



ANURAG GROUP OF INSTITUTIONS

(AUTONOMOUS)

(Formerly CVSR College of Engineering)

Venkatapur, Ghatkesar, Hyderabad – 501 301.

www.cvsr.ac.in

B.Tech. Programs:

Chemical Engineering
Civil Engineering
Computer Science and Engineering
Electrical and Electronics Engineering
Electronics and Communication Engineering
Information Technology
Mechanical Engineering

Pharmacy Programs:

B.Pharmacy
Pharma-D
Pharma-D (Post Baccalaureate)
M.Pharm (Pharmaceutics)
M.Pharm (Pharmacology)
M.Pharm (Pharmaceutical Analysis
& Quality Assurance)
M.Pharm (Industrial Pharmacy)

M.Tech. Programs:

M.Tech (Computer Science and Engineering)
M.Tech (Software Engineering)
M.Tech (Computer Science)
M.Tech (Computer Networks & Information Security)
M.Tech (Power Electronics & Electrical Drives)
M.Tech (Electrical Power Systems)
M.Tech (CAD/CAM)
M.Tech (Machine Design)
M.Tech (VLSI System Design)
M.Tech (Embedded Systems)
M.Tech (Electronics & Communications Engineering)
M.Tech (Wireless & Mobile Communication)
M.Tech (Structural Engineering)
M.Tech (Construction Management)

Master of Business Administration
Master of Computer Application

COURSE STRUCTURE AND DETAILED SYLLABUS

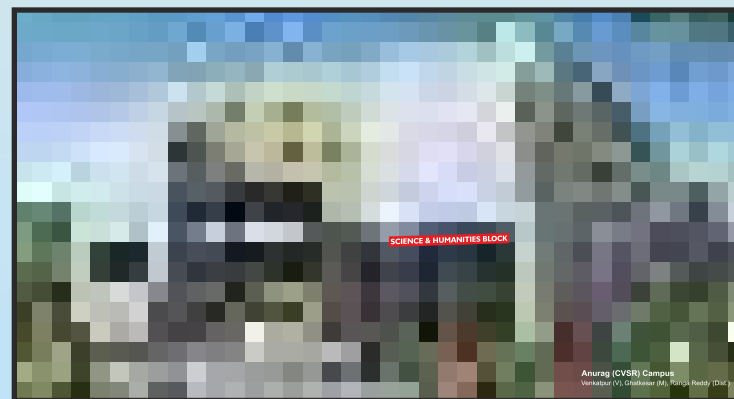
II- B.TECH - I & II - SEMESTERS

COMPUTER SCIENCE & ENGINEERING

FOR

B.TECH FOUR YEAR DEGREE COURSE

(Applicable for the batches admitted from 2014-2015)



ANURAG GROUP OF INSTITUTIONS

(AUTONOMOUS)

(Formerly CVSR College of Engineering)

Venkatapur, Ghatkesar, Hyderabad – 501 301.

www.cvsr.ac.in

COURSE STRUCTURE AND DETAILED SYLLABUS

IV- B.TECH - I & II - SEMESTERS

COMPUTER SCIENCE & ENGINEERING

FOR
B.TECH FOUR YEAR DEGREE COURSE
(Applicable for the batches admitted from 2014-2015)



ANURAG GROUP OF INSTITUTIONS

(AUTONOMOUS)

(Formerly CVSR College of Engineering)

Venkatapur, Ghatkesar, Hyderabad – 501 301.

www.cvsr.ac.in

COURSE STRUCTURE AND SYLLABUS

II YEAR I SEMESTER

Code	Subject Name	Lectures	T/P/D	Credits
AA53021	Probability & Statistics	3	1	3
A53022	Discrete Mathematics	3	1	3
A53023	Data Structures	4	0	4
A53009	Electronic Devices and Circuits	3	1	3
A53024	Digital Logic Design	3	1	3
A53025	Object Oriented Programming	4	0	4
A53209	Electronic Devices and Electrical Circuits Lab	0	3	2
A53210	Data Structures Lab	0	3	2
A53026	Personality Development – I*	0	2	1
	Total	20	12	25

Code	Subject Name	Lectures	T/P/D	Credits
A54010	Environmental Studies	3	0	3
A54017	Formal Languages and Automata Theory	3	1	3
A54018	Computer Organization	3	1	3
A54019	Database Management Systems	4	0	4
A54020	Software Engineering	3	1	3
A54021	Java Programming	4	0	4
A54211	Java Programming Lab	0	3	2
A54212	Database Management systems lab	0	3	2
A542022	Personality Development – II*	0	2	1
	Total	20	11	25

*Personality Development Courses I and II carries 50 Marks each. Marks to be awarded by conducting an internal evaluation. There shall be no external examination for these courses.

A Student shall be deemed to have satisfied minimum academic requirements if he/she secures a minimum of 40% marks in the examination otherwise he/she need to re-register for the course.



ANURAG GROUP OF INSTITUTIONS (Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
3 1/- 3

PROBABILITY AND STATISTICS

Course Outcomes:

Student will be able to:

1. Identify distribution in certain realistic situation. It is mainly useful for circuit as well as non-circuit branches of engineering. Also able to differentiate among many random variables involved in the probability models. It is quite useful for all branches of engineering.
2. Calculate mean and proportions (small and large sample) and to make important decisions from few samples which are taken out of unmanageably huge populations. It is mainly useful for non-circuit branches of engineering.
3. Design their experiment with the basic norms and test their design efficiency. It is useful to all the branches of engineering.
4. Understand about the random process, Markov process and Markov chains which are essentially models of many time dependent processes such as signals in communications, time series analysis, queuing systems. The student would be able to find the limiting probabilities and the probabilities in n th state. It is quite useful for all branches of engineering.
5. This course will help the CSE students later in understanding the basics of various statistical and machine learning tools.

UNIT-I: Probability: Sample space and events, Classical and Statistical definition of Probability, The axioms of probability, Some Elementary theorems of Probability, Conditional probability, Baye's theorem. Random variables, Discrete and continuous random variable,

UNIT-II: Definitions of Probability Distribution function, Probability mass function, Probability density function and properties. Definitions of Mathematical expectation, Moments (about origin & Centre), Definition of moment generating function for discrete and continuous random variable. Discrete Distributions: Binomial and Poisson distributions (definition and problems) their mean, variance and moment generating function. Continuous Distribution: Normal and exponential distributions (definition and problems) related properties.

Concepts of Joint Distribution function of more than one random variable, Definition of joint, marginal and conditional distribution (for two variables only).

