

SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES
(Autonomous)

II B. TECH – II SEMESTER

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16SAH212 ENVIRONMENTAL SCIENCE
(Common to All Branches)

Course Objectives:

Through the course sequence in Environmental Science, students will be able to:

- Recognize major concepts in environmental sciences and demonstrate in-depth understanding of the environment.
- Develop analytical skills, critical thinking, and demonstrate problem-solving skills using scientific techniques.
- Demonstrate the knowledge and training for entering post graduate or professional colleges, or the job market.
- Demonstrate their ability to communicate effectively in written and oral form, demonstrating the ability to create an appropriate annotated bibliography and the ability to use effective presentation skills.
- Develop a sense of community responsibility by becoming aware of scientific issues in the larger social context.
- Demonstrate interpretative skills including the ability to analyze data statistically, assess reliability, interpret results and draw reasonable conclusions.
- Develop standards of professional behavior that include rules of ethics and etiquette

UNIT – 1: Introduction to Environmental Science and Natural Resources

Introduction: Definition - Scope and importance of environment - Need for public awareness - Natural Resources: Forest resources: Use and over-exploitation - Deforestation - Conservation of forests.

Mineral resources: Use and exploitation - Environmental effects of extracting mineral resources - Case studies.

Energy resources: Conventional energy resources - Natural gas and Nuclear fuels - Non-conventional energy resources - Solar energy - Wind energy - Tidal energy - Geothermal energy and Biogas energy - Use of alternate energy sources - Case studies.

UNIT – 2: Ecosystem and Biodiversity

Ecosystem: Concept of an ecosystem - Structure and function of an ecosystem - Energy flow in the ecosystem - Food chains - Food webs - Ecological pyramids - Types - Characteristic features - Structure and function of the (a) Forest ecosystem (b) Grassland ecosystem (c) Desert ecosystem (d) Aquatic ecosystems (Ponds - Streams - Lakes - Rivers - Oceans - Estuaries).

Biodiversity: Introduction to biodiversity - Genetic - Species and Ecosystem diversity - Value of biodiversity: Consumptive value - Productive value - Social value - Ethical value - Aesthetic and Option values - Endangered and endemic species of India - Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT – 3: Pollution and Waste Management

Definition - Causes - Effects - Control measures of pollution.

Air Pollution: Types of pollutants - Their sources and impacts - Air pollution control

Noise Pollution: Impacts of noise - Permissible limits of noise pollution - Measurement of noise - Control of noise pollution.

Soil Pollution: Causes of soil degradation - Excessive use of fertilizers - Problems with pesticide use - Excess salt and water.

Solid waste management: Characteristics - Generation - Collection and transportation of solid wastes - Engineered systems for solid waste management (reuse, recycle, energy recovery, treatment and disposal).

UNIT – 4: Social Issues and the Environment

Water conservation measures - Rain water harvesting and water shed management - Resettlement and rehabilitation of people - Its problems and concerns - Case studies - Role of NGO's - Climate change - Global warming (Green house effect) - Ozone layer depletion - Acid rain - Nuclear accidents.

Sustainable development: Definition - Objectives - Environmental dimensions of sustainable development

UNIT– 5: Environmental Legislation and Human Population

Environmental acts: The water (Prevention and control of pollution) Act - The air (Prevention and control of pollution) act - The wild life (protection) act - The forest conservation act - The environmental protection act.

Case studies: Chipko movement - Narmada bachao andolan - Silent valley project - Chernobyl nuclear disaster - and Bhopal gas tragedy

Population growth: Variation among nations - Population explosion - Value education - HIV/AIDS - Role of information technology in environment and human health - Case studies.

Field Work

Visit to a local area to document environmental assets: River/ Forest/ Grasslands/ Mountains

Visit to local polluted site: Urban/ Rural/ Industrial/ Agriculture

Study of simple ecosystems: Pond/ River/ Hill slope etc.

Course Outcomes:

- Understand the natural environment and its relationships with human activities.
- Characterize and analyze human impacts on the environment.
- Integrate facts, concepts, and methods from multiple disciplines and apply to environmental problems.
- Understand and implement scientific research strategies, including collection, management, evaluation, and interpretation of environmental data.
- Design and evaluate strategies, technologies, and methods for sustainable management of environmental systems and for the remediation or restoration of degraded environment.

