SOFTWARE ENGINEERING

III B.Tech – V Semester (Code: 14CS501)

Lectures	:	4 Periods/Week	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite:

Course Outcomes: Students will be able to:

14CS501.1 Understand different process models of Software Engineering and Agile Software Development.

14CS501.2 Understand various software engineering practices and how to collect requirements from client and how to analyze the collected requirements.

14CS501.3 Understand how to design and implement the Software Product or Project.

14CS501.4 Understand the concepts of Testing and Measuring the software project or Product.

UNIT-1 (13 Periods)

INTRODUCTION TO SOFTWARE ENGINEERING: The Evolving Role of Software, Software, the Changing Nature of Software, Legacy Software, Software Myths.

A GENERIC VIEW OF PROCESS: Software Engineering - A Layered Technology, a Process Framework, the CMMI, Process Patterns, Process Assessment, Personal and Team Process Models, Product and Process.

PROCESS MODELS: Prescriptive Models, the Waterfall Model, Incremental Process Models, Evolutionary Models, the Unified Process.

AN AGILE VIEW OF PROCESS: What Is Agility? , What Is an Agile Process? , Agile Process Models.

UNIT-2 (13 Periods)

SOFTWARE ENGINEERING PRACTICE: Software Engineering Practice, Communication Practices, Planning Practices, Modeling Practices, Construction Practice, Deployment. **REQUIREMENTS ENGINEERING**: A Bridge To Design and Construction, Requirements Engineering Tasks, Initiating the Requirements Engineering Process, Eliciting Requirements, Developing Use-cases, Building the Analysis Model, Negotiating Requirements, Validating Requirements.

BUILDING THE ANALYSIS MODEL: Requirements Analysis, Analysis Modeling Approaches, Data Modeling Concepts, Flow-Oriented Modeling, Class Based Modeling Creating a Behavioral Model.

UNIT-3 (12 Periods)

DESIGN ENGINEERING: Design within the Context of Software Engineering, Design Process and Design Quality, Design Concepts The Design Model, Pattern Based Software Design. **CREATING AN ARCHITECTURAL DESIGN**: Software Architecture, Data Design, Architectural Styles and Patterns, Architectural Design, Assessing Alternative Architectural Designs. **MODELING COMPONENT-LEVEL DESIGN**: What Is a Component? , Designing Class-Based Components, Conducting Component-Level Design, Designing Conventional Components. **PERFORMING USER INTERFACE DESIGN**: The Golden Rules, User Interface Analysis and Design, Interface Analysis, Interface Design Steps, Design Evaluation.

UNIT-4 (12 Periods)

SOFTWARE PROCESS AND PROJECT METRICS: Introduction: Metrics Process and Project Domains, Software Measurement, Metrics for Software Quality, Integrating Metrics with Process.

SOFTWARE QUALITY ASSURANCE: Quality Concepts, Quality Movement, SQA, Software Reviews, Formal Technical Reviews, Formal Approaches to SQA, Software Reliability, ISO 9000 Quality Standards, SQA Plan.

SOFTWARE TESTING STRATEGIES: Strategic Approach, Strategic Issues, Test strategies for Conventional Software, Test strategies for Object Oriented Software, Validation Testing, System Testing, The Art of Debugging.

Text Books :

1. Roger S.Pressman, “Software Engineering- A Practitioner's Approach”, Sixth Edition,

References :

1. Ian Sommerville, “Software Engineering”, Sixth Edition, Pearson Education.
2. Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, “Fundamentals of Software Engineering”,Second Edition, PHI.
3. RajibMall, “Fundamentals of Software Engineering”, Second Edition, PHI.

AUTOMATA THEORY & FORMAL LANGUAGES

III B.Tech – V Semester (Code: 14CS502)

Lectures	:	4 Periods/Week	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite: Discrete Mathematical Structures (14CS302)

Course Outcomes: Students will be able to:

14CS502.1 Construct finite accepters, and convert between deterministic and nondeterministic implementations

14CS502.2 Demonstrate the connection between regular expressions, languages, and grammars

14CS502.3 Describe and simplify a context-free grammar for a given language and Demonstrate the connection between pushdown automata and context-free languages

14CS502.4 Analyze and design Turing machines for a given task

UNIT-1 (13 Periods)

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

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

Automata with ∈ transitions: Use of ∈ - transition, notation for an ∈ - NFA, Epsilon closures, extended transitions and languages, Applications.