UNIT-III: Sampling distribution: Populations and samples - Sampling distributions of mean (σ known and unknown)

Estimation: Concept of Point estimation and its properties (definition only), Concept of interval estimation with examples.

Test of Hypothesis: Null & Alternative Hypothesis, Critical region, Type I and Type II errors, level of significance, one tail, two-tail tests.

Large sample test: concerning means – proportions (One and Two samples).

UNIT-IV: Small sample test: Chi-Square test, Student's t-test (Single mean, Difference of mean and Paired samples) and F-test.

Design of Experiment: Introduction to ANOVA (one – way, two – way), Principles of Design of Experiment, completely randomized design (CRD), randomized complete block design (RBD), Latin Square Design (LSD). (No Derivations only concept, definitions and problems)

UNIT-V: Stochastic Process: Introduction to stochastic Process, Classification of Random Processes, Stationary and non-stationary random process, Stochastic Matrix.

Markov Chain: Classification of States, Classification of chains, Random Walk and Gambler Ruin.

Text Books:

1. Probability and Statistics for Engineers and Scientists by Sheldon M. Ross, Academic Press.
2. Probability and Statistics for Engineers by Richard A Johnson, Pearson Education.
3. Introduction to Probability by Charles M Grinstead, J Laurie Snell, American Mathematical Society.

References:

1. A.V. Skorokhod, Basic Principles and Applications of Probability Theory, Springer.
2. Arnold O. Allen, Probability & Statistics, Academic Press.
3. Hwei P. Hsu, Theory and Problems of Probability, Random Variables, and Random Processes, Schaum's Outline Series, McGraw-Hill.
4. Mendan Hall, Probability & Statistics, Beaver Thomson Publishers.

5. Miller and John E. Freund, Probability & Statistics for Engineers, Prentice Hall of India.
6. Montgomery: Design and Analysis of Experiments, Wiley.
7. T.T. Soong, Fundamentals of Probability and Statistics for Engineers, John Wiley & Sons, Ltd.
8. Zivorad R. Lazic, Design of Experiments in Chemical Engineering, Wiley-VCH.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
3 1/- 3

DISCRETE MATHEMATICS

Course Outcomes:

Student will be able to:

1. Evaluate elementary mathematical arguments and identify fallacious reasoning (not just fallacious conclusions).
2. Solve discrete mathematics problems that involve: computing permutations and combinations of a set.
3. Analyze and deduce problems involving recurrence relations and generating functions.
4. Perform operations on discrete structures such as sets, functions, relations, and sequences.
5. Apply graph theory models of data structures and state machines to solve problems of connectivity and constraint satisfaction, for example, scheduling.

UNIT -- I: Foundations: Basics, Sets, Proofs and Problem Solving Strategies, Fundamentals of Logic, Logical Inferences, Methods of Proof of an Implication, First order logic and Other methods of Proof, Rules of Inference for Quantified Propositions.

UNIT – II: Elementary Combinatorics: Basics of Counting, Combinations and Permutations, Enumerating Combinations and Permutations with & without repetitions, Constrained repetitions, Binomial Coefficients, Binomial Theorem and Multinomial Theorem and Principle of Inclusion and Exclusion.

UNIT -- III: Recurrence Relations: Generating Functions, Calculating coefficient of Generating Function, Solving Recurrence relations by substitution method and Generating Functions, The Method of Characteristic Roots, Solutions to inhomogeneous recurrence relations.

UNIT -- IV: Relations and Digraphs: Relations and Directed Graphs, Special Properties of Binary Relations, Equivalence Relations, Ordering Relations, Lattice, and Enumerations, Operations on Relations, Paths and Closures,

Directed Graphs and Adjacency matrices, topological sorting.

UNIT -- V: Graphs - Basic Concepts, Isomorphism's and Sub-graphs, Trees and Their Properties, Spanning Trees, Binary Trees, Planar Graphs, Euler's Formula, Multi-graphs and Euler Circuits, Hamiltonian Graphs, Chromatic Numbers, The Four-Color Problem.

Text Books:

1. "Discrete Mathematics for Computer Scientists and Mathematicians" by Joe L. Mott, Abraham Kandel, Theodore P. Baker, Second Edition, PHI.

Reference Books:

1. "Discrete Mathematics and its Applications", Kenneth H Rosen, Tata McGraw Hill Publishing Company Limited, New Delhi, Sixth Edition, 2007.
2. Tremblay J P and Manohar R, "Discrete Mathematical Structures with Applications to Computer Science", Tata McGraw Hill Publishing Company Limited, New Delhi, 2007
3. Discrete Computational Structures : Robert R. Korfhage , Academic Press, Second Edition(1984).
4. Rings, Fields and Groups: An Introduction to Abstract Algebra: Reg Allenby, Second Edition (1999)
5. Elements of Discrete Mathematics: L CL Liu, McGraw-Hill, First Edition(1985)
6. Discrete Mathematical Structures for Computer Science: Bernard Kolman, Robert Busby, PHI, First Edition (1987)
7. First look at graph theory: John Clark & Derek Allan Holton, Allied Publishers First Edition (1995)
8. Graph Theory with Applications to Engineering & Computer Science: Narsingh Deo, PHI (2004)

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
4 -- 4

DATA STRUCTURES

Course Outcomes:

Student will be able to:

1. Understand the representation of various static, dynamic and, hierarchical data structures.
2. Understand, design and implementation mechanism of stacks, general tree data structures with their applications, both array based and reference based implementations.
3. Implement various algorithms on graph data structures, including finding the minimum spanning tree and shortest path.
4. Implement various advance concepts of binary trees and graphs.
5. Understand the concepts of hashing, collision and its resolution methods using hash function

UNIT -- I: Introduction: What is data structure, Types of data structures, Static and Dynamic representation of data structure and comparison. Strings: String definition, String built-in functions (strlen(), strcpy(), strcat(), strcmp(), strstr()), Strings and Pointers (Ch-3,T3) Stacks: Stacks definition, operations on stacks, Representation and evaluation of expressions using Infix, Prefix and Postfix, Algorithms for conversions and evaluations of expressions from infix to prefix and postfix using stack.

UNIT -- II: Trees: Basic terminology, Types of trees: Binary Tree: terminology, Complete and Full Binary Tree, Extended Binary Trees, Threaded Binary Trees and In order Threading. Representation of Trees using Arrays and Linked lists (advantages and disadvantages). Tree Traversal and Representation of Algebraic expressions; Algorithms for Tree Traversals.

UNIT -- III: Advanced concepts on trees: Representation and Creation of Binary Search Trees (BST), Algorithm for Inserting, deleting and searching in BST. Representation and advantages of AVL Trees, algorithms on AVL Trees- Insertion, Rotation and Deletion. Definition and advantages of B-trees, B + Trees, Red-Black Trees, M-way trees with examples.