Text books:

1. Text book of Environmental Studies, 4/e, 2012, C.P. Kaushik and Anubha Kaushik, New Age International (P) Ltd., Publishers, New Delhi.
2. Text book of Environmental Studies, 1/e, 2008, Erach Bharucha, University Press (India) Private Ltd. Hyderabad.

Reference books:

1. Environmental Studies-From Crisis to Cure, 2/e, 2012, R. Rajagopalan, Oxford University Press , New Delhi.
2. A Text Book of Environmental science and Technology ,1/e, 2008, Dr.M.Anji Reddy, B.S. Publications, Hyderabad.
3. Principles of Environmental Science and Engineering, 1/e, 2005, Keerthinarayana and Daniel Yesudiam, Hi –Tech Publications , Chennai.
4. Glimpses of Environment , 1/e, 2005, Dr. KVSG Murali Krishna, Environmental Protection Society, Kakinada, India.
5. Environmental Studies, 1/e, 2009, Anindita Basak , Pearson Education, New Delhi.

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II B. TECH – II SEMESTER

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16SAH222

PROBABILITY AND STATISTICS
(Common to CSE, MEC, CE)

Course Objectives

1. Learn the subject in connection with applying to various science, engineering, computer science, space science and society
2. Explain simple unconditional probabilities and conditional probabilities
3. Define and derive the probability mass function of a discrete random variable and the binomial distribution, probability density function of a continuous random variable and the normal distribution, the expectation of a function of a random variable, critical values, confidence intervals for population parameters, hypothesis tests for population parameters, the Chi - Square Test of Independence for a contingency table, the linear regression parameter estimates and correlation coefficient.

Course Outcomes

1. Calculate a simple unconditional probability and conditional probability
2. Calculate the probability mass function of a discrete random variable and the binomial distribution, probability density function of a continuous random variable and the normal distribution, the expectation of a function of a random variable, critical values, confidence intervals for population parameters, hypothesis tests for population parameters, the Chi - Square Test of Independence for a contingency table, the linear regression parameter estimates and correlation coefficient.

UNIT - 1: Probability and Random variables

Probability: Sample space and events - Probability - The axioms of probability - Some elementary theorems - Conditional probability - Baye's theorem.

Random variables: Discrete and continuous distributions – Statistical Parameters (Mean, Variance and Standard Deviation) of distribution functions.

UNIT - 2: Probability Distributions

Binomial - Poisson and Normal distributions - Related properties.

UNIT - 3: Sampling distribution and Estimation

Sampling distribution: Populations and samples - Sampling distributions of mean (known and unknown) - Proportions - Sums and differences.

Estimation: Point estimation - Interval estimation - Bayesian estimation.

UNIT - 4: Test of Hypothesis and Test of Significance

Test of Hypothesis: Means - Hypothesis concerning one and two means - Type I and Type II errors - One tail, two-tail tests.

Test of Significance: Student's t-test - F-test - Chi-square test of goodness of fit.

UNIT - 5: Curve fitting & ANNOVA

Curve fitting: The method of least squares – Linear, Parabola, Exponential and Power form.

ANNOVA: ANNOVA for one-way and two-way classification data.

Text Books:

1. Fundamentals of Mathematical Statistics, 10/e, 2001, S.C. Gupta, V.K. Kapoor, S. Chand and Company Publishers, New Delhi.
2. Probability and Statistics, 2012, T.K.V. Iyengar, B. Krishna Gandhi, S. Ranganatham and M.V.S.S.N. Prasad, S. Chand and Company Publishers, New Delhi.

Reference Books:

1. Probability and Statistics, 2011, V. Ravindranath, T.S.R. Murthy, I.K. International Pvt. Ltd, New Delhi.
2. Probability and Statistics for Engineers, 6/e, 2006, Johnson A. Richard, Miler & Friends, Pearson Education, New Delhi.
3. Higher Engineering Mathematics, 34/e, 1999, Dr. B. S. Grewal, Khanna Publishers, Delhi
4. Probability and Statistics for Engineers, 2011, Dr. J. Ravichandran, Wiley-India Publishers, New Delhi.
5. Probability and Statistics for Engineers and Scientists, 7/e, 2002, Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers, Keying Ye, Pearson Education Asia, New Delhi.