UNIT-2 (13 Periods)

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

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

UNIT-3 (12 Periods)

(Construction based treatment & proofs are excluded)

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

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

Context free languages: Normal form's for context- Free grammars, the pumping lemma for context free languages.

UNIT-4 (12 Periods)

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

Introduction to Turing Machines: The Turing Machine, programming techniques for Turing

machines.

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

Text Books :

1. John.E.Hopcroft, R.Motwani, &Jeffery.D Ullman, "Introduction to Automata Theory Languages and Computations", Second Edition, Pearson Education, 2003.

References :

1. Cohen, "Computer Theory", KLP Mishra &N.Chandrasekharan, "Theory of Computation", PHI.
2. H.R.Lewis, C.H.Papadimitriou, "Elements of The theory of Computation", Second Edition, Pearson Education, 2003.
3. J.Martin, "Introduction to Languages and the Theory of Computation", Third Edition, Tata McGraw Hill, 2003.
4. MichealSipser, "Introduction of the Theory and Computation", Thomson Brokecole, 1997.
5. Ragade, "Automata and Theoretical Computer Science", First Edition, Pearson Education, 2004.
6. John E Hopcroft& Jeffery D Ullman, "Introduction to Automata Theory & Languages and Computation", Narosa Publishing House.

MICROPROCESSORS AND MICROCONTROLLERS

III B.Tech – V Semester (Code: 14CS503)

Lectures	:	4 Periods/Week, SelfStudy:1	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite: DLD (14CS303) ,CO (14CS403)

Course Outcomes: Students will be able to:

14CS503.1 Understand the architecture of 8086 microprocessor.

14CS503.2 Over view the Microcomputer Structure and operation and 8086 Interrupt System

14CS503.3 Peripherals and its interfacing with processors and 8051 microcontroller architecture

14CS503.4 Understand Use the standard ports and interface devices on a typical microcontroller.

UNIT-1 (16 Periods)

The 8086 Microprocessor Family, the 8086 Internal Architecture: Introduction to Programming the 8086.8086 Family Assembly Language Programming, Implementing standard Program Structures in 8086 Assembly language, Strings, Procedures and Macros.

UNIT-2 (15 Periods)

8086 System Connections, Timing: The Basic8086 Microcomputer System, 8086 Bus activities during the Read and Write Machine Cycles, 8086 pin Diagram; 8086 Interrupts and Interrupt Applications: 8086 Interrupts and Interrupts Responses.

UNIT-3 (15 Periods)

Interfacing Peripherals and Applications: Interfacing the Microprocessor to the Keyboard, Alphanumeric displays; 8259 Priority Interrupt Controller, 8237 DMA Controller. The 8051 Microcontrollers – Assembly language Programming- JUMP, LOOP, CALL instructions.

UNIT-4 (14 Periods)

Micro Controllers: I/O port Programming- addressing Modes, Arithmetic, Logic, Single – bit instructions and Programming-Timer Counter programming in the 8051, Interrupts Programming.

Text Books :

1. Douglas V. Hall, “Microprocessors and Interfacing”, Tata McGraw-Hill, Revised Second Edition.
2. Muhammad Ali Mahadi and Janice Gillespie Mazidi, “The 8051 Microcontroller and Embedded Systems”, Pearson Education 2004

References :

1. Yu-cheng Liu, Glenn A. Gibson, “Microcomputer systems: The 8086 /8088 Family architecture, Programming and Design”, Second edition, Prentice Hall of India, 2003.
2. Barry B. Brey, “The Intel Microprocessors, 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, PentiumPro Processor, PentiumII, PentiumIII, PentiumIV, Architecture, Programming & Interfacing”, Sixth Edition, Pearson Education Prentice Hall of India, 2002.

