, further reading: Missing pages from modern Telangana history. Gender Spectrum: Beyond the Binary, Two or many?, Struggles with discrimination, Thinking about Sexual Violence, Blaming the victim, “I fought for my life...”, Further reading: The caste face of violence.

UNIT - V:

Just Relationships: Being Together as Equals, Mary kom and Onler, Love and acid just do not mix, Love letters, Mothers and fathers, Further Reading: Rosa Parks – The brave heart.

Text Books:

1. Towards a world of equals by A.Suneetha Susic Tharu publication Telugu academy Hyderabad.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

PRINCIPILES OF PROGRAMMING LANGUAGES

B.Tech. CSE	L	T-P-D	C
III Year – I Semester	3	1-0-0	3

UNIT-I :

Preliminary Concepts: Reasons for studying, concepts of programming languages, Programming domains, Language Evaluation Criteria, influences on Language design, Language categories, Programming Paradigms – Imperative, Object Oriented, functional Programming , Logic Programming. Programming Language Implementation – Compilation and Virtual Machines, programming environments. 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-II :

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. 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 III :

Subprograms and Blocks:

Fundamentals of sub-programs, Scope of life time of variables, static and dynamic scope, design issues of subprograms and operations, local referencing environments, parameter passing methods, overloaded sub-programs, generic sub-programs, parameters that are sub-program names, design issues for functions user defined overloaded operators, co routines.

UNIT IV :

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

Concurrency: Subprogram level concurrency, semaphores, monitors, message passing, Java threads, C# threads.

Exception handling: Exceptions, exception Propagation, Exception handler in Ada, C++ and Java.

Logic Programming Language: Introduction and overview of logic programming, basic elements of prolog, application of logic programming.

UNIT V:

Functional Programming Languages: Introduction, fundamentals of FPL, LISP, ML, Haskell, application of Functional Programming Languages and comparison of functional and

imperative Languages.

Scripting Language: Pragmatics, Key Concepts, Case Study: Python- Values and Types, Variables, Storage and Control, Bindings and Scope, Procedural Abstraction, Separate Compilation, Module Library.

TEXT BOOKS:

1. Concepts of Programming Languages Robert .W. Sebesta 8/e, Pearson Education, 2008.
2. Programming Language Design Concepts, D. A. Watt, Wiley dreamtech, rp-2007.

REFERENCE BOOKS:

1. Programming Languages, 2nd Edition, A. B. Tucker, R. E. Noonan, TMH.
2. Programming Languages, K. C. Loudon, 2nd Edition, Thomson, 2003.
3. LISP Patric Henry Winston and Paul Horn Pearson Education.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

FORMAL LANGUAGES AND AUTOMATA THEORY

B.Tech. CSE	L	T-P-D	C
III Year – I Semester	3	1-0-0	3

UNIT-I :

Fundamentals and Finite Automata: Strings, Alphabet, Language, Operations, Finite state machine, definitions, finite automaton model, acceptance of strings, and languages, DFA and NFA, transition diagrams and Language recognizers.

NFA with $\hat{\lambda}$ transitions - Significance, acceptance of languages. Equivalence between NFA with and without $\hat{\lambda}$ transitions, NFA to DFA conversion, minimization of FSM, equivalence between two FSM's, Finite Automata with output- Moore and Melay machines.

UNIT-II :

Regular Languages : Regular sets, regular expressions, identity rules, Constructing finite Automata for a given regular expressions, Conversion of Finite Automata to Regular expressions. Regular grammars-right linear and left linear grammars, equivalence between regular linear grammar and FA, inter conversion, Pumping lemma of regular sets, closure properties of regular sets (proofs not required).

UNIT-III :

Context Free Grammars : Context free grammar, derivation trees, sentential forms, Right most and leftmost derivation of strings. Ambiguity in context free grammars. Minimization of Context Free Grammars. Chomsky normal form, Greiback normal form, Pumping Lemma for Context Free Languages. Enumeration of properties of CFL (proofs omitted).

UNIT-IV:

Push Down Automata : Push down automata, definition, model, acceptance of CFL, Acceptance by final state and acceptance by empty state and its equivalence. Equivalence of CFL and PDA, interconversion. (Proofs not required). Introduction to DCFL and DPDA.

UNIT-V:

Turing Machine and Computability Theory : Turing Machine, definition, model, design of TM, Computable functions, recursively enumerable languages. Church's hypothesis, counter machine, types of Turing machines (proofs not required).

Chomsky hierarchy of languages, linear bounded automata and context sensitive language, LR(0) grammar, decidability of, problems, Universal Turing Machine, undecidability of posts. Correspondence problem, Turing reducibility, Definition of P and NP problems, NP complete and NP hard problems.

TEXT BOOKS :

1. "Introduction to Automata Theory Languages and Computation". Hopcroft H.E. and Ullman J. D.Pearson Education
2. Theory of Computer Science – Automata languages and computation -Mishra and Chandrashekar, 2nd edition, PHI

REFERENCE BOOKS :

1. Introduction to Computer Theory, Daniel I.A. Cohen, John Wiley.
2. Formal Language and Automata Theory, K V N Sunitha, N Kalayani, TMH
3. Introduction to languages and the Theory of Computation, John C Martin, TMH

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
WEB TECHNOLOGIES
(Common to CSE, IT)

B.Tech. CSE	L	T-P-D	C
III Year – I Semester	4	1-0-0	4

UNIT – I:

Basic Tags of HTML, Introduction HTML5, new HTML5 Form input Types. Cascading Style Sheets.

Introduction to javascript: declaring variables, functions, event handlers (onClick , onsubmit etc). Form validation.

UNIT – II:

Introduction to XML: Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX. Introduction to web service solution stacks XAMPP: Introduction to content Management Systems Joomla, word press.

UNIT – III:

Introduction to Servlets: Common Gateway Interface (CGI), Lifecycle of a Servlet, Deploying Servlet, Servlet API, Reading Servlet parameters, Reading initialization parameters, handling Http Request & Responses. Session tracking, cookies. 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 for session tracking. Connecting to database in JSP.

UNIT – V:

Introduction to PHP: Downloading, installing, configuring PHP, The anatomy of a PHP Page. Basic Security Guidelines, Variables, Data Types, Operators and Expressions, Constants, Flow Control Functions; Switching Flow, Loops, Code Blocks and Browser Output, Objects, Strings Processing, Form processing, Connecting to database, using cookies, dynamic contents.

Text books:

1. Web Technologies: HTML, JAVASCRIPT, PHP, JAVA, JSP, ASP.NET, XML and Ajax, Black Book
2. Web Technologies, Uttam K Roy, Oxford Press.

Reference books:

1. Chris Bates, “Web Programming, building internet applications”, 2ndEdition, WILEY, Dreamtech, 2008.
2. Herbert Schildt, “The complete Reference Java 2”, 8th Edition, TMH, 2011.
3. Hans Bergsten : “Java Server Pages”, 3rdEdition, O’Reilly publication, 2008.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

COMPUTER NETWORKS

B.Tech. CSE	L	T-P-D	C
III Year – I Semester	4	0-0-0	4

UNIT - I:

Overview of the Internet: Protocol, Layering Scenario, TCP/IP Protocol Suite: The OSI Model, Internet history standards and administration; Comparison of the OSI and TCP/IP reference model.

Physical Layer: Guided transmission media, wireless transmission media.

Data Link Layer - design issues, CRC codes, Elementary Data Link Layer Protocols, sliding window protocol.

UNIT - II:

Multi Access Protocols - ALOHA, CSMA, Collision free protocols, Ethernet- Physical Layer, Ethernet Mac Sub layer, data link layer switching & use of bridges, learning bridges, spanning tree bridges, repeaters, hubs, bridges, switches, routers and gateways.

UNIT - III:

Network Layer: Network Layer Design issues, store and forward packet switching connection less and connection oriented networks-routing algorithms-optimality principle, shortest path, flooding, Distance Vector Routing, Control to Infinity Problem, Hierarchical Routing, Congestion control algorithms, admission control.

UNIT - IV:

Internetworking: Tunneling, Internetwork Routing, Packet fragmentation, IPv4, IPv6 Protocol, IP addresses, CIDR, ICMP, ARP, RARP, DHCP.

Transport Layer: Services provided to the upper layers elements of transport protocol-addressing connection establishment, connection release, Connection Release, Crash Recovery.

UNIT - V:

The Internet Transport Protocols UDP-RPC, Real Time Transport Protocols, The Internet Transport Protocols- Introduction to TCP, The TCP Service Model, The TCP Segment Header, The Connection Establishment, The TCP Connection Release, The TCP Connection Management Modeling, The TCP Sliding Window, The TCP Congestion Control, The future of TCP.

Application Layer- Introduction, providing services, Applications layer paradigms, Client server model, Standard client-server application-HTTP, FTP, electronic mail, TELNET, DNS, SSH

TEXT BOOKS:

1. Data Communications and Networking - Behrouz A. Forouzan, Fifth Edition TMH, 2013.
2. Computer Networks - Andrew S Tanenbaum, 4th Edition, Pearson Education.

REFERENCES BOOKS:

1. An Engineering Approach to Computer Networks - S. Keshav, 2nd Edition, Pearson Education.

2. Understanding communications and Networks, 3rd Edition, W. A. Shay, Cengage Learning.
3. Introduction to Computer Networks and Cyber Security, Chwan-Hwa (John) Wu, J. David Irwin, CRC Press.
4. Computer Networks, L. L. Peterson and B. S. Davie, 4th edition, ELSEVIER.
5. Computer Networking: A Top-Down Approach Featuring the Internet, James F. Kurose, K. W. Ross, 3rd Edition, Pearson Education.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

DISTRIBUTED COMPUTING

B.Tech. CSE	L	T-P-D	C
III Year – I Semester	4	0-0-0	4

UNIT - I:

Introduction to distributed computing: Introduction, Distributed Systems and Networking, Distributed System Architecture, Characteristics of Distributed Systems, Fallacies of Distributed Computing, Client server computing, WWW as distributed system, Advance Distributed system models, Agent based distributed computing.

UNIT - II:

Loosely Coupled distributed Systems: Network Latency, Problem of coherency, Shared Memory Systems, Message Passing distributed Systems, MPI , Beowulf, COTS, Amdahl's Law and Gustafson's law, Advantages of loosely coupled systems. Mobile as distributed computing platform, Cluster and Grids.

UNIT - III:

Tightly Coupled distributed Systems : Conventional super computing, Grid Array super computing, Grid Array Architecture, Advantages of Grid Array computing, GPU based CUDA computing, Algorithms for distributed computing

UNIT - IV:

CUDA Computing on Multicore processor: CUDA paradigm, CUDA programming basics, CUDA Architecture, Differences between CUDA and conventional Parallel Programming, Sample CUDA program for matrix multiplication.

UNIT - V:

Advanced multicore distributed Systems: Making multi core usable to single thread, Curve Spilling, Prefetching and Profiling, Energy aware Distributed computing, Neural network as distributed computing, Performance analysis tools for distributed systems, Best practices in distributed computing.

TEXT BOOKS:

1. Andrew S. Tanenbaum, Maarten van Steen, Distributed Systems: Principles and Paradigms, Pearson Education Asia, 2002
2. CUDA Programming: A Developer's Guide to Parallel Computing with GPUs by Shane Cook.