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16CSE221

THEORY OF COMPUTATION

Course Objectives:

The purpose of this course is to acquaint the student with an overview of the theoretical foundations of computer science from the perspective of formal languages.

- Classify machines by their power to recognize languages.
- Employ finite state machines to solve problems in computing.
- Explain deterministic and non-deterministic machines.
- Comprehend the hierarchy of problems arising in the computer sciences.

Course Outcomes:

At the end of the course, students will be able to:

- Understand the basics of DFA, NFA, and convert a DFA into an NFA.
- Understand Regular Languages, construction of FA from Regular Grammar and apply Pumping Lemma to prove that a Language is not regular.
- Understand CFGs, derive parse trees, remove ambiguities in the grammar, and simplify CFG's.
- Design PDA and Two stacks PDA and convert CFG into PDA.
- Design a Turing machine and solve undecidable problems about Turing machine.

UNIT – 1: Fundamentals and Finite Automata

Strings - Alphabets and languages - Finite state automata – Basic Definitions - Deterministic finite automata – Non deterministic finite automata - Equivalence of DFA's and NFA's - Finite automata with output – More machines and mealy machines - Minimization of FA - Equivalence between two FA's - NFA with ϵ -moves - Equivalence of NFA's with and without ϵ -Moves

UNIT – 2: Regular Expressions and Regular sets

Regular expressions – Regular languages - Identity rules for regular expressions – Equivalence of finite automata and regular expressions – Pumping lemma for regular sets – Applications of the Pumping lemma - Closure proportions of regular sets (Without proof)

UNIT – 3: Regular Grammars and Context Free Grammars

Regular grammars – Right Linear and Left Linear grammars - Equivalence of regular grammar and Finite Automata - Context free Grammars - Motivation and introduction - Definition derivations - Leftmost derivation - Rightmost derivation - Derivation tree - Ambiguity simplification of CFG's - Chomsky Normal Form - Greibach Normal Form

UNIT – 4: Push Down Automata

Definitions - Model of PDA – Acceptance by PDA - Design of PDA - Equivalence of PDA's and CFL's - Deterministic PDA - Closure properties of CFL (Without proof)

UNIT – 5: Turing Machine

Definition - Model - Language acceptance - Design of Turing Machine - Computable functions - recursively enumerable languages - Church's hypothesis -Types of Turing machine (Without proof) -decidability of problems- undecidability of posts correspondence problem-Chomsky hierarchy of languages - Grammars and their machine recognizers

Text Book:

1. "Introduction to Automata theory languages and Computation", 3/e, 2006, Hopcroft H.E. and Ullman Jeffrey.D., Pearson Education, New Delhi, India.
2. "Theory of computer Science", 2/e, 2007, Mishra and Chandrasekaran, PHI, New Delhi, India.

Reference Books:

1. "Introduction to Theory of Computation", 2/e, 2005, Sipser, Thomson, Australia.
2. "Introduction to Languages and Theory of Computation", 1/e, 2009, John C Martin, Tata McGraw Hill Education, Hyderabad, India.
3. "Introduction to Computer Theory", 2/e, 1997, Daniel I.A. Cohen, John Wiley, India.
4. "Theory of computation", 1/e, 2012, [George Turlakis](#), John Wiley, India.
5. "Theory of Computation" 1/e, 2006, Dexter C. Kozen, Springer, India.

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16CSE222

COMPUTER ORGANIZATION

Course Objectives:

- To learn the fundamentals of computer organization and its relevance to classical and modern problems of computer design
- To make the students understand the structure and behavior of various fundamental modules of a computer
- To understand the techniques that computers use to communicate with I/O devices.
- To study the concepts of pipelining and the way it can speed up the processing.
- To understand the basic characteristics of multiprocessor.

Course Outcomes:

- Ability to use memory and I/O devices effectively
- Able to explore the hardware requirements for cache memory and virtual memory.
- Ability to design algorithms to exploit pipelining and multiprocessors.

UNIT-1:

BASIC STRUCTURE OF COMPUTERS: Computer Types - Functional Units - Basic Operational Concepts - Bus Structures – Software – Performance - Multiprocessors and Multi Computers - Data Representation- Fixed Point Representation - Floating Point Representation - Error Detection Codes.