DATABASE MANAGEMENT SYSTEMS

III B.Tech – V Semester (Code: 14CS504)

Lectures	:	4 Periods/Week, Tutorial: 1	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite: Data Structures (14CS305)

Course Outcomes: Students will be able to:

14CS504.1 Familiarize with fundamental concepts of database and various database architectures and Design relations for Relational databases using conceptual data modeling.

14CS504.2 Implement formal relational operations in relational algebra and SQL.

14CS504.3 Identify the Indexing types and normalization process for relational databases

14CS504.4 Use mechanisms for the development of multi user database applications.

UNIT-1 (16 Periods)

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

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

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

UNIT-2 (15 Periods)

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

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

UNIT-3 (15 Periods)

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

Functional Dependencies and Normalization for Relational Databases: Informal Design Guidelines for Relation Schemas - Functional Dependencies - Normal Forms Based on Primary

Keys - General Definitions of Second and Third Normal Forms, Boyce-Codd Normal Form
Relational Database Design Algorithms and Further Dependencies: Properties of Relational Decompositions - Algorithms for Relational Database Schema Design - Multi-valued Dependencies and Fourth Normal Form - Join Dependencies and Fifth Normal Form.

UNIT-4 (14 Periods)

Introduction to Transaction Processing Concepts and Theory: Introduction to Transaction Processing - Transaction and System Concepts - Desirable Properties of Transactions - Characterizing Schedules Based on Recoverability - Characterizing Schedules Based on Serializability
Concurrency Control Techniques: Two-Phase Locking Techniques for Concurrency Control - Concurrency Control Based on Timestamp Ordering – Multi version Concurrency Control Techniques - Validation (Optimistic) Concurrency Control Techniques - Granularity of Data Items and Multiple Granularity Locking
Database Recovery Techniques: Recovery Concepts - Recovery Techniques Based on Deferred Update - Recovery Techniques Based on Immediate Update - Shadow Paging

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

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

ENTERPRISE PROGRAMMING-I

III B.Tech – V Semester (Code: 14CS505)

Lectures	:	4 Periods/Week, Tutorial:1	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite: Object Oriented Programming (14CS306), Web Technologies (14CS406)

Course Outcomes: Students will be able to:

14CS505.1 Understand the environment of .NET Framework and Visual Studio and it helps to develop various applications with the help of Web Form fundamentals, Web controls and HTML Server controls.

14CS505.2 Understand the concepts of State Management, Validation of Web Pages and Displaying Web Pages more effectively by using Rich Controls and Styles, Themes & Master Pages.

14CS505.3 Understand the concepts ADO.NET Fundamentals & Data Binding and Connecting to a Database by using Data Controls & LINQ.

14CS505.4 Understand the deployment of ASP.NET Applications and How to Work with Services & MVC Application.

UNIT-1 (16 Periods)

The .NET Framework: C#, VB, and the .NET Languages, Intermediate languages, Common language runtime, the .NET class library, Visual Studio**.**

Visual Studio: The promise of visual studio, creating websites, designing a webpage, Exploring the anatomy of web form, writing code, Debugging

Web Form Fundamentals: Understanding the anatomy of an ASP.NET application, Introducing server controls, improving the currency converter, taking a deeper Look at HTML control classes, using the page class, using Application events.

Web Controls: Stepping up to web controls, web control classes, List controls, Table controls, Web control events and AutoPostBack, An interactive web page.

Error Handling, Logging, and Tracing: Avoiding common errors, understanding exception Handling, Handling exceptions, throwing your own exceptions, using page Tracing

UNIT-2 (15 Periods)

State Management: Understanding the problem of the state, using View State, Transferring information between pages, using cookies, managing session state Configuring session state, using application state

Validation: understanding the validation, using the validation controls. Rich Controls: The calendar, The Ad Rotator, pages with multiple views: Multiview , Wizard Control.

Styles, Themes, and Master Pages: Styles, Themes, master page basics, advanced master pages.

UNIT-3 (15 Periods)

ADO.NET Fundamentals: Understanding databases, configuring your database, Understanding SQL basics, Understanding the data provider model, using direct data Access, using disconnected data access.