REFERENCES BOOKS:

1. George Coulouris, Jean Dollimore, Tim Kindberg, Distributed Systems: Concepts and Design, 4/E, Pearson Education Ltd, 2001
2. CUDA by example by nVidia

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
WEB TECHNOLOGIES LAB
(Common to CSE, IT)

B.Tech. CSE	L	T-P-D	C
III Year – I Semester	0	0-3-0	2

EXPERIMENT 1. Create HOME PAGE for an online book store

EXPERIMENT 2. Login page for an online book store

EXPERIMENT 3. Create CATALOGUE PAGE

EXPERIMENT 4.

Create registration form with the following fields Name, Password, confirm password, E-mail id, Phone number, Sex, Date of birth, Address

EXPERIMENT 5.

Write JavaScript to validate the following fields of the above registration modify web page appearance using CSS

EXPERIMENT 6.

Write an XML file which will display all your subjects Books information such as title, author, isbn, name of the publisher. Create a DTD, XML Schemas to validate this XML document. Create CSS, XSL do display XML data

EXPERIMENT 7. Install XAMPP and JOOMLA or Word Press and test.

EXPERIMENT 8.

Write Servlet Program to read data submitted from Registration form and store it into the MySQL database.

EXPERIMENT 9.

Write a user validation web application to read username and password submitted by the user and return successful login if the data matches, otherwise failure login.

EXPERIMENT 10.

Write a PHP program to store current date-time in a COOKIE and display the "Last visited on" date-time on the web page upon reopening of the same page.

EXPERIMENT 11.

Write a PHP program to store page views count in SESSION, to increment the count on each refresh, and to show the count on we page.

EXPERIMENT 12.

Using PHP and MySQL, develop a program to accept book information viz. Accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with proper headings

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
COMPUTER NETWORKS LAB
(Common to CSE, IT)

B.Tech. CSE	L	T-P-D	C
III Year – I Semester	0	0-3-0	2

EXPERIMENT 1.

Implement the data link layer framing methods such as character, character stuffing and bit stuffing.

EXPERIMENT 2.

Implement on a data set of characters the three CRC polynomials - CRC 12, CRC 16 and CRC CCIP.

EXPERIMENT 3.

Implement Dijkstra's algorithm to compute the shortest path thru a graph.

EXPERIMENT 4.

Take an example subnet graph with weights indicating delay between nodes. Now obtain Routing table at each node using distance vector routing algorithm.

EXPERIMENT 5.

Take an example subnet of hosts. Obtain broadcast tree for it.

EXPERIMENT 6.

Take a 64 bit playing text and encrypt the same using DES algorithm.

EXPERIMENT 7.

Write a program to break the above DES coding

EXPERIMENT 8.

Using RSA algorithm Encrypt a text data and Decrypt the same.

EXPERIMENT 9.

Implementation of Hemming code

EXPERIMENT 10.

Simulation of Stop & Wait protocol

EXPERIMENT 11.

Simulation of TCP client & Server Program

EXPERIMENT 12.

Using Sniffing tool Capture packets and Analyze.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

MULTI-CORE PROGRAMMING LAB

B.Tech. CSE	L	T-P-D	C
III Year – I Semester	0	0-3-0	2

Open MP Programming

EXPERIMENT 1.

Program which prints out "Hello, world!" using the openmp parallel programming environment.

EXPERIMENT 2.

Program to compute Point to Point communication using openmp for parallel execution.

EXPERIMENT 3.

Program to compute Point to Point and collective communication using openmp for parallel execution.

EXPERIMENT 4.

Program to compute parallel pi using openmp for parallel execution.

EXPERIMENT 5.

Program to compute arithmetic operations using openmp for parallel execution.

CUDA Python Programming

EXPERIMENT 6.

Program to generate the number of random draws from $N(0,1)$ and time it

EXPERIMENT 7.

Program to compute Mandelbrot in cuda python.

EXPERIMENT 8.

Program to generate random number using cuda python

CUDA C Programming

EXPERIMENT 9.

Program to print hello world on single device using cuda C

EXPERIMENT 10.

Program to print Hello world on multiple devices using cuda C

EXPERIMENT 11.

Program to compute addition of two numbers multiple devices using cuda C

EXPERIMENT 12.

Program to compute addition of two vectors of size 10 using cuda C

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

SOFTWARE ENGINEERING

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	3	0-0-0	3

UNIT - I:

Introduction to Software Engineering:

The evolving role of software, Changing Nature of Software, Software myths.

A Generic view of process: Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

Process models: The waterfall model, Incremental process models, Evolutionary process models, The Unified process.

UNIT - II:

Software Requirements:

Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

Requirements engineering process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

System models : Context Models, Behavioral models, Data models, Object models, structured methods.

UNIT - III:

Design Engineering: Design process and Design quality, Design concepts, the design model.

Creating an architectural design: Software architecture, Data design, Architectural styles and patterns, Architectural Design.

Object-Oriented Design: Objects and object classes, An Object-Oriented design process, Design evolution.

Performing User interface design: Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

UNIT - IV:

Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

Product metrics: Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

Metrics for Process and Products : Software Measurement, Metrics for software quality.

Risk management: Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

UNIT - V:

Quality Management: Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

TEXT BOOKS :

1. Software Engineering A practitioner's Approach, Roger S Pressman, 6th edition. McGrawHill International Edition.

2. Software Engineering, Ian Sommerville, 7th edition, Pearson education.

REFERENCE BOOKS :

1. Software Engineering, A Precise Approach, Pankaj Jalote, Wiley India, 2010.
2. Software Engineering: A Primer, Waman S Jawadekar, Tata McGraw-Hill, 2008
3. Fundamentals of Software Engineering, Rajib Mall, PHI, 2005

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

LINUX PROGRAMMING

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	4	1-0-0	4

UNIT - I

Linux Utilities-File handling utilities, Security by file permissions, Process utilities, Disk utilities, Networking commands, Filters, Text processing utilities and Backup utilities, sed – scripts, operation, addresses, commands, applications, awk – execution, fields and records, scripts, operation, patterns, actions, functions, using system commands in awk.

UNIT- II

Working with the Bourne again shell(bash): Introduction, shell responsibilities, pipes and input Redirection, output redirection, here documents, running a shell script, the shell as a programming language, shell meta characters, file name substitution, shell variables, command substitution, shell commands, the environment, quoting, test command, control structures, arithmetic in shell, shell script examples, interrupt processing, functions, debugging shell scripts.

UNIT - III

Files: File Concept, File System Structure, I-nodes, File Attributes, File types, Library functions, the standard I/O and formatted I/O in C, stream errors, kernel support for files, System calls, file descriptors, low level file access – File structure related system calls(File APIs), file and record locking, file and directory management – Directory file APIs, Symbolic links & hard links. Process – Process concept, Kernel support for process, process attributes, process control - process creation, waiting for a process, process termination, zombie process, orphan process, Process APIs.

UNIT - IV

Signals– Introduction to signals, Signal generation and handling, Kernel support for signals, Signal function, unreliable signals, reliable signals, kill, raise , alarm, pause, abort, sleep functions.

Interprocess Communication: Introduction to IPC, Pipes and FIFOs, Introduction to three types of IPC-message queues, semaphores and shared memory.

Message Queues- Kernel support for messages, UNIX system V APIs for messages, client/server example.

Semaphores-Kernel support for semaphores, UNIX system V APIs for semaphores.

Shared Memory- Kernel support for shared memory, UNIX system V APIs for shared memory, semaphore and shared memory example.

UNIT -V

Multithreaded Programming: Differences between threads and processes, Thread structure and uses, Threads and Lightweight Processes, POSIX Thread APIs, Creating Threads, Thread Attributes, Thread Synchronization with semaphores and with Mutexes, Example programs.

Sockets: Introduction to Sockets, Socket Addresses, Socket system calls for connection oriented protocol and connectionless protocol, example-client/server programs.

TEXT BOOKS:

1. Unix Concepts and Applications, 4th Edition, Sumitabha Das, TMH
2. Unix System Programming using C++, T.Chan, PHI.(UNIT III to UNIT VIII)

REFERENCE BOOKS:

1. Beginning Linux Programming, 4th Edition, N.Matthew, R.Stones,Wrox, Wiley India Edition.
2. Linux System Programming, Robert Love, O'Reilly, SPD.
3. Advanced Programming in the Unix environment, 2nd Edition, W.R.Stevens, Pearson Education.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
OBJECT ORIENTED ANALYSIS AND DESIGN
(Common to CSE, IT, ECM)

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	4	1-0-0	4

UNIT - I

Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT - II

Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams. Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

Class & Object Diagrams: Terms, concepts, modeling techniques for Class & Object Diagrams.

UNIT- III

Basic Behavioral Modeling-I : Interactions, Interaction diagrams.

Basic Behavioral Modeling-II : Use cases, Use case Diagrams, Activity Diagrams.

UNIT - IV

Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

UNIT-V

Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.

TEXT BOOKS :

1. Grady Booch, James Rumbaugh, Ivar Jacobson : The Unified Modeling Language User Guide, Pearson Education.
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd.

REFERENCE BOOKS:

1. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
2. Pascal Roques: Modeling Software Systems Using UML2, WILEY- Dreamtech India Pvt. Ltd.
3. Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hill Companies.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
INFORMATION RETRIEVAL SYSTEMS
(Elective – I)
(Common to CSE, ECM)

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	3	0-0-0	3

UNIT-I:

Introduction: Definition, Objectives, Functional Overview, Relationship to DBMS, Digital libraries and Data Warehouses. Information Retrieval System Capabilities, Search, Browse, Miscellaneous.

UNIT-II :

Cataloging and Indexing: Objectives, Indexing Process, Automatic Indexing, Information Extraction. Data Structures: Introduction, Stemming Algorithms, Inverted file structures, N-gram data structure, PAT data structure, Signature file structure, Hypertext data structure. Automatic Indexing: Classes of automatic indexing, Statistical indexing, Natural language, Concept indexing, Hypertext linkages.

UNIT-III :

Document and Term Clustering: Introduction, Thesaurus generation, Item clustering, Hierarchy of clusters. User Search Techniques: Search statements and binding, Similarity measures and ranking, Relevance feedback, Selective dissemination of information search, weighted searches of Boolean systems, Searching the Internet and hypertext.

UNIT-IV :

Information Visualization: Introduction, Cognition and perception, Information visualization technologies. Text Search Algorithms: Introduction, Software text search algorithms, Hardware text search systems. Information System Evaluation: Introduction, Measures used in system evaluation, Measurement example – TREC results.

UNIT-V :

Multimedia Information Retrieval, Models and Languages, Data Modeling, Query Languages, Indexing and Searching. Libraries and Bibliographical systems, online IR system, OPACs, Digital Libraries. 180

TEXTBOOKS

1. Information Storage and Retrieval systems Theory and Implementation Second Edition
2. Modern Information Retrieval By Ricardo Baeza-Yates, Pearson Education, 2007.

REFERENCE BOOKS

1. Information Retrieval: Algorithms and Heuristics By David A Grossman and Ophir Frider, 2nd Edition, Springer.
2. Frakes, W.B., Ricardo Baeza-Yates: Information Retrieval Data Structures and Algorithms, Prentice Hall, 1992.
3. Modern Information Retrieval By Yates Pearson Education.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

COMPUTER FORENSICS
(Elective – I)
(Common to CSE, ECM)

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	3	0-0-0	3

UNIT-I:

Computer Forensics Fundamentals: What is Computer Forensics?. Use of Computer Forensics in Law Enforcement, Computer Forensics in Law Enforcement, Computer Forensics Assistance to Human Resources/Employment Proceedings, Computer Forensics Services, Benefits of professional Forensics Methodology, Steps taken by computer Forensics Specialists.

Types of Computer Forensics Technology: Types of Military Computer Forensics Technology, Types of Law Enforcement - Computer Forensic Technology - Types of Business Computer Forensics Technology.