UNIT-2:

CPU DESIGN AND COMPUTER ARITHMETIC

CPU Design: Instruction Cycle - Memory Reference Instructions – Input/output and Interrupt - Addressing Modes - DATA Transfer and Manipulation - Program Control

Computer Arithmetic: Addition and Subtraction - Multiplication Algorithms - Division Algorithms - Floating Point Arithmetic Operations - Decimal Arithmetic Unit.

UNIT-3:

REGISTER TRANSFER LANGUAGE AND DESIGN OF CONTROL UNIT

Register Transfer: Register Transfer Language - Register Transfer - Bus and Memory Transfers - Arithmetic Micro operations - Logic Micro operations - Shift Micro Operations.

Control Unit: Control Memory - Address Sequencing – Micro program Example - Design of Control Unit.

UNIT- 4:

MEMORY AND INPUT/OUTPUT ORGANIZATION

Memory Organization: Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory.

Input/output Organization: Input-Output Interface - Asynchronous data transfer - Modes of Transfer - Priority Interrupt - Direct memory Access.

UNIT- 5:

PIPELINE AND MULTIPROCESSOR

Pipeline: Parallel Processing – Pipelining - Arithmetic Pipeline - Instruction Pipeline.

Multiprocessor: Characteristics of Multiprocessors - Interconnection Structures – Inter processor Arbitration - Inter Processor Communication and Synchronization.

TEXT BOOKS:

1. Computer Organization – Carl Hamacher, Zvonks Vranesic, SafeaZaky, 5/e, MCG, 2002.
2. Computer Systems Architecture – M.Moris Mano, 3/e, PEA, 2007.

REFERENCES:

1. Computer Systems Organization and Architecture- John D. Carpinelli, PEA, 2009
2. Computer Organization and Architecture – William Stallings 6/e, Pearson/PHI.
3. Structured Computer Organization – Andrew S. Tanenbaum, 4/e PHI/Pearson.
4. Fundamentals or Computer Organization and Design, – Sivaraama Dandamudi Springer Int. Edition.
5. Computer Architecture a quantitative approach, John L. Hennessy and David A. Patterson, 4th Edition, Elsevier.
6. Computer Architecture: Fundamentals and principles of Computer Design, Joseph D. Dumas II, BS Publication.

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16CSE223

DATABASE MANAGEMENT SYSTEMS

Course Objectives:

The main objective of this course is

- To know the components of DBMS.
- To understand design of ER Diagrams and represent using Relational model.
- To Understand retrieval of data using relational algebra and calculus.
- To comprehend the structure of SQL Queries to retrieve data from the databases
- To understand the concept of normal forms in the design of databases.

Course Outcomes:

At the end of the course, students will be able to:

- Apply ER concepts to design databases.
- Apply Structured Query Language (SQL) in retrieval and management of data in real time applications
- Access normalization relations of relational model using normal forms
- Apply all constrains to develop a business application using cursors, triggers and procedures
- Understand transaction processing.

UNIT - 1: Database Systems and Entity Relationship Modeling

Database system applications - Purpose of database systems - View of data - Database languages - Database users and administrators - Database architecture - The Entity-Relationship model - Attributes and entity sets - Relationship sets - Entity-Relationship diagrams - Extended E-R features.

UNIT - 2: Relational Data Model and Language

Introduction to the relational model - Integrity constraints - Fundamental relational algebra operations - Tuple relational calculus - Domain relational calculus.

UNIT - 3: Introduction to SQL

Characteristics of SQL - Advantages of SQL - SQL data types and literals. Types of SQL commands - SQL operators and their procedures - Form of Basic SQL Query - Examples of Basic SQL Queries - Introduction to Nested Queries - Views - Indexes - SQL functions - Joins - Set operators in SQL - Database triggers - Cursors in SQL - PL/SQL

UNIT - 4: Normalization

Introduction to schema refinement - Properties of decompositions - Functional dependencies - Reasoning about functional dependencies - Normal forms - First - Second - Third – BCNF - MVD - Fourth Normal Form.