Data Binding: Introducing data binding, using single valued data binding, using repeated value data binding, working with data source controls.

The Data Controls: The grid view, formatting the grid view, selecting a grid view row, Editing with a grid view row, sorting and paging in grid view, using grid view templates The details view and form view.

LINQ and the Entity Framework: understanding LINQ, LINQ basics, using entity framework, Getting more advanced with entity framework, using the entity data source.

UNIT-4 (14 Periods)

Deploying ASP.NET Applications: ASP.NET applications and the web server, Internet information and services (IIS), managing websites with IIS manager, deploying a site, deploying with visual studio.

Working with Services: What is WCF Web Service, Application for Creating and Consuming a WCF Web Service?

Putting ASP.NET MVC in Context: Understanding the history of ASP.NET, Key Benefits of ASP.NET MVC.

Your First MVC Application: Preparing Visual Studio, Creating a new ASP.NET MVC Project, Rendering Web Page, Creating a simple Data Entry Application.

Text Books :

1. "Beginning ASP.NET 4.5 in C#", Matthew MacDonald, Apress Publishing Company.
2. "Professional ASP.NET 4.5 in C# and VB", Jason N. Gaylord, Christian Wenz , Pranav Rastogi, Todd Miranda, Scott Hanselman, John Wiley & Sons, Inc., Indianapolis, Indiana
3. "Pro ASP.NET MVC 5", Adam Freeman, Apress Publishing Company.

References :

1. "Microsoft Windows Communication Foundation Step by Step", john sharp, Microsoft Press.

ARTIFICIAL INTELLIGENCE

ELECTIVE-I

III B.Tech – V Semester (Code: 14CS506(A))

Lectures	:	4 Periods/Week	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite: Design and Analysis of Algorithms (14CS404)

Course Outcomes: Students will be able to:

14CS506(A).1 Understand How to define a problem as a state space, problem characteristics, what are production systems and their characteristics and How to solve the problem quickly by using heuristic search techniques.

14CS506(A).2 Understand How to represent knowledge by using Predicate Logic and Rules.

14CS506(A).3 Understand Semantic nets, Conceptual Dependency, Scripts. Planning & Types of Planning.

14CS506(A).4 Understand the concepts of Learning and Expert Systems & Types of Expert Systems.

UNIT-1 (13 Periods)

PROBLEMS, PROBLEM SPACES AND SEARCH: Defining the Problem as a State Space Search - Production Systems - Problem Characteristics -Production System Characteristics - Issues in the Design of Search Programs.

HEURISTIC SEARCH TECHNIQUES: Generate-and-Test - Hill Climbing - Best-First Search - Problem Reduction – Constraint Satisfaction - Means-Ends Analysis

UNIT-2 (13 Periods)

KNOWLEDGE REPRESENTATION USING PREDICATE LOGIC: Representing Simple Facts in Logic Representing Instance and ISA Relationships – Computable Functions and Predicates - Resolution**.**

REPRESENTING KNOWLEDGE USING RULES : Procedural versus Declarative Knowledge - Logic Programming - Forward Versus Backward**,** Reasoning Matching - Control Knowledge**.**

UNIT-3 (12 Periods)

SLOT AND FILLER STRUCTURES: Semantic Nets, Conceptual, Dependency, Scripts.

PLANNING: Overview - An Example Domain: The Blocks Word - Component of Planning Systems – Goal Stack Planning - Non-linear Planning using constraint posting Hierarchical planning, Reactive systems

UNIT-4 (12 Periods)

LEARNING: What is learning? Rote learning - Learning by taking advice learning in problem solving, learning from example: Induction Explanation Based Learning.

EXPERT SYSTEMS: Representing and using domain knowledge Expert system shells Explanation Knowledge Acquisition.