Computer Forensics Evidence and Capture: Data Recovery Defined- Data Back-up and Recovery- The Role of Back-up in Data Recovery- The Data Recovery Solution.

UNIT-II :

Evidence Collection and Data Seizure: Why Collection Evidence? Collection Options – Obstacles – Types of Evidence – The Rules of Evidence- Volatile Evidence- General Procedure – Collection and Archiving – Methods of Collection – Artifacts – Collection Steps – Controlling Contamination: The chain of Custody.

Duplication and preservation of Digital Evidence: Preserving the Digital Crime Scene – Computer Evidence Processing Steps – Legal Aspects of Collecting Preserving Computer Forensics Evidence. Computer Image Verification and Authentication: Special Needs of Evidential Authentication – Practical Consideration – Practical Implementation.

UNIT-III :

Computer Forensics analysis and validation: Determining what data to collect and analyze, validating forensic data, addressing data – hiding techniques, performing remote acquisitions.

Network Forensics: Network Forensics overview, performing live acquisitions, developing standard procedures for network forensics, using network tools, examining the honeynet project.

UNIT-IV :

Processing crime and incident scenes: Identifying digital evidence, collecting evidence in private-sector incident scenes, processing law enforcement crime scenes, preparing for a search, securing a computer incident or crime scene, seizing digital evidence at the scene, storing digital evidence, obtaining a digital hash, reviewing a case.

Current computer forensic tools: evaluating computer forensic tool needs, computer forensics software tools, computer forensics hardware tools, validating and testing forensics software.

UNIT-V :

E-Mail investigations: Exploring the role of E-mail in investigation, exploring the role of the client and server in E-mail, investigating e-mail crimes and violations, understanding e-mail servers, using specialized e-mail forensic tools.

Cell phone and mobile device forensics: Understanding mobile device forensics, understanding acquisition procedures for cell phones and mobile devices.

Working with windows and DOS Systems: Understanding file systems, exploring Microsoft File Structures, Examining NTFS Disks, Understanding whole disk encryption, windows registry, Microsoft startup tasks, MS-DOS Startup tasks, virtual machines.

TEXTBOOKS

1. Computer forensics, computer crime investigation by John R.Vacca, Firewall Media, New Delhi.
2. Computer forensics and investigations by Nelson, Phillips Enfinger Steuart, CENGAGE Learning.

REFERENCE BOOKS

1. Real Digital Forensics by Keith J.Jones, Recharad Bejtlich, Curtis W.Rose, Addison-Wesley Pearson Education.
2. Forensic compiling, A Tractitioneris Guide By Tony Sammes and Brain Jenkinson, Springer International Edition.
3. Computer Evidence Collection & Presentation by Christopher L.T.Brown, Firewall Media.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
SEMANTIC WEB AND SOCIAL NETWORK
(Elective – I)
(Common to CSE, ECM)

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	3	0-0-0	3

UNIT – I:

Web Intelligence:

Thinking and Intelligent Web Applications, The Information Age ,The World Wide Web, Limitations of Today's Web, The Next Generation Web, Machine Intelligence, Artificial Intelligence, Ontology, Inference engines, Software Agents, Berners - Lee www, Semantic Road Map, Logic on the semantic Web.

UNIT - II:

Knowledge Representation for the Semantic Web Ontologies and their role in the semantic web, Ontologies Languages for the Semantic Web – Resource Description Framework(RDF) / RDF Schema, Ontology Web Language(OWL), UML, XML/XML Schema

UNIT - III:

Ontology Engineering:

Ontology Engineering, Constructing Ontology, Ontology Development Tools, Ontology Methods, Ontology Sharing and Merging, Ontology Libraries and Ontology Mapping, Logic, Rule and Inference Engines.

UNIT - IV:

Semantic Web Applications, Services and Technology Semantic Web applications and services, Semantic Search, e-learning, Semantic Bioinformatics, Knowledge Base ,XML Based Web Services, Creating an OWL-S Ontology for Web Services, Semantic Search Technology, Web Search Agents and Semantic Methods,

UNIT - V:

Social Network Analysis and semantic web What is social Networks analysis, development of the social networks analysis, Electronic Sources for Network Analysis – Electronic Discussion networks, Blogs and Online Communities, Web Based Networks. Building Semantic Web Applications with social network features.

TEXTBOOKS

1. Thinking on the Web - Berners Lee, Godel and Turing, Wiley inter science, 2008.
2. Social Networks and the Semantic Web, Peter Mika, Springer, 2007.

REFERENCE BOOKS

1. Semantic Web Technologies, Trends and Research in Ontology Based Systems, J.Davies, R.Studer, P.Warren, John Wiley & Sons.
2. Semantic Web and Semantic Web Services - Liyang Lu Chapman and Hall/CRC Publishers,(Taylor & Francis Group)
3. Information Sharing on the semantic Web - Heiner Stuckenschmidt;

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
ADHOC SENSOR NETWORKS
(Elective – I)
(Common to CSE, IT, ECM)

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	3	0-0-0	3

UNIT-I:

Introduction to Ad Hoc Wireless Networks

Cellular and Ad Hoc Wireless Networks, Characteristics of MANETs, Applications of MANETs, Issues and Challenges of MANETs. **Routing in MANETs** : Classification of Routing Protocols, Topology-based versus Position-based Approaches, Topology based Routing Protocols, Position based Routing, Other Routing Protocols.

UNIT-II:

Data Transmission in MANETs

The Broadcast Storm, Multicasting, Geocasting, TCP over Ad Hoc Networks-TCP Protocol overview, TCP and MANETs, Solutions for TCP over Ad Hoc. **Security in MANETs:** Security in Ad Hoc Wireless Networks, Key Management, Secure Routing, Cooperation in MANETs, Intrusion Detection Systems.

UNIT-III:

Basics of Wireless Sensors and Applications

The Mica Mote, Sensing and Communication Range, Design Issues, Energy consumption, Clustering of Sensors, Applications. Sensor Node Hardware

UNIT-IV:

Data Retrieval in Sensor Networks

Classification of WSNs, MAC Layer, Routing Layer, High-Level Application Layer Support, Adapting to the Inherent Dynamic Nature of WSNs.

UNIT-V:

Security in WSNs

Security in Wireless Sensor Networks, Key Management in Wireless Sensor Networks, Secure Data Aggregation in Wireless Sensor Networks, Introduction to Vehicular Ad Hoc Networks, Introduction to Wireless Mesh Networks

TEXT BOOKS:

1. Ad Hoc and Sensor Networks: Theory and Applications, Carlos de Morais Cordeiro and Dharma Prakash Agrawal, World Scientific Publications / Cambridge University Press, 2006.
2. Wireless Sensor Networks: An Information Processing Approach, Feng Zhao, Leonidas Guibas, Elsevier Science Imprint, Morgan Kauffman Publishers, 2005.

REFERENCE BOOKS:

1. Ad Hoc Wireless Networks: Architectures and Protocols, C. Siva Ram Murthy and B. S. Manoj, Pearson Education, 2004.
2. Guide to Wireless Ad Hoc Networks, Sudip Misra, Isaac Woungang, and Subhas Chandra Misra, Springer International Edition, 2011.
3. Guide to Wireless Sensor Networks, Sudip Misra, Isaac Woungang, and Subhas Chandra Misra, Springer International Edition, 2012.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
COMPILER DESIGN
(Common to CSE, ECM)

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	4	1-0-0	4

UNIT – I:

Overview of Compilation:

Phases of Compilation – Lexical Analysis, Regular Grammar and regular expression for common programming language features, pass and Phases of translation, interpretation, bootstrapping, data structures in compilation – LEX lexical analyzer generator.

UNIT – II:

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

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

UNIT – III:

Semantic analysis: Intermediate forms of source Programs – abstract syntax tree, polish notation and three address codes. Attributed grammars, Syntax directed translation, Conversion of popular Programming languages language Constructs into Intermediate code forms, Type checker.

UNIT – IV

Symbol Tables: Symbol table format, organization for block structures languages, hashing, tree structures representation of scope information. Block structures and non block structure storage allocation: static, Runtime stack and heap storage allocation, storage allocation for arrays, strings and records.

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

UNIT – V:

Data flow analysis: Flow graph, data flow equation, global optimization, redundant sub expression elimination, Induction variable elements, Live variable analysis, Copy propagation.

Object code generation: Object code forms, machine dependent code optimization, register allocation and assignment generic code generation algorithms, DAG for register allocation.

TEXT BOOKS :

1. Principles of compiler design -A.V. Aho . J.D.Ullman; Pearson Education.
2. Modern Compiler Implementation in C- Andrew N. Appel, Cambridge University Press.

REFERENCES BOOKS:

1. lex & yacc – John R. Levine, Tony Mason, Doug Brown, O'reilly
2. Modern Compiler Design- Dick Grune, Henry E. Bal, Cariel T. H. Jacobs, Wiley dreamtech.
3. Engineering a Compiler-Cooper & Linda, Elsevier.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

LINUX PROGRAMMING LAB

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	0	0-3-0	2

Note: Use Bash for Shell scripts.

EXPERIMENT 1. Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers.

EXPERIMENT 2. Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

EXPERIMENT 3. Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.

EXPERIMENT 4. Write a shell script that receives any number of file names as arguments checks if every argument supplied is a file or a directory and reports accordingly. Whenever the argument is a file, the number of lines on it is also reported.

EXPERIMENT 5. Write a shell script that accepts a list of file names as its arguments, counts and reports the occurrence of each word that is present in the first argument file on other argument files.

EXPERIMENT 6. Write a shell script to list all of the directory files in a directory.

EXPERIMENT 7. Write a shell script to find factorial of a given integer.

EXPERIMENT 8. Write an awk script to count the number of lines in a file that do not contain vowels.

EXPERIMENT 9. Write an awk script to find the number of characters, words and lines in a file.

EXPERIMENT 10. Write a c program that makes a copy of a file using standard I/O and system calls.

EXPERIMENT 11. Implement in C the following Unix commands using System calls

A . cat B. ls C. mv

EXPERIMENT 12. Write a program that takes one or more file/directory names as command line input and reports the following information on the file.

A. File type. B. Number of links.
C. Time of last access. D. Read, Write and Execute permissions.

EXPERIMENT 13. Write a C program to emulate the Unix ls -l command.

EXPERIMENT 14. Write a C program to list for every file in a directory, its inode number and file name.

EXPERIMENT 15. Write a C program that demonstrates redirection of standard output to a file.Ex: ls > f1.

EXPERIMENT 16. Write a C program to create a child process and allow the parent to display "parent" and the child to display "child" on the screen.

EXPERIMENT 17. Write a C program to create a Zombie process.

EXPERIMENT 18. Write a C program that illustrates how an orphan is created.

EXPERIMENT 19. Write a C program that illustrates how to execute two commands concurrently

with a command pipe. Ex:- ls -l | sort

EXPERIMENT 20. Write C programs that illustrate communication between two unrelated processes using named pipe.

EXPERIMENT 21. Write a C program to create a message queue with read and write permissions to write 3 messages to it with different priority numbers.

EXPERIMENT 22. Write a C program that receives the messages (from the above message queue as specified in (21)) and displays them.

EXPERIMENT 23. Write a C program to allow cooperating processes to lock a resource for exclusive use, using a) Semaphores b) flock or lockf system calls.

EXPERIMENT 24. Write a C program that illustrates suspending and resuming processes using signals.

EXPERIMENT 25. Write a C program that implements a producer-consumer system with two processes. (using Semaphores).

EXPERIMENT 26. Write client and server programs(using c) for interaction between server and client processes using Unix Domain sockets.