UNIT - 5: Transaction Processing Concepts and Concurrency Control Techniques

Transaction concept - Transaction state - Implementation of atomicity and durability - Serializability - Recoverability - Concurrent executions - Lock-Based Protocols for concurrency control - Time stamp-based protocol for concurrency control - Multiple granularity.

Text Books:

1. Database System Concepts, 5/e, 2006, Korth, Silberschatz, Sudarshan, Tata McGrawHill, New York.
2. Database Management System, 2/e, 2000, RaghuRamakrishnan, Tata McGrawHill, New York.

Reference Books:

1. Fundamentals of Database Systems, 5/e, 2008, Elmasri, Navathe, Pearson Education, USA.
2. *Database Management Systems*, 5/e, 2003, Peter Rob, A. Ananda Rao and Carlos Coronel, Cengage Learning, USA.
3. SQL, PL/SQL Programming, 2/e, 2011, Ivan Bayross, BPB Publications, New Delhi, India.
4. Introduction to Database Systems, 8/e, 2004, C.J.Date, Pearson Education, USA.
5. Fundamentals of Database Management Systems, 1/e, 2006, M.L. Gillenson, Wiley, New Delhi, India.

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16CSE224 OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Course Objectives:

The objectives of this course are as follows:

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

Course Outcomes:

Successful completion of this course, students should be able to:

- Apply Object oriented approach to design and Implement software's using classes and objects.
- Specify the forms of inheritance and use them in programs.
- Analyze polymorphic behavior of objects.
- Design and develop GUI programs using database connectivity.
- Develop Applets for web applications.

UNIT – 1:

BASICS OF JAVA: History of Java - Java buzzwords - Overview of Java - Data types - Variables - Arrays - Operators - Control statements – Introducing Classes, Objects - Constructors - Methods - Access control - this keyword - garbage collection - Overloading Methods and Constructors - Parameter passing - Recursion – Exploring the String Class.

UNIT – 2:

INHERITANCE: Basics of Inheritance - Base class object - Subclass - Forms of inheritance - Extension - Limitation - Benefits of Inheritance - Costs of Inheritance - Member access rules – Using super - Using final - Polymorphism- Method overriding - Abstract classes.

PACKAGES: Defining - Creating and Accessing a Package - Understanding CLASSPATH - Importing packages - Exploring packages.

UNIT - 3:

INTERFACES: Differences between classes and interfaces - Defining an interface - Implementing interface - Applying interfaces - Variables in interfaces and extending interfaces.

EXCEPTION HANDLING: Concepts of Exception Handling - Benefits of Exception Handling - Exception hierarchy - Usage of try - catch - throw - throws and finally - Built in exceptions - Creating own exception sub classes - Checked and Unchecked exceptions.

UNIT – 4:

MULTI THREADING: Differences between multi threading and multitasking - Thread life cycle - Creating threads - Synchronizing threads.

APPLETS: Concepts of Applet - Differences Between Applet and Application - Life Cycle of an Applet - Types of Applets - Creating Applet - Passing Parameters to Applet.

UNIT - 5:

EVENT HANDLING AND AWT: Events - Event sources - Event Listeners - Event classes - Delegation Event Model - Handling Mouse and Keyboard Events - Adapter classes - Inner Classes - The AWT Class Hierarchy - AWT Components - Layout Managers - Graphics.

SWINGS - Introduction - Limitations Of AWT - MVC Architecture - Components - Containers - Exploring Swing - JApplet - JFrame and JComponent - JLabel and ImageIcon - JTextField - JButton - Check Boxes - Radio Buttons - JComboBox - JTabbedPane - JScrollPane - Trees - JTable.

TEXT BOOKS:

1. Java; The complete reference, 7th editon, Herbert schildt, TMH.
2. Beginning Java2 JDK 5th Edition, Ivor Horton's, WILEY Dream Tech.

REFERENCES:

1. An Introduction to programming and OO design using Java, J.Nino and F.A. Hosch, John wiley & sons.
2. An Introduction to OOP, second edition, T. Budd, pearson education.
3. Introduction to Java programming 6th edition, Y. Daniel Liang, pearson education.
4. An introduction to Java programming and object oriented application development, R.A. Johnson- Thomson.
5. Core Java 2. Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, 7th Edition, Pearson Education.