Text Books :

1. ElaineRich & KevinKnight ,“Artificial Intelligence”,2nd Edition, (Tata McGraw Hill Edition)

References :
1. Patrick Henry Winston, “Artificial Intelligence”,Pearson Education.
2. Russel and Norvig, “Artificial Intelligence”, Pearson Education/ PHI

PRINCIPLES OF PROGRAMMING LANGUAGES

ELECTIVE-I

III B.Tech – V Semester (Code: 14CS506(B))

Lectures	:	4 Periods/Week	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite: C, C#, Java

Course Outcomes: Students will be able to:

14CS506(B).1 Understand the concept of languages, variable and binding

14CS506(B).2 Understand the scope, extend, assignment statement and control structures

14CS506(B).3 Understand the concept of sub programs how to implement and data abstraction in the languages

14CS506(B).4 Understand the concept of concurrency in sub program, symmetric concurrency and exception handlings

UNIT-1 (13 Periods)

Preliminaries: Reasons, Programming Domains, Language: Evolution Criteria, Categories, Design Trade-offs, Implementation, Programming Environments,

Evolution of Programming Languages.

Describing syntax and Semantics: General Problems, Describing Syntax, Recursive Descent Parsing, Attribute Grammar, Dynamic Semantics.

Primitive data types and variables: Names, variables, Concept of Binding, Type checking, Strong typing, Type compatibility, Named Constants, Variable Initialization.

UNIT-2 (13 Periods)

Scope and Extent: Scope, Scope and Life Time, Referencing Environments.

Data Types: Primitive, character string, User-defined, Array, Associative Arrays, Record, Union, Set, Pointer.

Expression and the Assignment Statement: Arithmetic Expressions, Overloading, Type Conventions, Relational and Boolean, Short Circuit, Assignment, Mixed mode Assignment.

Statement level Control Structures: Compound, Selection, Iterative Statements, Unconditional Branching, Guarded Commands

UNIT-3 (12 Periods)

Subprograms: Fundamentals, Design Issue, Local Referencing Environment, Parameter Passing, Parameters that are sub-program names, Overloaded Sub-programs, Generic, Separate and Independent Compilation, Design Issues for functions, Non-local environments, User Defined Overloaded Operators, Co routines.

Implementing Subprograms: Fortran 77, Algol-like languages, Blocks, Dynamic Scoping, Implementing Parameters that are sub-program names.

Data Abstraction: Concepts, Encapsulation, Data, Introduction, Design Issues, Examples, Parameterized Abstract Data Types.

UNIT-4 (12 Periods)

Symmetric and Concurrent Subprograms: Support for Object Oriented Programming, Design Issues, Smalltalk, Support for Object Oriented Programming in; C++, Java, ADA 95,

Implementation

Concurrency: Sub-program level, Semaphores, Monitors, Message Passing, and Concurrencyin ADA 95, Java Threads, and Statement level concurrency.

Exception handling: Introduction, Exception Handling in: PL1, ADA, C++, Java.

Text Books :

1. Robert W. Sebesta, 'Concepts of Programming Languages', Addison Wesley Longman Inc.,1999.

References :

1. Ellis Horowitz, 'Fundamentals of Programming Languages', Galgotia Publications (P) Ltd.,1994.
2. Pratt Terrence. W, 'Programming Languages, Design & Implemented' Prentice Hall of India, 1993.

MACHINE LEARNING

ELECTIVE-I

III B.Tech – V Semester (Code: 14CS506(C))

Lectures	:	4 Periods/Week	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite:

Course Outcomes: Students will be able to:

14CS506(C).1 Choose the learning techniques with basic knowledge and derision tree

14CS506(C).2 Apply effectively neural networks for appropriate applications.

14CS506(C).3 Apply Bayesian techniques and derive effectively learning rules.

14CS506(C).4 Choose and differentiate reinforcement and analytical learning techniques using instance based learning and genetic algorithm

UNIT-1 (13 Periods)

Machine learning: Introduction.

Concept Learning and the General to Specific Ordering: 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 and inductive bias.

Decision Tree Learning: Decision Tree representation, appropriate problems for Decision Tree learning, hypothesis space search in Decision Tree learning, inductive bias in Decision Tree learning and issues in Decision Tree learning.