EXPERIMENT 27. Write client and server programs(using c) for interaction between server and client processes using Internet Domain sockets.

EXPERIMENT 28. Write a C program that illustrates two processes communicating using shared memory.

TEXT BOOKS:

1. Advanced Unix Programming, N.B.Venkateswarulu, BS Publications.
2. Unix and Shell programming, B.A.Forouzan and R.F.Gilberg, Cengage Learning
3. Unix and Shell Programming, M.G. Venkatesh Murthy, Pearson Education, 2005.
4. Unix Shells by Example, 4th Edition, Ellie Quigley, Pearson Education.
5. Sed and Awk, O.Dougherty&A.Robbins, 2nd edition, SPD.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
CASE TOOLS LAB
(Common for CSE, IT)

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	0	0-3-0	2

CASE STUDY OF UNIFIED LIBRARY SYSTEM

1. The student should take up the case study of **Unified Library System** which is mentioned in the theory, and Model it in different views i.e Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project.

Design the following diagrams for Unified Library System.

EXPERIMENT 1. Class Diagram

EXPERIMENT 2. Object Diagram

EXPERIMENT 3. Component Diagram

EXPERIMENT 4. Deployment Diagram

EXPERIMENT 5. Use case Diagram

EXPERIMENT 6. Activity Diagram

EXPERIMENT 7. State machine Diagram

EXPERIMENT 8. Sequence Diagram

CASE STUDY OF ATM SYSTEM

2. The student should take up the case study of **ATM System** which is mentioned in the theory, and Model it in different views i.e Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project.

Design the following diagrams for ATM System.

EXPERIMENT 9. Class Diagram

EXPERIMENT 10. Object Diagram

EXPERIMENT 11. Component Diagram

EXPERIMENT 12. Deployment Diagram

EXPERIMENT 13. Use case Diagram

EXPERIMENT 14. Activity Diagram

EXPERIMENT 15. State machine Diagram

EXPERIMENT 16. Sequence Diagram

TEXT BOOKS:

1. Software Testing techniques - Baris Beizer, Dreamtech, second edition.
2. Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
COMPILER DESIGN LAB
(Common to CSE, ECM)

B.Tech. CSE	L	T-P-D	C
III Year – II Semester	0	0-3-0	2

EXPERIMENT 1.

- a) Write a C program to test whether a given identifier is valid or not
- b) Write a C program to identify whether a given line is a comment or not.

EXPERIMENT 2.

- a) Write a C program to design a lexical analyzer
- b) Write a C program to recognize strings under 'a', 'a*b+', 'abb'

EXPERIMENT 3.

Write a C program for constructing an NFA from given regular expression.

EXPERIMENT 4.

- a) Write a program to check whether a grammar is left recursive and remove left recursion.
- b) Write a program to remove left factoring.

EXPERIMENT 5.

- a) Write a program to compute FIRST of non-terminals.
- b) Write a program to compute FOLLOW of non-terminals.

EXPERIMENT 6.

Write a C program for implementing the functionalities of predictive parser.

EXPERIMENT 7.

Write a C program for constructing of LL(1) parsing

EXPERIMENT 8.

- a) Write a C program for constructing recursive descent parsing
- b) Write a C program to implement LALR parsing

EXPERIMENT 9.

Write a C program to generate machine code from abstract syntax tree generated by the parser

EXPERIMENT 10.

Write a C program to generate intermediate code.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
INFORMATION SECURITY
(Common to CSE, IT)

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	4	0-0-0	4

UNIT-I:

Introduction: Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs, Buffer overflow & format string vulnerabilities, TCP session hijacking, ARP attacks, route table modification, UDP hijacking, and man-in-the-middle attacks.

UNIT-II:

Conventional Encryption Principles, Conventional encryption algorithms, cipher block modes of operation, location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC. Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management.

UNIT-III:

Authentication Applications: Kerberos, X.509 Directory Authentication Service.

Electronic Mail Security: Pretty Good Privacy (PGP) and Secure /Multipurpose Internet Mail Extension (S/MIME)

UNIT-IV:

IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management.

Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).

UNIT-V:

Basic concepts of SNMP, SNMPv1 Community facility and SNMPv3. Intruders, Viruses and related threats. Firewall Design principles, Trusted Systems. Intrusion Detection Systems.

TEXT BOOKS:

1. Network Security Essentials (Applications and Standards) by William Stallings Pearson Education.
2. Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain Forest Puppy, Joe Grand, David Ahmad, Hal Flynn Ido Dubrawsky, Steve W.Manzuik and Ryan Permeh, Wiley Dreamtech

REFERENCE BOOKS:

1. Network Security and Cryptography: Bernard Menezes, CENGAGE Learning.
2. Network Security - Private Communication in a Public World by Charlie Kaufman, Radia Perlman and Mike Speciner, Pearson/PHI.
3. Cryptography and network Security, Third edition, Stallings, PHI/Pearson

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

SOFTWARE TESTING METHODOLOGIES

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	4	0-0-0	4

UNIT-I:

Introduction: Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of bugs. Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.

UNIT-II:

Transaction Flow Testing: Transaction flows, transaction flow testing techniques. Dataflow testing:- Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing. Domain Testing:-domains and paths, Nice & ugly domains, domain testing, domain and interface testing, domains and testability.

UNIT-III:

Paths, Path products and Regular expressions: Path products & path expression, reduction procedure, applications, regular expressions & flow anomaly detection.

UNIT-IV:

Logic Based Testing: Overview, decision tables, path expressions, kv charts, specifications. State, State Graphs and Transition testing: State graphs, good & bad state graphs, state testing, Testability tips.

UNIT-V:

Graph Matrices and Application: Motivational overview, matrix of graph, relations, power of a matrix, node reduction algorithm, building tools.

Regression testing, Rapid testing, Performance testing of a data base application and HTTP connection for website access.

TEXT BOOKS:

1. Software Testing techniques - Baris Beizer, Dreamtech, second edition.
2. Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech.

REFERENCE BOOKS:

1. The craft of software testing - Brian Marick, Pearson Education.
2. Software Testing Techniques – SPD(Oreille)
3. Software Testing in the Real World – Edward Kit, Pearson.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

DATA WAREHOUSING AND DATA MINING

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	4	1-0-0	4

UNIT-I:

Introduction: Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Data Mining Task Primitives, Integration of a Data Mining System with a Database or a Data Warehouse System, Major issues in Data Mining.

Data Preprocessing: Need for Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation.

UNIT-II:

Data Warehouse and OLAP Technology for Data Mining: Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Further Development of Data Cube Technology, From Data Warehousing to Data Mining

Data Cube Computation and Data Generalization: Efficient Methods for Data Cube Computation, Further Development of Data Cube and OLAP Technology, Attribute-Oriented Induction.

Mining Frequent Patterns, Associations and Correlations: Basic Concepts, Efficient and Scalable Frequent Itemset Mining Methods, Mining various kinds of Association Rules, From Association Mining to Correlation Analysis, Constraint-Based Association Mining

UNIT-III:

Classification and Prediction: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Rule-Based Classification, Classification by Backpropagation, Support Vector Machines, Associative Classification, Lazy Learners, Other Classification Methods, Prediction, Accuracy and Error measures, Evaluating the accuracy of a Classifier or a Predictor, Ensemble Methods

UNIT-IV:

Cluster Analysis Introduction :Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Hierarchical Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Clustering High-Dimensional Data, Constraint-Based Cluster Analysis, Outlier Analysis.

Mining Streams, Time Series and Sequence Data: Mining Data Streams, Mining Time-Series Data, Mining Sequence Patterns in Transactional Databases, Mining Sequence Patterns in Biological Data, Graph Mining, Social Network Analysis and Multirelational Data Mining:

UNIT-V:

Mining Object, Spatial, Multimedia, Text and Web Data: Multidimensional Analysis and Descriptive Mining of Complex Data Objects, Spatial Data Mining, Multimedia Data Mining, Text Mining, Mining the World Wide Web.

Applications and Trends in Data Mining: Data Mining Applications, Data Mining System Products and Research Prototypes, Additional Themes on Data Mining and Social Impacts of Data Mining.

TEXT BOOKS:

1. Data Mining – Concepts and Techniques - Jiawei Han & Micheline Kamber, Morgan Kaufmann Publishers, Elsevier, 2nd Edition, 2006.
2. Introduction to Data Mining – Pang-Ning Tan, Michael Steinbach and Vipin Kumar,

Pearson education.

REFERENCE BOOKS:

1. Data Mining Techniques – Arun K Pujari, 2nd edition, Universities Press.
2. Data Warehousing in the Real World – Sam Aanhory & Dennis Murray Pearson Edn Asia.
3. Insight into Data Mining, K.P.Soman, S.Diwakar, V.Ajay, PHI, 2008.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

**SOFTWARE ARCHITECTURE AND DESIGN PATTERN
(Elective – II)
(Common to CSE, IT)**

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	3	0-0-0	3

UNIT-I:

Envisioning Architecture The Architecture Business Cycle, What is Software Architecture, Architectural patterns, reference models, reference architectures, architectural structures and views. Creating an Architecture

Quality Attributes, Achieving qualities, Architectural styles and patterns, designing the Architecture, Documenting software architectures, Reconstructing Software Architecture.

UNIT-II:

Analyzing Architectures Architecture Evaluation, Architecture design decision making, ATAM, CBAM. Moving from one system to many Software Product Lines, Building systems from off the shelf components, Software architecture in future.

UNIT-III:

Patterns Pattern Description, Organizing catalogs, role in solving design problems, Selection and usage. Creational and Structural patterns Abstract factory, builder, factory method, prototype, singleton, adapter, bridge, composite, façade, flyweight.

UNIT-IV:

Behavioral patterns Chain of responsibility, command, Interpreter, iterator, mediator, memento, observer, state, strategy, template method, visitor.

UNIT-V:

Case Studies A-7E –A case study in utilizing architectural structures, The World Wide Web -a case study in interoperability, Air Traffic Control –a case study in designing for high availability, Celsius Tech –a case study in product line development,

TEXT BOOKS:

1. Software Architecture in Practice, second edition, Len Bass, Paul Clements & Rick Kazman, Pearson Education, 2003.
2. Design Patterns, Erich Gamma, Pearson Education, 1995.

REFERENCE BOOKS:

1. Software Architecture in Practice, Len Bass, Paul Clements, Rick Kazman.
2. Documenting Software Architectures: Views and Beyond Paul Clements, Felix Bachmann, Len Bass, David Garlen, James Ivers, Reed Little, Robert Nord, Judith Stafford.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

**DATABASE SECURITY
(Elective – II)**

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	3	0-0-0	3

UNIT-I:

Introduction

Introduction to Databases Security Problems in Databases Security Controls Conclusions

Security Models -1.

Introduction Access Matrix Model Take-Grant Model Acten Model PN Model Hartson and Hsiao's

Model Fernandez's Model Bussolati and Martella's Model for Distributed databases

UNIT-II:

Security Models -2

Bell and LaPadula's Model Biba's Model Dion's Model Sea View Model Jajodia and Sandhu's

Model The Lattice Model for the Flow Control conclusion.