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16CSE225 OBJECT ORIENTED PROGRAMMING LAB

Course Objectives:

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

Recommended Systems/Software Requirements:

- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space
- JDK Kit / Java IDE's Eclipse or Netbeans Recommended

Week 1:

- a) Write a Java program that prints all real solutions to the quadratic equation $ax^2 + bx + c = 0$. Read in a, b, c and use the quadratic formula. If the discriminant $b^2 - 4ac$ is negative, display a message stating that there are no real solutions.
- b) The Fibonacci sequence is defined by the following rule:
The first two values in the sequence are 1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and non recursive functions to print the nth value in the Fibonacci sequence.

Week 2:

- a) Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.
- b) Write a Java program to multiply two given matrices.
- c) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use StringTokenizer class of java.util)

Week 3:

- a) Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
- b) Write a Java program for sorting a given list of names in ascending order.
- c) Write a Java program to make frequency count of words in a given text.

Week 4:

- a) Write a Java program that:
 - i) Implements stack ADT.
 - ii) Evaluates the postfix expression
- b) Write a java program for multilevel inheritance?

Week 5:

- a) Write a java program to create an abstract class named Shape that contains an empty method named numberOfSides (). 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 numberOfSides () that shows the number of sides in the given geometrical figures.
- b) Write a java program which includes class, abstract class and interface?
- c) Write a java program for creation of user defined package and accessing the members present in package.

Week 6:

- a) Write a java program for checked and unchecked exceptions?
- b) Write a program that reads two numbers from the user to perform integer division into Num1 and Num2 variables. The division of Num1 and Num2 is displayed if they are integers. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException.

Week 7:

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

Week 8:

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

Week 9:

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

Week 10:

- a) Write a Java program for handling mouse events.
- b) Write a java program for handling keyboard events.

Week 11:

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

Week 12:

- a) Write a java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green. When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.
- b) Write a Java program that allows the user to draw lines, rectangles and ovals.
- c) Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using JTable component.

Week 13:

Create database of at least 5 students information with columns roll number, name and marks. Write a Java program to retrieve student data from database and display total marks of all the students when user press a button.

TEXT BOOKS:

1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI
2. Introduction to Java programming, Sixth edition, Y Daniel Liang, Pearson Education
3. Big Java, 2nd edition, Cay Horstmann, Wiley Student Edition, Wiley India Private Limited.

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16CSE226 DATABASE MANAGEMENT SYSTEMS LAB

Course Objectives:

- Design and implement a database schema for the given database.
- Design simple database using a tool and implement it using SQL.
- Apply all constraints to develop a business application using cursors, triggers and procedures.

Course Objectives:

At the end of the course, students will be able to:

- Analyze and evaluate the databases using SQL DML/DDL commands.
- Develop solutions to database problems using PL/SQL including cursors, procedures and triggers.

The following topics need to be covered in the Laboratory Sessions:

- **SQL**
Introduction to SQL:
DDL - DML Commands- Basic Data Types- Commands to create table- Constraint definition Commands for table handling- Alter table – Drop table- Insert - Update – Delete Commands for Record Handling- **Select** with operators like arithmetic - comparison - logical Query Expression operators - Ordering the records with order by, grouping the records
- **SQL functions:**
Date - Numeric - Character – Conversion Functions - Group functions: avg - max - min - sum - count
Set operations: Union – Union all - intersect - minus
Join concept: Simple - equi - nonequi - self - outerjoin
Query&subqueries- View Introduction - create - update - and drop commands
- **PL/SQL**
Advantages of PL/SQL- Support of SQL - Executing PL/SQL- PL/SQL character set & Data Types- Character - row - rowid - Boolean - binary integer - number Variable - constant
Control structures: Condition-if- Interactive-loop - for – while- Sequential-go to.

- **Database Triggers**

Definition - syntax - parts of triggers- Types of triggers - enabling and disabling triggers

Cursors - Procedures and Functions- Definition & Implementation

Note: The faculty members are instructed to provide the necessary exercises which covers the above topics.

Reference Books:

1. SQL, PL/SQL Programming, 2/e, 2011, Ivan Bayross, BPB Publications, New Delhi, India.
2. Satish Ansari, "Oracle Database 11g: Hands-on SQL and PL/SQL" PHI Publishers, 2010.