UNIT -- IV: Graphs-Basic terminology, Representation of graphs: sequential representation (Adjacency, Path Matrix) Linked representation. Graph Traversals-Breadth First Search, Depth First Search with algorithms. Definition and properties of Spanning Tree, Minimum Spanning Tree, Dijkstra Algorithms.

UNIT -- V: Hashing: General Idea, Hash Functions, Separate Chaining, Open Addressing-Linear probing, Quadratic Probing, Double Hashing, Rehashing, Extensible Hashing, Collisions in Hashing, Implementation of Dictionaries

Text Books:

- 1.Data Structures, Seymour Lipschutz, Schaum's Outlines, Tata McGraw-Hill, Special Second Edition.
- 2.Data Structures, A Pseudo code Approach with C, Richard F.Gillberg & Behrouz A. Forouzan, Cengage Learning, India Edition, Second Edition, 2005.

Reference Books:

1. "Data Structures Using C and C++", Aaron M. Tenenbaum, Yedidyah Langsam and Moshe J. Augenstein PHI Learning Private Limited, Delhi India.
2. "Fundamentals of Data Structures", Horowitz and Sahani, Galgotia Publications Pvt Ltd Delhi India.
3. Data Structure Using C, A.K. Sharma, Pearson Education India.
4. "Data Structure Using C and C++", Rajesh K. Shukla, Wiley Dreamtech Publication.
5. "Data Structures", Lipschutz, Schaum's Outline Series, Tata McGraw-hill Education (India) Pvt. Ltd.
6. "Data Structures and Algorithms in C++", Michael T. Goodrich, Roberto Tamassia, David M. Mount, Wiley India.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
3 1/- 3

ELECTRONIC DEVICES AND CIRCUITS

Course Outcomes:

Student will be able to:

1. Understand the behaviour of Electron under Electric and Magnetic fields, Working of CRT and applications of CRO.
2. Understand and analysis the different types of Diodes operation and its characteristics.
3. Design and analysis the DC Bias circuits of BJT and FET.
4. Understand the concepts related to transistor Biasing and stabilization
5. Analyze and design Diode application circuits, Amplifier circuits employing BJT and FET devices.

UNIT – I:

Electron Dynamics and CRO: Motion of charged particles in electric and magnetic fields. Simple problems involving electric and magnetic fields only. Electrostatic and magnetic focusing. Principles of CRT, deflection sensitivity (Electrostatic and magnetic deflection). Applications of CRO: Voltage, current and frequency Measurements.

UNIT-II

p-n Junction Diode and Rectifiers: Quantitative Theory of p-n junction, p-n junction as diode, diode equation, volt-ampere characteristics, temperature dependence of VI characteristic, transition and diffusion capacitances, diode equivalent circuits, breakdown mechanisms in semi conductor diodes, Zener diode characteristics. 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 and Field Effect Transistor: The junction transistor, transistor current components, transistor as an amplifier transistor construction, BJT operation, BJT symbol, Transistor as an amplifier, common

base, common emitter and common collector configurations, limits of operation, BJT specifications. The junction field effect transistor (construction, principle of operation, symbol)- pinch –off voltage –voltage –ampere characteristics, the JFET small signal model, MOSFET (construction, principle of operation, symbol) MOSFET characteristics in enhancement and depletion modes.

UNIT –IV

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 variation in V_{BE} and β_2 bias compensation using diodes and transistors. Thermal runaway, stability, biasing FET.

UNIT –V

BJT AND FET AMPLIFIERS: BJT Hybrid model, determination of h-parameters from transistor characteristics, analysis of a transistor amplifier circuit using h-parameters, comparison of a transistor amplifier circuit using h-parameters comparison of CB, CE and CC Amplifier configurations. FET Common source amplifier, common drain amplifier, generalized FET amplifier, FET, as voltage variable resistor, comparison of BJT and FET, the Unit junction transistor

TEXT BOOKS:

1. Electronic Devices and Circuits – J. Millman, C.C. Halkias, and Satyabratha Jit Tata McGraw Hill, 2nd Ed., 2007.
2. Electronic Devices and Circuits – R.L. Boylestad and Louis Nashelsky, Pearson/Prentice Hall, 9th Edition, 2006.
3. Introduction to Electronic Devices and Circuits- Rober T. Paynter PE

REFERENCE BOOKS:

1. Electronic Devices and Circuits – T.F. Bogart Jr., J.S. Beasley and G. Rico, Pearson Education, 6th edition, 2004.
2. Principles of Electronic Circuits – S.G. Burns and P.R. Bond, Galgotia Publications, 2nd Edn., 1998.
3. Microelectronics – Millman and Grabel, Tata McGraw Hill, 1988.
4. Electronic Devices and Circuits – Dr. K. Lal Kishore, B.S.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
3 1/- 3

DIGITAL LOGIC DESIGN

Course Outcomes:

Student will be able to:

1. Understand various number systems, conversions, range and error detecting and correcting codes.
2. Understand the minimization logic of gates using Boolean algebraic principles and k-maps.
3. Design various simple and complex combinational circuits.
4. Understand the basic principles behind Flip flops and the design of sequential circuits.
5. Understand the various types of memory devices and their design.

UNIT -- I: Number Systems: Binary, Octal, Hex Decimal, and Conversions, range; Binary additions and subtractions (using 1c, and 2c), concept of overflow; representations of negative numbers using 1's and 2's complement and range; BCD numbers: Representation of 8421, 2421, Ex-3, Gray and self complementary codes; additions and subtractions on 8421 codes; Error detecting codes: even, odd parity, hamming codes; Error correcting codes: hamming codes, block parity codes; Floating point representation.

UNIT -- II: Boolean Algebra and Digital Logic GATES, Basic Boolean LAWS and properties; Boolean functions; canonical and standard forms (SOP, POS); Gate minimization using three and four variable K-Map's with and without don't cares. Encoders, Decoders, Multiplexers, D-Multiplexers;

UNIT -- III: Definition of combinational circuits, design procedure for half, full, decimal (8421) adders and subtractors; Combinational Circuit Design for BCD code converters;

UNIT -- IV: Sequential circuits, latches, Flip Flops; Analysis of clocked sequential circuits, State Reduction and Assignment, Register, Ripple Counters, Synchronous Counters, Other Counters.