Security Mechanisms

Introduction User Identification/Authentication Memory Protection Resource Protection Control Flow

Mechanisms Isolation Security Functionalities in Some Operating Systems Trusted Computer System

Evaluation Criteria

UNIT-III:

Security Software Design

Introduction A Methodological Approach to Security Software Design Secure Operating System

Design Secure DBMS Design Security Packages Database Security Design

UNIT-IV:

Statistical Database Protection & Intrusion Detection Systems

Introduction Statistics Concepts and Definitions Types of Attacks Inference Controls evaluation

Criteria for Control Comparison .Introduction IDES System RETISS System ASES System Discovery

UNIT-V:

Models For The Protection Of New Generation Database Systems -1

Introduction A Model for the Protection of Frame Based Systems A Model for the Protection of Object-oriented ,Systems SORION Model for the Protection of Object-Oriented Databases

Models For The Protection Of New Generation Database Systems -2

A Model for the Protection of New Generation Database Systems: the Orion Model Jajodia and Kogan's Model A Model for the Protection of Active Databases Conclusions

TEXT BOOKS:

1. Database Security and Auditing, Hassan A. Afyouni, India Edition, CENGAGE Learning, 2009.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
WEB SERVICES
(Elective – II)

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	3	0-0-0	3

UNIT-I:

Evolution and Emergence of Web Services –Evolution of distributed computing. Core distributed computing technologies–client/server, CORBA, JAVA RMI, Micro Soft DCOM, MOM, Challenges in Distributed Computing, role of J2EE and XML in distributed computing, emergence of Web Services and Service Oriented Architecture (SOA). Introduction to Web Services–The definition of web services, basic operational model of web services, tools and technologies enabling web services, benefits and challenges of using web services.

UNIT-II:

Web Service Architecture –Web services Architecture and its characteristics, core building blocks of web services, standards and technologies available for implementing web services, web services communication, basic steps of implementing web services. Describing Web Services –WSDL introduction, non functional service description, WSDL1.1 Vs WSDL 2.0, WSDL document, WSDL elements, WSDL binding, WSDL tools, WSDL port type, limitations of WSDL.

UNIT-III:

Brief Over View of XML –XML Document structure, XML namespaces, Defining structure in XML documents, Reuse of XML schemes, Document navigation and transformation. SOAP : Simple Object Access Protocol, Inter-application communication and wire protocols, SOAP as a messaging protocol, Structure of a SOAP message, SOAP envelope, Encoding, Service Oriented Architectures, SOA revisited, Service roles in a SOA, Reliable messaging, The enterprise Service Bus, SOA Development Lifecycle, SOAP HTTP binding, SOAP communication model, Error handling in SOAP.

UNIT-IV:

Registering and Discovering Services : The role of service registries, Service discovery, Universal Description, Discovery, and Integration, UDDI Architecture, UDDI Data Model, Interfaces, UDDI Implementation, UDDI with WSDL, UDDI specification, Service Addressing and Notification, Referencing and addressing Web Services, Web Services Notification.

UNIT-V:

SOA and web services security considerations, Network-level security mechanisms, Application-level security topologies, XML security standards, Semantics and Web Services, The semantic interoperability problem, The role of metadata, Service metadata, Overview of .NET and J2EE, SOA and Web Service Management, Managing Distributed System, Enterprise management Framework, Standard distributed management frameworks, Web service management, Richer schema languages, WS-Metadata Exchange.

TEXT BOOKS:

1. Developing Java Web Services, R. Nagappan, R. Skoczylas, R.P. Sriganesh, Wiley India
2. Web Services & SOA Principles and Technology, Second Edition, Michael P. Papazoglou.

REFERENCE BOOKS:

1. Developing Enterprise Web Services, S. Chatterjee, J. Webber, Pearson Education.
2. XML, Web Services, and the Data Revolution, F.P.Coyle, Pearson Education.
3. Building web Services with Java, 2 nd Edition, S. Graham and others, Pearson Education.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

**QUANTUM COMPUTING
(Elective – II)**

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	3	0-0-0	3

UNIT-I:

Introduction:

Introducing quantum mechanics, Quantum kinematics, quantum dynamics, quantum measurements. Single qubit, multiqubits, gates. Density operators, pure and mixed states, quantum operations, environmental effect, decoherence. Quantum no-cloning, quantum teleportation.

UNIT-II:

Quantum Cryptography:

Cryptography, classical cryptography, introduction to quantum cryptography. BB84, B92 protocols. Introduction to security proofs for these protocols.

UNIT-III:

Quantum Algorithm:

Introduction to quantum algorithms. Deutsch-Jozsa algorithm, Grover's quantum search algorithm, Simon's algorithm. Shor's quantum factorization algorithm.

UNIT-IV:

Error Correction:

Errors and correction for errors. Simple examples of error correcting codes in classical computation. Linear codes. Quantum error correction and simple examples. Shor code.

UNIT-V:

Quantum Entanglement:

Quantum correlations, Bell's inequalities, EPR paradox. Theory of quantum entanglement of pure bipartite states. Entanglement of mixed states. Peres partial transpose criterion. NPT and PPT states, bound entanglement, entanglement witnesses.

Implementations:

Different implementations of quantum computers. NMR and ensemble quantum computing, Ion trap implementations. Optical implementations.

TEXT BOOKS:

1. Quantum Computation and Quantum Information, M.A. Nielsen and I.L.Chuang, Cambridge University Press 2000.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
SOFTWARE PROJECT MANAGEMENT
(Elective – III)
(Common to CSE, IT, ECM)

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	3	1-0-0	3

UNIT-I:

Conventional Software Management:

The waterfall model, conventional software Management performance.

Improving Software Economics:

Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.

UNIT-II:

The old way and the new way:

The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

Life cycle phases:

Engineering and production stages, Inception, Elaboration, Construction, Transition phases.

Artifacts of the process:

The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

UNIT-III:

Work Flows of the process:

Software process workflows, Iteration workflows.

Checkpoints of the process:

Major mile stones, Minor Milestones, Periodic status assessments.

Iterative Process Planning:

Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning.

UNIT-IV:

Process Automation: Automation Building blocks.

Project Control and Process instrumentation: The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

Tailoring the Process: Process discriminants.

UNIT-V:

Project Organizations and Responsibilities: Line-of-Business Organizations

Future Software Project Management: Modern Project Profiles, Next generation Software economics, modern process transitions. **Case Study:** The command Center Processing and Display system- Replacement (CCPDS-R) 151

TEXT BOOKS:

1. Software Project Management, Walker Royce: Pearson Education, 2005.
2. Software Project Management, Joel Henry, Pearson Education.

REFERENCE BOOKS:

1. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw- Hill Edition.
2. Software Project Management in practice, Pankaj Jalote, Pearson Education.2005.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
IMAGE PROCESSING AND PATTERN RECOGNITION
(Elective – III)
(Common to CSE, ECM)

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	3	1-0-0	3

UNIT-I:

The digitized image and its properties:

Applications of image processing, image function, image representation, sampling, quantization, color images, metrics and topological properties of digital images, histograms, image quality, noise image.

UNIT-II:

Image preprocessing:

Pixel brightness transformation, position dependent brightness correction, gray scale transformation; geometric transformation, local preprocessing image smoothening, edge detectors, zero-crossing, scale in image processing, canny edge detection, parametric edge models, edges in multi spectral images, local preprocessing and adaptive neighborhood pre processing; image restoration;

UNIT-III:

Image segmentation:

Threshold detection methods, optimal thresholding, multispectral thresholding, thresholding in hierarchical data structures; edge based image segmentation- edge image thresholding, edge relaxation, border tracing, border detection.

UNIT-IV:

Mathematical Morphology :

Basic morphological concepts, four morphological principles, binary dilation, erosion, Hit or miss transformation, opening and closing; thinning and skeleton algorithms; Morphological segmentation –particles segmentation and watersheds, particle segmentation.

Image Textures :

statistical texture description, methods based on spatial frequencies, co-occurrence matrices, edge frequency, and texture recognition method applications Image representation and description-representation, boundary descriptors, regional descriptors.

UNIT-V:

Pattern Recognition Fundamentals:

Basic concepts of pattern recognition, fundamental problems in pattern recognition system, design concepts and methodologies, example of automatic pattern recognition systems, a simple automatic pattern recognition model.

TEXT BOOKS:

1. Millan sonka, Vaclav Hiavac, Roger Boyle, "Image Processing Analysis and Machine Vision", 3rd Edition, CL Engineering ,2013.
2. Rafel C. Gonzalez, Richard E. Woods, "Digital Image Processing", 3rd Edition, Pearson Education, 2008.

REFERENCE BOOKS:

1. Julius T. Tou , Rafel C. Gonzalez, Addison, "Pattern Recognition Principles", 1st Edition, Wesley publishing company.
2. Earl Gose, Richard Johnsonbaugh, "Pattern Recognition and Image Analysis", 1st Edition,

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY

UGC AUTONOMOUS

MOBILE COMPUTING

(Elective – III)

B.Tech CSE	L	T-P-D	C
IV Year – I Semester	3	1-0-0	3

UNIT-I:

GSM: Mobile Services, System Architecture, Radio Interface, Protocols, Localization and Calling, Handover, Security, and New Data Services.

Mobile computing (MC): Introduction to MC, Novel Applications, Limitations and Architecture.

UNIT-II:

(Wireless) Medium Access Control (MAC):

Motivation for a Specialized MAC (Hidden and Exposed Terminals, Near and Far Terminals), SDMA, FDMA, TDMA, CDMA, MAC Protocols for GSM.

UNIT-III:

Mobile IP Network Layer:

IP and Mobile IP Network Layers, Packet Delivery and Handover Management, Registration, Tunneling and Encapsulation, Route Optimization, DHCP.

Mobile Transport Layer:

Conventional TCP/IP Protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other Transport Layer Protocols for Mobile Networks.

UNIT-IV:

Database Issues:

Database Hoarding & Caching Techniques, Client –Server Computing & Adaptation, Transactional Models, Query Processing, Data Recovery Process & QoS Issues.

Data Dissemination and Synchronization :

Communications Asymmetry Classification of Data Delivery Mechanisms , Data Dissemination Broadcast Models , Selective Tuning and Indexing Methods ,Digital Audio and Video Broadcasting (DAB & DVB).Data Synchronization –Introduction ,Software ,and Protocols.

UNIT-V:

Mobile Ad hoc Networks (MANETs):

Introduction, localization, MAC issues, Routing protocols, global state routing(GSR), Destination sequenced distance vector routing (DSDV), Dynamic source routing (DSR), Ad Hoc on demand distance vector routing (AODV), Temporary ordered routing algorithm (TORA), QoS in Ad Hoc Networks, Applications & Challenges of a MANET.

TEXT BOOKS:

1. "Mobile Communications", Jochen Schiller, Addison-Wesley, Second Edition, 2004
2. Stojmenovic and Cacute, "Handbook of Wireless Networks and Mobile Computing", Wiley, 2002,

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

**SOFT COMPUTING
(Elective – III)**

B.Tech CSE	L	T-P-D	C
IV Year – I Semester	3	1-0-0	3

UNIT-I:

Introduction : Neural Networks, Fuzzy Logic, Genetic Algorithms, Hybrid Systems, Soft Computing, Soft Computing Constituents, Soft Computing Characteristics. Artificial Neural Networks : Introduction, Fundamental Concept, Evolution of Neural Networks, Basic models of ANN, Important Terminologies.

UNIT-II:

Supervised Learning Networks : Introduction, Perceptron Networks, Adaptive Linear Neuron, Back propagation Network. Associative Memory Networks : Introduction, Training Algorithms for pattern association and Hopfield Networks.

UNIT-III:

Unsupervised Learning Network : Introduction, Fixed Weight Competitive Nets, Kohonen Self-Organizing Feature Maps, Counter Propagation Networks.