UNIT -- V:Types of Memory – Main memory – random access memory, ROM, Types of ROM; Decoder and RAM interface: Address lines, data lines, chip select signal; Design of large memories using small memories, using decoders; problems in memory design; Cache Memory- design issues, hit and miss ratio related problems; Associative and Auxiliary memory;

Text Books:

- 1.Digital Design – Third Edition, M. Morris Mano, Pearson Education/PHI.
- 2.Fundamentals of Logic Design, Roth, Fifth Edition, Thomson.

Reference Books:

- 1.John F. Wakerly: Digital Design: Principles and Practices, 4th Edition, Pearson / Prentice Hall, 2005
- 2.Digital Principles and Applications By Malvino & Leach, Seventh Edition, McGraw-Hill Education
- 3.Digital Electronics: Principles and Integrated Circuits By A.K. Maini, Wiley India Publications
- 4.Digital Design M. Morris Mano and Michael D. Ciletti, Pearson Education

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
4 -/- 4

OBJECT ORIENTED PROGRAMMING

Course Outcomes:

Student will be able to:

1. Describe the important concepts of object oriented programming like object and class, Encapsulation, inheritance and polymorphism
2. Develop the applications using object oriented programming with C++.
3. Understand the concept of inheritance and polymorphism.
4. Apply I/O streams and files to develop programs for real life problems.
5. Apply advance features like templates and exception handling to make programs supporting reusability and sophistication

UNIT -- I: Concepts of OOP: Introduction to OOP, Procedural versus Object Oriented Programming, Principles, Benefits and applications of OOP.

C++ Basics: Overview, Program structure, namespace, identifiers, variables, constants, enumerations, operators, typecasting, control structures.

UNIT -- II: C++ Functions: Simple functions Call and Return by reference, Inline functions, Overloading of functions, default arguments, friend functions, and virtual functions.

Objects and classes: Basics of object and class in C++, Private and public members, static data and function members, constructors and their types, destructors, operator overloading.

UNIT -- III: Inheritance: Concept of Inheritance, types of inheritance: single, multiple, multilevel, hierarchical, hybrid, protected members, overriding, virtual base class.

Polymorphism: Pointers in C++, Pointers and Objects, this pointer, virtual and pure virtual functions, implementing polymorphism.

UNIT -- IV: I/O Streams: Concept of streams, cin and cout objects, C++ stream classes, Unformatted and formatted I/O, manipulators.

File management: File stream, C++ File stream classes, File management functions, File modes, sequential and random access files.

UNIT -- V: Templates: Function and class templates, overloading of template functions.

Exceptions: Basics of exception handling, exception handling mechanisms, throwing, catching mechanisms, rethrowing an exception.

Text Books:

1. The Complete Reference C++, Herbert Schlitz, TATA McGraw Hill, Fourth Edition, 2003.
2. Object Oriented Programming in C++, Saurav Sahay, Oxford University Press, Second Edition, 2012.

Reference Books:

1. Object Oriented Programming with C++, E Balagurusamy, TATA McGraw Hill, Sixth Edition, 2013.
2. C++ Programming, Black Book, Steven Holzner, dreamtech
3. Object Oriented Programming in Turbo C++, Robert Lafore, Galgotia
4. Object Oriented Programming with ANSI and Turbo C++, Ashok Kamthane, Pearson

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
0 3/- 2

DATA STRUCTURES LAB

Course Outcomes:

Student will be able to:

1. Develop the programs on stacks and its applications.
2. Demonstrate the operations on trees.
3. Demonstrate the implementation of various advanced trees.
4. Design and implement programs on BST and Graph Traversals.
5. Develop the applications using object oriented programming with C++.

Part-A

1. Program to illustrate string built in functions
2. Program to evaluate postfix notations
3. Program to convert infix to postfix notation
4. Program to illustrate tree traversals
 - a) In order
 - b) Preorder
 - c) Post order
5. Program to illustrate insertion, deletion and searching in Binary Search Tree.
6. Program to illustrate Graph traversals
 - a) Breadth First Search
 - b) Depth First Search
7. Program to illustrate Insertion, deletion and Rotation on AVL Trees.

Part-B

1. Program to illustrate Function Overloading to calculate area of a circle, rectangle and square
2. Program to illustrate virtual function
3. Program to illustrate default constructor, parameterized constructor and copy constructors
4. Program to illustrate single Inheritance, multiple inheritance, multilevel inheritance, hybrid inheritance
5. Program to illustrate run time polymorphism, compile time polymorphism
6. Program to illustrate Operator Overloading
 - a) Unary Operator
 - b) Binary Operator
7. Program to illustrate Exception Handling Mechanisms using try, catch, throw keywords
8. Program to illustrate formatted and unformatted I/O streams

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
0 3/- 2

ELECTRONIC DEVICES AND ELECTRICAL CIRCUITS LAB

PART A:

- 1.Verification of Kirchoff’s current law and Kirchoff’s voltage law.
- 2.Verification of Superposition theorem.
- 3.Verification of maximum power transfer theorem for DC circuits.
- 4.Verification of Thevenin’s theorem.
- 5.Characteristics of DC shunt generator.
- 6.Swinburne’s test on DC shunt machine.
- 7.Brake test on DC shunt motor.
- 8.OC & SC tests on single phase transformer.
- 9.Brake test on 3 phase induction motor.

PART B:

- 1.PN Junction Diode characteristics.
- 2.Zener diode characteristics.
- 3.Transistor CE characteristics.
- 4.Rectifier without filters.
- 5.Rectifiers with filters.

NOTE:

Any 5 experiments from Part – A
All 5 experiments from Part – B

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
0 2/- 1

PERSONALITY DEVELOPMENT –I

Course Outcomes:

Student will be able to:

- 1.Improve the functional effectiveness through better written and oral communication skills.
2. Improve managerial capabilities through team building and group dynamics
- 3.Develop their leadership skills.
- 4.Prioritize their tasks through effective time management.
- 5.Design and Present their presentation skills effectively.