Fuzzy Sets : Introduction, Classical Sets, Fuzzy Sets, Classical Relations, Fuzzy Relations

UNIT-IV:

Membership functions- Features, Fuzzification, Membership value assignments, Defuzzification Methods, Fuzzy Arithmetic, Fuzzy Measures, Fuzzy Inference Systems, Fuzzy Logic Control Systems

UNIT-V:

Genetic Algorithms- Introduction, Basic operators and terminology, Traditional Algorithm vs Genetic Algorithm, Simple GA, General GA, Classification of GA, Genetic Programming, Applications of GA.

Applications of Soft Computing : Internet Search Technique, Hybrid Fuzzy Controllers.

TEXT BOOKS:

1. Principles of Soft Computing- S N Sivanandam, S N Deepa, Wiley India, 2007
2. Neuro-Fuzzy and Soft Computing A Computational Approach to Learning and Machine Intelligence – J.S.R.Jang, C.T.Sun, E.Mizutani, PHI 177

REFERENCE BOOKS:

1. Artificial Intelligence and Soft Computing- Behavioral and Cognitive Modeling of the Human Brain- Amit Konar, CRC press, Taylor and Francis Group.
2. Soft Computing and Intelligent System Design -Fakhreddine O Karray, Clarence D Silva,. Pearson Edition, 2004.
3. Artificial Intelligence – Patric Henry Winston – Third Edition, Pearson Education.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

**COMPUTER GRAPHICS
(Common to CSE,IT,ECM)**

B.Tech CSE	L	T-P-D	C
IV Year – I Semester	3	1-0-0	3

UNIT-I:

Introduction, Application areas of Computer Graphics, overview of graphics systems, video-display devices, raster-scan systems, random scan systems, graphics monitors and work stations and input devices

UNIT-II:

Output primitives: Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms.

2-D Geometrical transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.

UNIT-III:

2-D Viewing : The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm.

UNIT-IV:

3-D Object representation:

Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-spline curves, Bezier and B-spline surfaces. Basic illumination models, polygon rendering methods.

3-D Geometric transformations:

Translation, rotation, scaling, reflection and shear transformations, composite transformations,

3-D viewing: Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping.

UNIT-V:

Visible surface detection methods:

Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP-tree methods, area sub-division and octree methods

Computer animation:

Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications

TEXT BOOKS:

1. "Computer Graphics C version", Donald Hearn and M. Pauline Baker, Pearson education.
2. "Computer Graphics Principles & practice", second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.

REFERENCE BOOKS:

1. "Computer Graphics Second edition", Zhiqiang Xiang, Roy Plastock, Schaum's outlines, Tata Mc Graw hill edition.
2. "Procedural elements for Computer Graphics", David F Rogers, Tata Mc Graw hill, 2nd edition.
3. "Principles of Interactive Computer Graphics", Neuman and Sproul, TMH.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
SOFTWARE TESTING LAB

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	0	0-3-0	2

EXPERIMENT 1.

Write programs in „C“ Language to demonstrate the working of the following constructs:

- i) do...while ii) while....do

EXPERIMENT 2.

Write programs in „C“ Language to demonstrate the working of the following constructs:

- i) if...else ii) switch. iii) for

EXPERIMENT 3.

“A program written in „C“ language for Matrix Multiplication fails” Introspect the causes for its failure and write down the possible reasons for its failure.

EXPERIMENT 4.

Take any system (e.g. ATM system) and study its system specifications and report the various bugs.

EXPERIMENT 5.

Write the test cases for any known application (e.g. Banking application).

EXPERIMENT 6.

Create a test plan document for any application (e.g. Library Management System).

EXPERIMENT 7.

Study of Quick Test Professional for functional testing.

EXPERIMENT 8.

Testing the performance of a webpage.

EXPERIMENT 9.

Study of any test management tool (e.g. Quality Center).

EXPERIMENT 10.

Study of any open source-testing tool (e.g. Selenium).

EXPERIMENT 11.

Study of any bug tracking tool (e.g. Bugzilla).

EXPERIMENT 12.

Take a mini project (e.g. University admission, Placement Portal) and execute it. During the Life cycle of the mini project create the various testing documents* and final test report document

TEXT BOOKS :

1. Software Testing techniques - Baris Beizer, Dreamtech, second edition.
2. Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech.

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

DATA WAREHOUSING AND MINING LAB

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	0	0-3-0	2

Credit Risk Assessment

Description:

The business of banks is making loans. Assessing the credit worthiness of an applicant is of crucial importance. You have to develop a system to help a loan officer decide whether the credit of a customer is good, or bad. A bank's business rules regarding loans must consider two opposing factors. On the one hand, a bank wants to make as many loans as possible. Interest on these loans is the banks profit source. On the other hand, a bank cannot afford to make too many bad loans. Too many bad loans could lead to the collapse of the bank. The bank's loan policy must involve a compromise: not too strict, and not too lenient.

To do the assignment, you first and foremost need some knowledge about the world of credit. You can acquire such knowledge in a number of ways.

1. Knowledge Engineering. Find a loan officer who is willing to talk. Interview her and try to represent her knowledge in the form of production rules
2. Books. Find some training manuals for loan officers or perhaps a suitable textbook on finance. Translate this knowledge from text form to production rule form.
3. Common sense. Imagine yourself as a loan officer and make up reasonable rules which can be used to judge the credit worthiness of a loan applicant.
4. Case histories. Find records of actual cases where competent loan officers correctly judged when, and when not to, approve a loan application.

The German Credit Data:

Actual historical credit data is not always easy to come by because of confidentiality rules. Here is one such dataset, consisting of 1000 actual cases collected in Germany. credit dataset (original) Excel spreadsheet version of the German credit data. (Down load from web)

In spite of the fact that the data is German, you should probably make use of it for this assignment. (Unless you really can consult a real loan officer !)

A few notes on the German dataset

- DM stands for Deutsche Mark, the unit of currency, worth about 90 cents Canadian (but looks and acts like a quarter).
- Owns_telephone. German phone rates are much higher than in canada so fewer people own telephones.
- Foreign_worker. There are millions of these in Germany (many from Turrkey). It is very hard to get German citizenship if you were not born of German parents.
- There are 20 attributes used in judging a loan applicant. The goal is the classify the applicant into one of two categories, good or bad.

Subtasks : (Turn in your answers to the following tasks)

EXPERIMENT 1.

List all the categorical (or nominal) attributes and the real-valued attributes seperately.

EXPERIMENT 2.

What attributes do you think might be crucial in making the credit assesement ? Come up with

some simple rules in plain English using your selected attributes.

EXPERIMENT 3.

One type of model that you can create is a Decision Tree - train a Decision Tree using the complete dataset as the training data. Report the model obtained after training.

EXPERIMENT 4.

Suppose you use your above model trained on the complete dataset, and classify credit good/bad for each of the examples in the dataset. What % of examples can you classify correctly ? (This is also called testing on the training set) Why do you think you cannot get 100 % training accuracy ?

EXPERIMENT 5.

Is testing on the training set as you did above a good idea ? Why or Why not ?

EXPERIMENT 6.

One approach for solving the problem encountered in the previous question is using cross-validation ? Describe what is cross-validation briefly. Train a Decision Tree again using cross-validation and report your results. Does your accuracy increase/decrease ? Why ? (10 marks)

EXPERIMENT 7.

Check to see if the data shows a bias against "foreign workers" (attribute 20), or "personal-status" (attribute 9). One way to do this (perhaps rather simple minded) is to remove these attributes from the dataset and see if the decision tree created in those cases is significantly different from the full dataset case which you have already done. To remove an attribute you can use the preprocess tab in Weka's GUI Explorer. Did removing these attributes have any significant effect? Discuss.

EXPERIMENT 8.

Another question might be, do you really need to input so many attributes to get good results? Maybe only a few would do. For example, you could try just having attributes 2, 3, 5, 7, 10, 17 (and 21, the class attribute (naturally)). Try out some combinations. (You had removed two attributes in problem 7. Remember to reload the arff data file to get all the attributes initially before you start selecting the ones you want.)

EXPERIMENT 9.

Sometimes, the cost of rejecting an applicant who actually has a good credit (case 1) might be higher than accepting an applicant who has bad credit (case 2). Instead of counting the misclassifications equally in both cases, give a higher cost to the first case (say cost 5) and lower cost to the second case. You can do this by using a cost matrix in Weka. Train your Decision Tree again and report the Decision Tree and cross-validation results. Are they significantly different from results obtained in problem 6 (using equal cost)?

EXPERIMENT 10.

Do you think it is a good idea to prefer simple decision trees instead of having long complex decision trees ? How does the complexity of a Decision Tree relate to the bias of the model ?

EXPERIMENT 11.

You can make your Decision Trees simpler by pruning the nodes. One approach is to use Reduced Error Pruning - Explain this idea briefly. Try reduced error pruning for training your Decision Trees

using cross-validation (you can do this in Weka) and report the Decision Tree you obtain ? Also, report your accuracy using the pruned model. Does your accuracy increase ?

EXPERIMENT 12.

(Extra Credit): How can you convert a Decision Trees into "if-then-else rules". Make up your own small Decision Tree consisting of 2-3 levels and convert it into a set of rules. There also exist different classifiers that output the model in the form of rules - one such classifier in Weka is rules.PART, train this model and report the set of rules obtained. Sometimes just one attribute can be good enough in making the decision, yes, just one ! Can you predict what attribute that might be in this dataset ? OneR classifier uses a single attribute to make decisions (it chooses the attribute based on minimum error). Report the rule obtained by training a one R classifier. Rank the performance of j48, PART and oneR.

Task Resources:

Andrew Moore's Data Mining Tutorials (See tutorials on Decision Trees and Cross Validation)

- Decision Trees (Source: Tan, MSU)
- Tom Mitchell's book slides (See slides on Concept Learning and Decision Trees)
- Weka resources:
- Introduction to Weka (html version) (download ppt version)
- Download Weka
- WARFF format
- Using Weka from command lineeka Tutorial

**J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS**

**SOFT SKILLS LAB - I
(Common to all Branches)**

B.Tech. CSE	L	T-P-D	C
IV Year – I Semester	0	0-3-0	2

Activity/ Experiment = 12

KNOW YOURSELF/ SELF DISCOVERY and SOFT SKILLS

Experiment /Activity 1. Introduction—Importance of Knowing Yourself

Process of knowing yourself—SWOT analysis
Benefits of SWOT analysis---Using SWOT analysis
SWOT analysis grid—questions to complete the grid

Experiment /Activity 2. Introduction –What are soft skills?—importance of soft skills

Selling your skills—Attributes regarded as soft skills—Soft Skills
Social Soft Skills—Thinking Soft Skills—Negotiating –Exhibiting your Soft Skills

Experiment /Activity 3. Identifying your soft skills—Improving your soft skills –Train Yourself

Top 60 soft skills—Practicing soft skills—Measuring Attitudes

Time and Stress Management

Experiment /Activity 4. Introduction—The 80-20 rule—take a good look at the people around you—Examine your work

Sense of time management –around you—examine your work—sense of time management
Time is money—features of time—three secrets of time management

Experiment /Activity 5. Time management matrix—analysis of time matrix—effective scheduling

Grouping of activities—five steps to successful time management
Difficulties in time management—evils of not planning—interesting facts about time
Deal say of spending a day—time wasters—time savers—realizing the value of time
Time circle planner.
Introduction –Meaning—Effects , Kinds , and Sources of Stress
Case study—spotting stress—stress management tips

Developing Positive Attitude

Experiment /Activity 6. Introduction—meaning –features of attitudes—attitude and human behavior : Passive, Aggressive and Behavior

Formation of attitudes—change of attitudes—what can you do to change attitude?
Ways of changing attitude in a person—attitude in a workplace
Features of a good team player

Experiment /Activity 7. The power of positive attitude—developing positive attitude

Obstacles in developing positive attitude—staying negative—examples of negative attitude
Overcoming negative attitude—negative attitude and its results.