1.Self Assessment

- SWOT
- Presentation of Action Plan
- Acquisition of Employability Skills
- Enhancement of Clarity in Communication
- Practical Activities

2.Motivation and Goal Setting

- Self Motivation
- Pushing yourself beyond imagination
- Role Model
- Practical Activities
- Goal Setting- Process
- Practical Activities

3.Self- Confidence

- Command on Language
- Command on Subject
- Self Efficacy
- Self Esteem
- Self Competence
- Practical Activities

4. Time Management

- Procrastination
- Prioritisation
- Valuing Others Time
- Setting Timelines
- Activities
- Practical Session

5. Etiquette and Grooming

- Personal Habits
- Dressing Sense
- Behaviour Control
- General Etiquette
- Situational Courtesies
- Practical Sessions

6. Presentation Skills and Public Speaking

- Techniques of Presentation Skills
- Extempore Speaking
- Body Posture (Non-Verbal Communication)
- Personal Grooming
- Public Speaking
- Role Play on above topics

Text Book:

1. Personality Development – Verbal Work Book, Career Development Centre, SRM Publications

Reference Books:

1. Green Sharon Weiner M.A & Wolf Ira K. Barron's New GRE, 19th Edition. Barron's Educational Series, Inc, 2011.
2. Lewis Norman, "Word Power Made Easy", Published by W.R.Goyal Pub, 2011.
3. Thorpe Edgar and Thorpe Showich, "Objective English", Pearson Education 2012.
4. Murphy Raymond, "Intermediate English Grammar ", (Second Edition), Cambridge University Press, 2012.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – II Sem

L T/P C
3 -/- 3

ENVIRONMENTAL STUDIES

Course Outcomes:

Student will be able to:

- 1.Conservation of natural resources.
- 2.Understand Requirement to conserve environment.
- 3.Understand the National and international efforts to save globe.
- 4.Know importance of sustainable development.
- 5.Impart basic knowledge, awareness & Skills for solving real life environmental problems in order to improve the quality of life.

UNIT – I

Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance – Need for Public Awareness. (a) Ecosystems: Concept of an ecosystem – Classification, structure and function of different ecosystems - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession - Food chains, food webs and ecological pyramids.

(b) Biodiversity and its conservation: Introduction - Definition: genetic, species and ecosystem diversity. - Bio-geographical classification of India - Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. ICUN categories of biodiversity and RED DATA book - Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT – II

Natural Resources : Renewable and non-renewable – Natural resources and associated problems: Forest resources – Use and over – exploitation, deforestation,– Timber extraction, mining, dams and other effects on forest and tribal people: Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems – Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources. - Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-

pesticide problems, water logging, salinity. - Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources. Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources: Equitable use of resources for sustainable lifestyles.

UNIT – III

(a) Environmental Pollution: Definition, Cause, effects and control measures of different kinds of pollution (Air, Water , Soil , Marine , Noise , Thermal, Nuclear, e–Waste)

(b) Social Issues and the Environment: From Unsustainable to Sustainable development -Urban problems related to energy -Water conservation, rain water harvesting, and watershed management. -Climate change, global warming, ozone layer depletion, nuclear accidents and holocaust.

UNIT – VI

(a) Waste management technology: Solid waste Management: Causes, effects and control measures of urban and industrial wastes. - Role of an individual in prevention of pollution, Disaster management: floods, earthquake, cyclone and landslides. Waste water and sewage treatment technology: primary, secondary and tertiary treatments. Bioremediation, Phyto-remediation, ZLD (zero liquid discharge), membrane technology. Application of GIS and GPS system in environmental science.

(b) Environmental policy, Rules and regulations. EIA (Environmental Impact Assessment) & EMP (ENVIRONMENTAL Management Plan) – Environment Protection Act. - Air (Prevention and Control of Pollution) Act. - Water (Prevention and control of Pollution) Act - Wildlife Protection Act –Forest Conservation Act.-Public awareness. Global environmental problems and global efforts.

UNIT – V

(a) Towards sustainable future: concept of sustainable development, threats of sustainability, population and its explosion, over exploitation of resources, strategies for achieving sustainable development. Environmental education, Conservation of resources. Urban sprawl, sustainable cities and sustainable communities, human health. Role of IT in environment, environmental ethics, concept of green building, Basic principles of Green engineering, clean development mechanism (CDM), Low carbon life cycle, Polluters-pay principle.

(b) Field work: Visit to a local area to document environmental assets River/forest grassland/hill/ mountain Visit to a local polluted site-Urban/Rural/industrial/ Agricultural Study of common plants, insects, birds, Visit to effluent treatment plant/sewage treatment plant Study of simple eco systems pond, river, hill slopes, etc. Mini projects by students which is mandatory.

TEXT BOOK:

- 1.Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission, University Press.
- 2.Environmental studies, From Crisis to cure by R.Rajagopalan,2005

REFERENCES:

- 1.Environmental Science: towards a sustainable future by Richard T.Wright.2008 PHL Learning Private Ltd .New Delhi
- 2.Environmental Engineering and science by Gilbert M.Masters and Wendell P.Ela.2008 PHI Learning Pvt. Ltd.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – II Sem

L T/P C
3 1/- 3

FORMAL LANGUAGES AND AUTOMATA THEORY

Course Outcomes:

Student will be able to:

1. Understand the basic elements of a language and how to represent strings and grammar of the language.
2. Understand the representation of regular expressions, Analyze the functioning of Deterministic and non deterministic finite-state machines.
3. Design and understand the principles and various forms of Context free Grammars (regular, context sensitive and unrestricted) and their recognizers.
4. Design and understand the principles and various forms of Regular and context sensitive grammars and their recognizers.
5. Understand un-restricted grammars and able to design Turing machines and Related concepts like un-decidability, churches hypothesis, Computability and complexity.

UNIT -- I: Fundamental concepts: Strings, Alphabets, Language operations, Regular Expressions, Regular Languages: Finite automata, Types of finite automata (FA)-Non deterministic Finite Automata (NFA), Deterministic Finite Automata(DFA), NFA with ϵ -Moves, regular expression representation; Regular expressions to NFA; NFA with ϵ -Moves to NFA without ϵ -Moves; NFA to DFA Conversions; Minimization of DFA: (Proofs Not Required)

UNIT -- II: DFA with more than two outputs: Moore and Melay machines, Pumping Lemma for Regular Sets: Closure properties of Regular Sets (Proofs Not Required): Context Free Grammars (CFG), Right most, Left most –derivations, Parse Trees; Operator Grammar: Unit productions; Chomsky normal forms; (Proofs Not Required)

UNIT -- III: Left recursion and Elimination of left recursion in CFG: Elimination of useless symbols and unit productions; Greibach Normal Form, Push Down automata (PDA): Types of PDA: Design of a PDA for a given CFG. (Proofs Not Required)

UNIT -- IV: Regular Grammars (RG), Design of DFA for a given RG: Right linear and left linear Grammars and conversions: Definition of Context Sensitive Grammar (CFG) and Linear bounded automata (LBA) (Proofs Not Required)

UNIT -- V: Definition of unrestricted Grammar and Turing Machine (TM): Chomsky hierarchy on Languages, Grammars and recognizers; Design of TM as recognizer; Types of TM: Computational problems of TM with multiple tracks; Decidability Problem; Churches hypothesis (Proofs Not Required)

Text Books:

- 1.Introduction to Automata Theory, Languages and Computation, John E.Hopcroft, Rajeev Motwani , Jeffrey D.Ullman, Pearson, Third Edition.
- 2.Theory of Computation, Vivek Kulakarni, Oxford University press 2013, Second impression 2014

Reference Books:

- 1.Introduction to Computer theory, Daniel I.A.Cohen, John Wiley.
- 2.Introduction to languages and the theory of Computation, John C Martin,TATA McGraw Hill.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – II Sem

L T/P C
3 1/- 3

COMPUTER ORGANIZATION

Course Outcomes:

Student will be able to:

1. Understand Instruction format and life cycle.
2. Learn and Understand CPU Architecture and Organization
3. Learn and understand the basics of assembly language and Memory interface.
4. Understand the different types of I/O interface with CPU.
5. Understand the different types of Multiprocessor systems and their advantages.

UNIT -- I: Instruction: Instruction Definition, instruction cycle, instruction storage, types of instruction formats (Zero, one, two and three address). Addressing modes: mode field, implied, immediate register, register direct, register indirect, auto increment, decrement, indexed, relative, base address mode, Numerical examples and problems.

UNIT -- II: CPU-Organization: 8086 – CPU – Block diagram and pin diagram, concept of pipelining, minimum and maximum mode, segment register and generation of 20 bits address, concept of address, data, control and systems bus, Types of flags.

UNIT -- III: CPU and Main Memory interface, programming the basic computer – Machine Assembly Languages. Assembler: basic assembly language instructions (ADD, SUB, LOAD, STORE, MOV, CMP, JUMP). Micro-programmed control: control memory, address sequencing, micro program example and design of control unit.

UNIT -- IV: I/O interface: I/O Bus and Interface modules, I/O versus Memory Bus. Modes of Transfer: Example of programmed I/O, interrupt-initiated I/O, software considerations. Daisy- Chaining priority. DMA: DMA Controller, DMA Transfer, Intel 8089 IOP.

UNIT -- V: Multi Processors: Characteristics of Multi Processor; Interconnection structures: Time shared common bus, multiport memory, crossbar switch, multi-stage switching network; Introduction to Flynn's classification: SISD, SIMD, MISD, MIMD (Introduction).

Text Books:

- 1.Computer System Architecture – M.Morris Mano, Third Edition, Pearson/PHI, 2011.
- 2.Microprocessor and Interfacing – Douglas V Hall, Second Edition, TATA McGraw Hill, 2006.

Reference Books:

- 1.Computer Organization – Carl Hamacher, ZvonksVranesic, SafeaZaky, V Edition,McGraw Hill.
- 2.Computer Organization and Architecture – William Stallings, 6th Edn.Pearson/PHI.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – II Sem

L T/P C
4 1/- 4

DATABASE MANGEMENT SYSTEMS

Course Outcomes:

Student will be able to:

1. Construct an Entity-Relationship (E-R) model from specifications and to perform the transformation of the conceptual model into corresponding logical data structures.
2. Develop the database and provide restricted access to different users of database and formulate the Complex SQL queries.
3. Analyze working principles of various protocols implemented by specific DBMS components.
4. Analyze various Formal Query Languages for Query Optimization and various Normal forms to carry out Schema refinement.
5. Justify the use of suitable Indices and Hashing mechanisms for real time implementation.

UNIT -- I: Introduction to Database System Concepts: Database-System Applications, Purpose of Database Systems, View of Data, Database Languages, Relational Databases, Database Design, Data Storage and Querying, Transaction Management, Database Architecture, Data Mining and Information Retrieval, Spatial Databases, Database Users and Administrators, History of Database Systems.

RELATIONAL DATABASES Introduction to the Relation Models: Structure of Relational Databases, Database Schema, Keys, Schema Diagrams, Relational Query Languages, Relational Operations. Introduction to SQL: Overview of the SQL Query Language, SQL Data Definition, Basic Structure of SQL Queries, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions Nested sub-queries, Modification of the Database.

UNIT -- II: Intermediate SQL: Join Expressions, Views, Transactions, Integrity Constraints, SQL Data Types and Schemas, Authorization. Advanced SQL: Functions and Procedures, Triggers, Cursors. Formal Relational Query Languages: The Relational Algebra, the Tuple Relational Calculus, The Domain Relational Calculus.

UNIT -- III: DATABASE DESIGN: Database Design and the E-R Model: Overview of the Design Process, The Entity-Relationship Model, Constraints, Removing Redundant Attributes in Entity Sets, Entity-Relationship Diagrams, Reduction to Relational Schemas, Entity-Relationship Design Issues, Extended E-R Features, Alternative Notations for Modelling Data, Other Aspects of Database Design. Relational Database Design: Features of Good Relational Designs, Atomic Domains and First Normal Form, Decomposition Using Functional Dependencies, Functional-Dependency Theory, Algorithms for Decomposition, Decomposition Using Multi valued Dependencies, More Normal Forms, Database - Design Process.

UNIT -- IV: DATA STORAGE AND QUERYING: Storage and File Structure : Overview of Physical Storage Media, Magnetic Disk and Flash Storage, RAID, Tertiary Storage, File Organization, Organization of Records in Files Data-Dictionary Storage, Database Buffer. Indexing and Hashing: Basic Concepts, Ordered Indices, B+ Tree Index Files, B+ Tree Extensions, Multiple-Key Access, Static Hashing, Dynamic Hashing, Comparison of Ordered Indexing and Hashing, Bitmap Indices, Index Definition in SQL.

UNIT -- V: TRANSACTION MANAGEMENT: Transactions: Transaction Concept, A Simple Transaction Model, Storage Structure, Transaction Atomicity and Durability, Transaction Isolation, Serializability, Transaction Isolation and Atomicity, Transaction Isolation Levels, Implementation of Isolation Levels, Transactions as SQL Statements. Concurrency Control : Lock-Based Protocols, Deadlock Handling, Multiple Granularity, Timestamp-Based Protocols, Validation-Based Protocols, Multi version Schemes, Concurrency in Index Structures.

Recovery System: Failure Classification, Storage, Recovery and Atomicity, Recovery Algorithm, Buffer Management, Failure with Loss of Nonvolatile Storage, Early Lock Release and Logical Undo Operations, ARIES, Remote Backup Systems.

Text Books:

- 1.Database System Concepts, Abraham Silberschatz, Henry F. Korth, S. Sudarshan, Sixth Edition, Tata Mc Graw-Hill.
- 2.Database Management System, Raghu Rama Kirshna, Johannes Gchrke, TATA MC Graw Hill Third 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

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – II Sem

L T/P C
3 1/- 3

SOFTWARE ENGINEERING

Course Outcomes:

Student will be able to:

1. Choose a process model to apply for given project requirements.
2. Analyze and apply the framework activities for a given project.
3. Design various system models for a given scenario.
4. Design and apply various testing techniques.
5. Understand metrics for Process and Products.