Body Language

Experiment /Activity 8. Introduction –body talk—Voluntary and involuntary body language

Forms of body language—parts of body language—origin of body language

Uses of body language—Body language in building interpersonal relations

Experiment /Activity 9. Body language in building interpersonal relations—reasons to study body language

Improving your body language –types of body language—gender differences

Body language—shaking hands

Interpreting body language

Practice in Presentation Skills

Experiment /Activity 10. Types of Presentations

Do's and Don'ts of Presentation Skills

Experiment /Activity 11. Body language in presentation skills

Experiment /Activity 12. Examples—Aspects, etc

TEXT BOOKS:

1. Soft Skills: Know Yourself and Know the World—Dr. K. Alex-S. Chand Publising-2010

REFERENCE BOOKS:

1. Managing Soft skills: K.R. Lakshminarayanan & Murugavel, Scitech Publications-2010

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
MANAGEMENT SCIENCE FOR ENGINEERS
(Common to All Branches)

B.Tech CSE	L	T-P-D	C
IV Year – II Semester	4	0-0-0	4

UNIT-I:

Introduction to Managerial Economics, Concepts of Managerial Economics:

Demand Analysis: Law of Demand, Elasticity of demand & Demand Forecasting.

Production and cost Analysis: Production functions, Laws of Returns, Economies of scale.

Cost Concepts: Different types of costs: Variable cost, Fixed cost, Marginal cost, Semi-variable cost. Break-even Analysis.

UNIT-II:

Market Structures: Different types of Markets.

Pricing: Methods of Pricing and strategies, Skimming and Penetration Pricing.

Capital budgeting: Estimation of fixed and working capital, Methods & sources of raising capital. Methods of capital budgeting, Traditional and Discounted Techniques.

Financial accounting & Financial Analysis: Overview of financial Accounts, Journal, Subsidiary books, Ledger, Trial Balance and Preparation of Trading Account, Profit & Loss Account and Balance Sheet. Financial Analysis with the help of Ratios.

UNIT-III:

Management: Functions of management. Taylor's scientific management theory, Fayol's principles of management.

Designing of organization structures: Different Methods with Merits and demerits and their suitability.

Human Recourse Management: Recruitment, Selection, Training and Development and Permanence Appraisal.

UNIT-IV:

Operation Management: Types of plant layout, Methods of production, work, study-procedure involved in Methods study and work Measurement. Statistical quality control.

\bar{X} , R, C & P charts.

Project Management: Programme Evaluation and Review Technique (P E R T), critical path method (C P M). Identification of critical path.

UNIT-V:

Material Management: Objectives, Need for Inventory Control, EOQ, ABC Analysis, VED Analysis, Purchase procedure, stores Management.

Marketing: Functions, Marketing Mix, Marketing strategies based on product life cycle, channels of distributions.

TEXT BOOKS:

1. Managerial Economics & Financial Accounting – Prentice Hall of India: Dr.M.Kasi Reddy, Dr.S.Saraswathi
2. Varshney & Maheswari: Managerial Economics, Sultan Chand, 2009.
3. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi, 2009

REFERENCE BOOKS:

1. Narayanaswamy: Financial Accounting—A Managerial Perspective, PHI, 2008.
2. S.N.Maheswari & S.K. Maheswari, Financial Accounting, Vikas, 2008.
3. P.Subba Rao : Human Resource Management.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

CLOUD COMPUTING
(Elective – IV)
(Common to CSE, IT)

B.Tech CSE	L	T-P-D	C
IV Year – II Semester	3	1-0-0	3

UNIT-I:

Principles of Parallel and Distributed Computing, Introduction to cloud computing, Cloud computing Architecture, cloud concepts and technologies, cloud services and platforms, Cloud models, cloud as a service, cloud solutions, cloud offerings, introduction to Hadoop and Mapreduce.

UNIT-II:

Cloud Platforms for Industry, Healthcare and education, Cloud Platforms in the Industry, cloud applications. Virtualization, cloud virtualization technology, deep dive: cloud virtualization,

Migrating in to cloud computing, Virtual Machines Provisioning and Virtual Machine Migration Services, On the Management of Virtual Machines for cloud Infrastructure, Comet cloud, T-Systems,

UNIT-III:

Cloud computing Applications: Industry, Health, Education, Scientific Applications, Business and Consumer Applications, Understanding Scientific Applications for Cloud Environments, Impact of Cloud computing on the role of corporate IT.

Enterprise cloud computing Paradigm, Federated cloud computing Architecture, SLA Management in Cloud Computing, Developing the cloud: cloud application Design.

UNIT-IV:

Python Basics, Python for cloud, cloud application development in python, Cloud Application Development in Python.

Programming Google App Engine with Python: A first real cloud Application, Managing Data in the cloud, Google app engine Services for Login Authentication, Optimizing UI and Logic, Making the UI Pretty: Templates and CSS, Getting Interactive. Map Reduce Programming Model and Implementations.

UNIT-V:

Cloud management, Organizational Readiness and change management in the cloud age ,Cloud Security, Data security in the cloud, Legal Issues in the Cloud , Achieving Production Readiness for the cloud Services

TEXT BOOKS:

1. Cloud Computing: Raj Kumar Buyya , James Broberg, andrzej Goscinski, 2013 Wiley
2. Mastering Cloud Computing: Raj Kumar buyya, Christian Vecchiola,selvi-2013.

REFERENCE BOOKS:

1. Cloud Computing: Arshdeep Bahga, Vijay Madiseti, 2014, University Press.
2. Cloud computing: Dr Kumar Saurab Wiley India 2011.
3. Code in the Cloud: Mark C.Chu-Carroll 2011, SPD.(Second part of IV UNIT)

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
ENTERPRISE COMPUTING
(Elective – IV)
(Common to CSE, IT)

B.Tech CSE	L	T-P-D	C
IV Year – II Semester	3	1-0-0	3

UNIT-I:

Introduction Enterprise Computing: Enterprise systems, Enterprise Resource Planning, benefits of ERP, Data in Enterprise systems, Business Intelligence.

UNIT-II:

Business Process Reengineering

Business Process Reengineering- need and challenges, - Management concerns about BPR. - BPR to build business Model for ERP. ERP & Competitive advantage, - Basic Constituents of ERP, Selection criteria for ERP Packages. Procurement process for ERP Package

UNIT-III:

Erp Packages

Overview of ERP packages – PEOPLE SOFT, SAP-R/3, BAAN IV, MFG/PRO, IFS/AVALON, ORACLE- FINANCIAL, Survey of Indian ERP Packages regarding their Coverage, performance & cost.

UNIT-IV:

Erp Implementation

ERP Implementation- issues, Role of Consultants, Vendors, Users, - Need for training, customization. ERP implementation methodology and post implementation issues and options.

UNIT-V:

Erp Case Studies

ERP Case Studies In Hrm, Finance, Production, Product Database, Materials, Sales & Distribution.

TEXT BOOKS:

1. Bret Wagner, Ellen Monk, "Concepts in Enterprise Resource Planning", 2012.
2. Bret Wagner, Ellen Monk, "Enterprise Resource Planning", Third Edition Cengage Learning, 2008.

REFERENCE BOOKS:

1. Simha R Magal : Integrated Business process with ERP Systems, Wiley 2011
2. Ashu Gupta, Rajesh Verma, Jatindar kumar, "Enterprise Resource Planning: Concepts and Applications", 2012.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
ADVANCED MOBILE COMPUTING
(Elective – IV)
(Common to CSE, IT)

B.Tech CSE	L	T-P-D	C
IV Year – II Semester	3	1-0-0	3

UNIT I : INTRODUCTION

Mobile Computing – Mobile Computing Vs wireless Networking – Mobile Computing Applications –
Characteristics of Mobile computing – Structure of Mobile Computing Application. MAC Protocols –
Wireless MAC Issues – Fixed Assignment Schemes – Random Assignment Schemes – Reservation Based Schemes.

UNIT II: MOBILE INTERNET PROTOCOL AND TRANSPORT LAYER

Overview of Mobile IP – Features of Mobile IP – Key Mechanism in Mobile IP – route Optimization. Overview of TCP/IP – Architecture of TCP/IP- Adaptation of TCP Window – Improvement in TCP Performance.

UNIT III : MOBILE TELECOMMUNICATION SYSTEM

Global System for Mobile Communication (GSM) – General Packet Radio Service (GPRS) – Universal Mobile Telecommunication System (UMTS).

UNIT IV: MOBILE AD-HOC NETWORKS

Ad-Hoc Basic Concepts – Characteristics – Applications – Design Issues – Routing – Essential of Traditional Routing Protocols –Popular Routing Protocols – Vehicular Ad Hoc networks (VANET) –MANET Vs VANET – Security.

UNIT V: MOBILE PLATFORMS AND APPLICATIONS

Mobile Device Operating Systems – Special Constrains & Requirements – Commercial Mobile Operating Systems – Software Development Kit: iOS, Android, BlackBerry, Windows Phone – MCommerce – Structure – Pros & Cons – Mobile Payment System – Security Issues.

TEXT BOOK:

1. Prasant Kumar Pattnaik, Rajib Mall, “Fundamentals of Mobile Computing”, PHI Learning Pvt. Ltd, New Delhi – 2012. 64
2. Jochen H. Schller, “Mobile Communications”, Second Edition, Pearson Education, New Delhi,2007.

REFERENCE BOOKS:

1. Dharma Prakash Agarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems", Thomson Asia Pvt Ltd, 2005.
2. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, “Principles of Mobile Computing”, Springer, 2003.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
VISUAL PROGRAMMING TECHNIQUES
(Elective – IV)
(Common to CSE, IT)

B.Tech CSE	L	T-P-D	C
IV Year – II Semester	3	1-0-0	3

UNIT-I:

Windows Programming Fundamentals – MFC – Windows – Graphics – Menus – Mouse and keyboard – Bitmaps – Palettes – Device-Independent Bitmaps

UNIT-II:

Controls – Modal and Modeless Dialog – Property – Data I/O – Sound – Timer

UNIT-III:

Memory management – SDI – MDI – MFC for Advanced windows user Interface – status bar and Toolbars – Tree view – List view – Threads

UNIT-IV:

ODBC – MFC Database classes – DAO - DLLs – Working with Images

UNIT-V:

COM Fundamentals – ActiveX control – ATL – Internet Programming

TEXT BOOKS:

1. Richard C.Leinecker and Tom Archer, “Visual C++ 6 Programming Bible”, Wiley Dream Tech Press, 2006.

REFERENCE BOOKS:

1. Lars Klander, “Core Visual C++ 6”, Pearson Education, 2000
2. Deital, DEital, Liperi and Yaeger “Visual V++ .NET How to Program” , Pearson Education, 2004.

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BIG DATA ANALYTICS

(Elective –V)

(Common to CSE, IT,ECM)

B.Tech. CSE	L	T-P-D	C
IV Year – II Semester	3	1-0-0	3

UNIT-I:

Big Data Analytics : What is big data, History of Data Management ; Structuring Big Data ; Elements of Big Data ; Big Data Analytics; Distributed and Parallel Computing for Big Data;

Big Data Analytics:What is Big Data Analytics, What Big Data Analytics Isn't, Why this sudden Hype Around Big Data Analytics, Classification of Analytics, Greatest Challenges that Prevent Business from Capitalizing Big Data; Top Challenges Facing Big Data; Why Big Data Analytics Important; Data Science; Data Scientist; Terminologies used in Big Data Environments; Basically Available Soft State Eventual Consistency (BASE); Open source Analytics Tools;

UNIT-II:

Understanding Analytics and Big Data: Comparing Reporting and Analysis, Types of Analytics; Points to Consider during Analysis; Developing an Analytic Team; Understanding Text Analytics;

Analytical Approach and Tools to Analyze Data: Analytical Approaches; History of Analytical Tools; Introducing Popular Analytical Tools; Comparing Various Analytical Tools.