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), personal and team process models.

UNIT II: Process models: The waterfall model, Incremental process models, Evolutionary process model, Agile process. Software Requirements: Functional and non-functional requirements, the software requirements document. Requirements engineering process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management

UNIT III: System models: Context Models, Behavioural models, Data models, Object models, structured methods. Design Engineering: Design process and Design quality, Design concepts, the design model, Modelling component level design: design class based components, conducting component level design. Performing User interface design: Golden rules.

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, Product metrics : Software Quality, Metrics for Analysis Model- function based metrics, Metrics for Design Model-object oriented metrics, class oriented metrics, component design metrics, Metrics for source code, Metrics for maintenance.

UNIT V: Metrics for Process and Products: Metrics for software quality. Risk management: Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan. Quality Management: Quality concepts, Software Reviews, Formal technical reviews, Software reliability, The ISO 9000 quality standards.

Text Books:

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition. McGraw Hill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.

References:

1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
2. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
3. Systems Analysis and Design- Shely Cashman Rosenblatt, Thomson Publications.
4. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – I Sem

L T/P C
4 -/- 4

JAVA PROGRAMMING

Course Outcomes:

Student will be able to:

- 1.Design, write and test a java program to implement a working Understand the fundamental concepts of the object oriented paradigm and their implementation in the Java programming language.
- 2.Write code to define classes and interfaces that uses class libraries such as java.lang, java.util, java.io.
- 3.Use exception handling and multithreading in programs.
- 4.Develop GUI applications.
- 5.Give object oriented solutions for the complex problems.

UNIT -- I: Fundamentals of Object Oriented Programming: Object-Oriented Paradigm, Basic Concepts of Object Oriented Programming- Objects and Classes, Data abstraction and encapsulation, inheritance, Polymorphism, Data binding, Message Communication, Benefits of OOP, Applications of OOP. Java Basics History of Java, Java buzzwords, data types, variables, scope and life time of variables, arrays, operators, expressions, control statements, type conversion and costing, simple java program, concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, parameter passing, recursion, nested and inner classes, Strings.

UNIT -- II: Inheritance – Base class object, subclass, subtype, substitutability, forms of inheritance- specialization, specification, construction, extension, limitation, combination, Member access rules, super uses, using final with inheritance, polymorphism- method overriding, abstract classes, Object class Packages and Interfaces : Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, File, Byte Streams, Character Streams, Stream I/O.

UNIT -- III: Exception handling - Concepts of exception handling, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating own exception sub classes. Package java.util- The Collection

Interface, list interface, Queue interface, The Collection class: LinkedListClass, HashSetClass, TreeSetClass, StringTokenizer, Date, Random, Scanner. Multi threading: Differences between multi threading and multitasking, thread life cycle, creating threads, thread priorities, synchronizing threads, inter thread communication.

UNIT -- IV: Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes. AWT: class hierarchy, component, container, panel, window, frame, canvas, graphics, Layout Manager – layout manager types – boarder, grid, flow, card and grib bag.

UNIT -- V: AWT controls: Labels, button, canvas, scrollbars, text components, check box, check box groups, choices, lists panels – scroll pane, dialogs, menu bar. Applets – Concepts of Applets, differences between applets and applications, life cycle of an applet, create applets, passing parameters to applets. JDBC Connectivity: JDBC Type 1 to 4 Drivers, connection establishment, QueryExecution.

Text Books:

1. Java- the complete reference, Seventh edition, Herbert schildt, Tata McGraw Hill.
2. Database Programming with JDBC&JAVA, Second Edition, George Reese, O'ReillyMedia.
3. Understanding OOP with Java, updated edition, T. Budd, pearson education.

Reference Books:

1. Thinking in Java Fourth Edition, Bruce Eckel
2. Introduction to Java programming, Y. Daniel Liang, pearson education.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – IISem

L T/P C
0 -/3 2

DATABASE MANAGEMENT SYSTEMS LAB

Course Outcomes:

Student will be able to:

1. Create database with different types of integrity constraints and use the SQL commands such as DDL, DML, DCL, TCL to access data from database objects.
2. Use database security & authorization in order to access database for the different kinds of the user.
3. Access and manipulate data using PL/SQL blocks.
4. Design and implement procedures, functions, cursor and triggers.
5. Design Database for real time applications.

Library Application:

Introduction

Example: This project aims to computerize the operations of the library. Features include searching for books, reserving books, issue and return of books, handling late returns and fines, ordering of books/journals from publishers, etc.

Application Users

Example: The users of the system are the library staff, institute staff, and students.

Students and institute staff can view what books they have borrowed, and what books they have requested, and search on the collection of books. All other functionality is restricted to library staff.

Functions Overview

Example: The following functionality will be supported by the library application.

1. Book issue and return
2. Fine calculation and collection
3. Adding and deleting books
4. Searching for books

5. Report generation
6. Automatic late book reminder

ER Diagrams

Show your ER diagrams here. Split your ER diagrams into pieces. Each entity is listed with its attributes in only one place. In other diagrams, the entity name is used, but it's attributes are not specified again (this will lead to redundancy).

Functional Dependencies and Normalization

Give the initial relational schema which you derive from the ER diagram. List functional dependencies you would expect to hold, and steps in the process of normalization to BCNF (in case you need to decompose the relations, show the intermediate steps here). No need to show types of attributes here.

Data Dictionary

What goes here: The final SQL data dictionary which will be used in the project, including types of all attributes?

Users

Note: You can have one subsection per relation, or have multiple relations organized into each subsection here.

Users relation:

ID	varchar(8)	Primary key	User ID (roll number)
Name	varchar(40)	Not null	Name of user
Email	varchar(30)	Not null	Email ID of user
user_type	Varchar(8)	Foreign key references user_types	What type of user (e.g. student, faculty, staff)
join_date	Date	Not null	Date of joining
end_date	Date	Not null	Termination date (when student will pass out)

Exercise:1 E-R Model

Analyze the problem carefully and come up with the entities in it.

Identify what data has to store in the database.

Apply all Integrity Constraints where ever is applicable.

Example Entities:

- Users
- Library Staff
- Institute Staff
- Student
- Book etc...

Example Relationships:

- Borrow
- Search
- Request etc..

Experiment 2:

Concept design with E-R Model

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

Experiment 3: Relational model

Represent all the entities (strong, weak) in tabular fashion. Represent relationships in tabular fashion. There are different ways of representing relationships as tables based on 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:

This is Student Table look as below, This is an example, you can add more attributes based on your E-R Model. This is not a normalized table

Student:

Name	Hallticket	year	branch	address	Add-onCourses	blood group
------	------------	------	--------	---------	---------------	-------------

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

Experiment 4: Normalization

Database Normalization is a techniques part of schema refinement process to minimize the redundancy of information and in so doing, to safe guard the database against certain types of logical or structural problems.

For example for the above table addon courses is a Multi valued attribute we

can remove the multi valued attribute Add-on courses and place it in another table along with primary key so that the two tables are in First Normal form .

Name	Hallticket	year	Branch	Address	Blood Group
------	------------	------	--------	---------	-------------

Hall Ticket	Add-onCourse
-------------	--------------

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

Experiment 5: Installation and Exposure of IBM DB2 and Practicing DDL Commands

In this week you will learn creating databases, creating tables, altering tables, dropping tables, truncate and renaming commands.

Experiment 6: Practicing DML Commands

DML Commands are used for managing data within schema objects.

- Select
- Insert
- Delete
- Update

Experiment 7: Querying

In this week you are going to practice the queries including sub-queries using ANY, ALL, IN, EXISTS, NOT EXISTS, UNION, INTERSECT etc.

- Practice the SQL Queries in retrieving the data from different tables.
- Practice the SQL Queries which include Groupby/Aggregate Functions
- Practice Queries which includes Where Clause, Groupby Clause, Having Clause, Orderby Clause
- Practice Nested Queries
- Perform Different Set Operations & Join Operations on the tables.

Experiment 8:

Practice queries on Grouping /Aggregate functions:

Experiment 9:

Triggers

In this week you are going to work on Triggers. Creation of Insert Trigger, Delete Trigger, Update Trigger. Practice Triggers using the library database.

Experiment 10: Procedures

In this session you are going to learn of stored procedures, execution of stored procedure and modification of procedure. practice procedures using the Library database.

Experiment 11: Cursors

In this week you need to work on declaring a cursor that defines a result set. Open the cursor to establish the result set. Fetch the data in to local variables as needed from the cursor, one row at a time. Close the cursor when work is done.

Experiment 12: Exception Handling

In this week students have to work on exception handling and they will get exposure to programs in how to catch the exceptions.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – II Sem

L T/P C
0 3/- 2

JAVA PROGRAMMING LAB

Course Outcomes:

Student will be able to:

1. Familiarize with Java Environment and use of Java Development Kit for the creation and execution of java programs
2. Develop programs on various concepts like data abstraction & data hiding, encapsulation, inheritance, polymorphism.
3. Create and use threads, handle exceptions and write applets.
4. Develop the programs using interfaces, inner classes, wrapper classes and generics.
5. Develop GUI applications.

Week 1:-

- 1) Write a program to find total, average of given two numbers by using function with default arguments, static data members and this keyword?
- 2) Write a program to illustrate class and objects (Banking operations)

Week 2:-

- 3) Write a program to illustrate constructors?(Inventory of Books)
- 4) Write a program to create a class complex with necessary operator overloading and type conversion such as integer to complex, complex to double.

Week 3:-

- 5) Write a program that randomly generates complex numbers and write two numbers per line in a file along with an operator(+, -, P, *, /). The numbers are written to file in the format (a+ib)
- 6) Write a program to read online at a time, perform the corresponding operation on two complex numbers read, write the result to another file (one per line)

Week 4:-

- 7) Write a program to illustrate inheritance (Student Evaluation)
- 8) Write a java program to handle the situation of exception handling.

Week 5:-

- 9) Write a java program to demonstrate the concept of polymorphism.
- 10) Write a java program to illustrate Method Overriding?

Week 6:-

- 11) Write a java program to illustrate Method overloading of assignment operator?
- 12) Write a program to illustrate Array Manipulation?

Week 7:-

- 13) Write a program to illustrate Synchronization?
- 14) Write a program to String Tokenizer?

Week 8:-

- 15) Write a program to implement the concept of User defined Exceptions.
- 16) Write a program to illustrate the use of creation of packages.

Week 9:-

- 17) Write a program to illustrate Multithreading and Multitasking?
- 18) Write a program to illustrate thread priorities.

Week 10:-

- 19) Write a program to illustrate applet concept.

Week 11:-

- 20) Write a program to illustrate Event Handling (keyboard, Mouse events)

Week 12:-

- 21) Write a program to develop a calculator application using AWT.

Week 13:-

- 22) Write a program to illustrate JDBC.

ANURAG GROUP OF INSTITUTIONS
(Autonomous)

IV Year B.Tech. CSE – II Sem

L T/P C
0 2/- 1

PERSONALITY DEVELOPMENT – II

Course Outcomes:

Student will be able to:

- 1.Improve the functional effectiveness through better written and oral communication skills.
- 2.Improved managerial capabilities through team building and group dynamics.
- 3.Develop their leadership skills.
- 4.Prioritize their tasks through effective time management.
- 5.Design and Present their presentation skills effectively.

1.Leadership

- a.What makes a Leader
- b.Qualities of a Good Leader
- c.Leader with a purpose
- d.Selfless Leader
- e.Activities
- f.Practical Sessions

2.Team Skills

- a.Team Building
- b.Individual Skills
- c.Team Skills
- d.Subordinate Skills
- e.Leading Skills
- f.Practical Session

3.Resume and Cover Letter, Writing about yourself

- a.Resume Writing
- b.Cover Letter
- c.Practical Session
- d.Practical Session
- e.Practical Session
- f.Practical Session

4. Group Discussion
 - a. What is GD
 - b. Types of GD
 - c. Group Dynamics
 - d. How to take feedback
 - e. Practice Session

5. Interview Skills

- a. Why Interviews – Corporate Outlook
- b. Tips for a Good Interview
- c. Interview Questions – Personal
- d. Interview Questions – Professional
- e. Common Interview Blunders
- f. Practical Sessions

6. Stress Management and Emotional Intelligence

Text Book:

1. Personality Development – Verbal Work Book, Career Development Centre, SRM Publications

Reference Books:

1. Green Sharon Weiner M.A & Wolf Ira K. Barron's New GRE, 19th Edition. Barron's Educational Series, Inc, 2011.
2. Lewis Norman, "Word Power Made Easy", Published by W.R.Goyal Pub, 2011.
3. Thorpe Edgar and Thorpe Showich, "Objective English", Pearson Education 2012.
4. Murphy Raymond, "Intermediate English Grammar ", (Second Edition), Cambridge University Press, 2012.