UNIT-III:

Understanding MapReduce Fundamentals and HBase : The MapReduce Framework; Techniques to Optimize MapReduce Jobs; Uses of MapReduce; Role of HBase in Big Data Processing; Storing Data in Hadoop : Introduction of HDFS, Architecture, HDFS Files, File system types, commands, org.apache.hadoop.io package, HDFS High Availability; Introducing HBase, Architecture, Storing Big Data with HBase , Interacting with the Hadoop Ecosystem; HBase in Operations-Programming with HBase; Installation, Combining HBase and HDFS;

UNIT-IV:

Big Data Technology Landscape and Hadoop : NoSQL, Hadoop; RDBMS versus Hadoop; Distributed Computing Challenges; History of Hadoop; Hadoop Overview; Use Case of Hadoop; Hadoop Distributors; HDFS (Hadoop Distributed File System), HDFS Daemons, read,write, Replica Processing of Data with Hadoop; Managing Resources and Applications with Hadoop YARN.

UNIT-V:

Social Media Analytics and Text Mining: Introducing Social Media; Key elements of Social Media; Text mining; Understanding Text Mining Process; Sentiment Analysis, Performing Social Media Analytics and Opinion Mining on Tweets;

Mobile Analytics: Introducing Mobile Analytics; Define Mobile Analytics; Mobile Analytics and Web

TEXT BOOKS:

1. BIG DATA and ANALYTICS, Seema Acharya, Subhasinin Chellappan, Wiley publications.
2. BIG DATA, Black Book™ , DreamTech Press, 2015 Edition.
3. BUSINESS ANALYTICS 5e , BY Albright |Winston

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UGC AUTONOMOUS**

**INTERNET OF THINGS
(Elective – IV)
(Common to CSE, IT,ECM)**

B.Tech. CSE	L	T-P-D	C
IV Year – II Semester	3	1-0-0	3

UNIT-I:

Introduction to Internet of Things –Definition and Characteristics of IoT,

Physical Design of IoT – IoT Protocols, IoT communication models, IoT Communication APIs

IoT enabled Technologies – Wireless Sensor Networks, Cloud Computing, Big data analytics, Communication protocols, Embedded Systems, IoT Levels and Templates

Domain Specific IoTs – Home, City, Environment, Energy, Retail, Logistics, Agriculture, Industry, health and Lifestyle

UNIT-II:

IoT and M2M – Software defined networks, network function virtualization, difference between SDN and NFV for IoT

Basics of IoT System Management with NETCOZF, YANG- NETCONF, YANG, SNMP NETOPEER

UNIT-III:

Introduction to Python - Language features of Python, Data types, data structures, Control of flow, functions, modules, packaging, file handling, data/time operations, classes, Exception handling

UNIT-IV:

IoT Physical Devices and Endpoints - Introduction to Raspberry PI-Interfaces (serial, SPI, I2C) Programming – Python program with Raspberry PI with focus of interfacing external gadgets, controlling output, reading input from pins.

UNIT-V:

IoT Physical Servers and Cloud Offerings – Introduction to Cloud Storage models and communication APIs Webserver – Web server for IoT, Cloud for IoT, Python web application framework

TEXT BOOKS:

1. Internet of Things - A Hands-on Approach, Arshdeep Bahga and Vijay Madiseti, Universities Press, 2015, ISBN: 9788173719547
2. Getting Started with Raspberry Pi, Matt Richardson & Shawn Wallace, O'Reilly (SPD), 2014, ISBN: 9789350239759

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
CYBER SECURITY
(Elective – IV)
(Common to CSE, IT,ECM)

B.Tech. CSE	L	T-P-D	C
IV Year – II Semester	3	1-0-0	3

UNIT-I :

Introduction to Cybercrime: Introduction, Cybercrime and Information security, who are cybercriminals, Classifications of Cybercrimes, Cybercrime: The legal Perspectives and Indian Perspective, Cybercrime and the Indian ITA 2000, A Global Perspective on Cybercrimes.

Cyber offenses: How criminals Plan Them: Introduction, How Criminals plan the Attacks, Social Engineering, Cyber stalking, Cyber cafe and Cybercrimes, Botnets: The Fuel for Cybercrime, Attack Vector, Cloud Computing.

UNIT-II :

Cybercrime: Mobile and Wireless Devices: Introduction, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit card Frauds in Mobile and Wireless Computing Era, Security Challenges Posed by Mobile Devices, Registry Settings for Mobile Devices, Authentication service Security, Attacks on Mobile/Cell Phones, Mobile Devices: Security Implications for Organizations, Organizational Measures for Handling Mobile, Organizational Security Policies an Measures in Mobile Computing Era, Laptops.

UNIT- III:

Cybercrimes and Cyber security: the Legal Perspectives: Introduction: Cyber Crime and Legal Landscape around the world, Why Do We Need Cyber laws: The Indian Context, The Indian IT Act, Challenges to Indian Law and Cybercrime Scenario In India, Digital signatures and the Indian IT Act, Amendments to the Indian IT Act, Cybercrime and Punishment

Cyber law, Technology and Students: Indian Scenario.

UNIT- IV :

Understanding Computer Forensics

Introduction, Historical background of Cyber forensics, Digital Forensics Science, The Need for Computer Forensics, Cyber Forensics and Digital evidence, Forensics Analysis of Email, Digital Forensics Lifecycle, Chain of Custody concept, Network Forensics, Approaching a computer, Forensics Investigation, Challenges in Computer Forensics, Special Tools and Techniques
Forensics Auditing

UNIT-V:

Cyber Security: Organizational Implications

Introduction, Cost of Cybercrimes and IPR issues, Web threats for Organizations, Security and Privacy Implications, Social media marketing: Security Risks and Perils for Organizations, Social Computing and the associated challenges for Organizations.

TEXT BOOKS:

1. **Cyber Security:** *Understanding Cyber Crimes, Computer Forensics and Legal Perspectives*, Nina Godbole and Sunil Belapure, Wiley INDIA.
2. **Introduction to Cyber Security** , Chwan-Hwa(john) Wu,J.David Irwin.CRC Press T&F Group

REFERENCE BOOK:

Cyber Security Essentials, James Graham, Richard Howard and Ryan Otson, CRC Press.

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MACHINE LEARNING
(Elective – IV)
(Common to CSE, IT)

B.Tech. CSE	L	T-P-D	C
IV Year – II Semester	3	1-0-0	3

UNIT-I :

INTRODUCTION - Well-posed learning problems, Designing a learning system, Perspectives and issues in machine learning

Concept learning and the general to specific ordering – Introduction, A concept learning task, Concept learning as search, Find-S: finding a maximally specific hypothesis, Version spaces and the candidate elimination algorithm, Remarks on version spaces and candidate elimination, Inductive bias

UNIT-II :

Decision Tree learning – Introduction, Decision tree representation, Appropriate problems for decision tree learning, The basic decision tree learning algorithm, Hypothesis space search in decision tree learning, Inductive bias in decision tree learning, Issues in decision tree learning

Artificial Neural Networks – Introduction, Neural network representation, Appropriate problems for neural network learning, Perceptions, Multilayer networks and the back propagation algorithm, Remarks on the back propagation algorithm, An illustrative example face recognition

Advanced topics in artificial neural networks

Evaluation Hypotheses – Motivation, Estimation hypothesis accuracy, Basics of sampling theory, A general approach for deriving confidence intervals, Difference in error of two hypotheses, Comparing learning algorithms

UNIT-III :

Bayesian learning – Introduction, Bayes theorem, Bayes theorem and concept learning, Maximum likelihood and least squared error hypotheses, Maximum likelihood hypotheses for predicting probabilities, Minimum description length principle, Bayes optimal classifier, Gibbs algorithm, Naïve Bayes classifier, An example learning to classify text, Bayesian belief networks The EM algorithm

Computational learning theory – Introduction, Probability learning an approximately correct hypothesis, Sample complexity for Finite Hypothesis Space, Sample Complexity for infinite Hypothesis Spaces, The mistake bound model of learning - **Instance-Based Learning**- Introduction, k -Nearest Neighbour Learning, Locally Weighted Regression, Radial Basis Functions, Case-Based Reasoning, Remarks on Lazy and Eager Learning

Genetic Algorithms – Motivation, Genetic Algorithms, An illustrative Example, Hypothesis Space Search, Genetic Programming, Models of Evolution and Learning, Parallelizing Genetic Algorithms

UNIT-IV :

Learning Sets of Rules – Introduction, Sequential Covering Algorithms, Learning Rule Sets: Summary, Learning First Order Rules, Learning Sets of First Order Rules: FOIL, Induction as Inverted Deduction, Inverting Resolution

Analytical Learning - Introduction, Learning with Perfect Domain Theories: Prolog-EBG Remarks on Explanation-Based Learning, Explanation-Based Learning of Search Control Knowledge

UNIT-V :

Combining Inductive and Analytical Learning – Motivation, Inductive-Analytical Approaches to Learning, Using Prior Knowledge to Initialize the Hypothesis, Using Prior Knowledge to Alter the Search Objective, Using Prior Knowledge to Augment Search Operators,

Reinforcement Learning – Introduction, The Learning Task, Q Learning, Non-Deterministic, Rewards and Actions, Temporal Difference Learning, Generalizing from Examples, Relationship to Dynamic Programming

TEXT BOOKS:

1. Machine Learning – Tom M. Mitchell, - MGH
2. Machine Learning: An Algorithmic Perspective, Stephen Marsland, Taylor & Francis (CRC)

REFERENCE BOOKS:

1. Machine Learning Methods in the Environmental Sciences, Neural Networks, William whsieh, Cambridge Univ Press.
2. Richard O. Duda. Peter E. Hart and David G. Stork, Pattern classification, John Wiley & Sons Inc., 2001.
3. Chris Bishop, Neural Networks for Pattern Recognition, Oxford University Presss, 1995.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
SOFT SKILLS LAB - II
(Common to all Branches)

B.Tech. CSE	L	T-P-D	C
IV Year – II Semester	0	0-3-0	2
Activity Group Discussion			

Experiment /Activity 1. Dynamics of Group discussion—tips for Group Discussion—Traits tested in GD

Experiment /Activity 2. Non-verbal Communication in GD

Experiment /Activity 3. Body language in GD

Activity II Interview Skills

Experiment /Activity 4. Introduction—types of Interview

Experiment /Activity 5. FAQ's in Interview

Experiment /Activity 6. Reasons for rejecting a candidate

Experiment /Activity 7. On the day of interview

Experiment /Activity 8. Common mistakes in interview

Experiment /Activity 9. Post interview etiquette

Experiment /Activity 10. Dress code and tips for job seekers at interview

Experiment /Activity 11. Body language in Interview skills

Activity III Mock Interview

Experiment /Activity 12. Parameters to evaluate students' performance

TEXT BOOKS:

1. Soft Skills: Know Yourself and Know the World—Dr. K. Alex-S. Chand Publising-2010

REFERENCE BOOKS:

1. Managing Soft skills: K.R. Lakshminarayanan & Murugavel, Scitech Publications-2010