UNIT-2 (13 Periods)

Artificial Neural Networks: Neural Network representations, appropriate problems for Neural Network learning, Perceptrons, Multilayer Networks and the Back propagation algorithm and remarks on the Back propagation algorithm.

Evaluating Hypotheses: Estimating hypothesis accuracy, basics of sampling theory, general approach for deriving confidence intervals, difference in error of two hypotheses and comparing learning algorithms.

UNIT-3 (12 Periods)

Bayesian Learning: Bayes theorem and concept learning, maximum likelihood and least squared error hypotheses, maximum likelihood hypotheses for predicting probabilities, minimum description length principle, Bayes optimal classier, Gibbs algorithm, Naive Bayes classier, Bayesian belief networks and EM algorithm.

Computational learning theory: Introduction, probably learning an approximately correct hypothesis, sample complexity for finite hypothesis spaces, and sample complexity for infinite hypothesis spaces and mistake bound model of learning.

UNIT-4 (12 Periods)

Instance Based Learning: Introduction, k-Nearest Neighbor learning, locally weighted regression, radial basis functions, Case Based Reasoning and remarks on Lazy and Eager learning.

Genetic Algorithms: Introduction, hypothesis space search, Genetic programming and

models of evolution and learning.

Text Books : 1. Tom M. Mitchell, “Machine Learning”, Mc. Graw Hill Publishing.

References :

GRAPH THEORY

ELECTIVE-I

III B.Tech – V Semester (Code: 14CS506(D))

Lectures	:	4 Periods/Week	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite: DMS,DAA

Course Outcomes: Students will be able to:

14CS506(D).1 Understand the concepts of graphs, types of graphs and traveling sales man problem.

14CS506(D).2 Understand the concepts of binary trees , counting tress and shortest path problems.

14CS506(D).3 Understand the concepts of planer graphs , combinatorial and geometric dual.

14CS506(D).4 Understand the concepts of Vector space of a graph and vectors, basis vector, cut set vector, circuit vector, four color problem Discussion of Graph theoretic algorithm.

UNIT-1 (13 Periods)

Graphs, Sub graphs, some basic properties, various example of graphs & their sub graphs, walks, path & circuits, connected graphs, disconnected graphs and component, euler graphs, various operation on graphs, Hamiltonian paths and circuits, the traveling sales man problem.

UNIT-2 (13 Periods)

Trees and fundamental circuits, distance diameters, radius and pendent vertices, rooted and binary trees, on counting trees, spanning trees, fundamental circuits, finding all spanning trees of a graph and a weighted graph, algorithms of primes, Kruskal and Dijkstra Algorithms.

UNIT-3 (12 Periods)

Cuts sets and cut vertices, some properties, all cut sets in a graph, fundamental circuits and cut sets , connectivity and separability, network flows, Planer graphs, combinatorial and geometric dual: Kuratowski graphs, detection of planarity, geometric dual, Discussion on criterion of planarity, thickness and crossings.

UNIT-4 (12 Periods)

Vector space of a graph and vectors, basis vector, cut set vector, circuit vector, circuit and cut set subspaces, Matrix representation of graph – Basic concepts; Incidence matrix, Circuit matrix, Path matrix, Cut-set matrix and Adjacency matrix. Coloring, covering and partitioning of a graph, chromatic number, chromatic partitioning, chromatic polynomials, matching, covering, four color problem Discussion of Graph theoretic algorithm wherever required.

Text Books :

1. DeoNarsingh, Graph theory with applications to Engineering and Computer Science, PHI

References :

1. Gary Chartrand and Ping Zhang, Introduction to Graph Theory, TMH
2. Robin J. Wilson, Introduction to Graph Theory, Pearson Education

3. Harary, F, Graph Theory, Narosa
4. Bondy and Murthy: Graph theory and application. Addison Wesley.
5. V. Balakrishnan, Schaum's Outline of Graph Theory, TMH
6. GeirAgnarsson, Graph Theory: Modeling, Applications and Algorithms, Pearson Education

MICROPROCESSORS AND MICROCONTROLLER LAB

III B.Tech – V Semester (Code: 14CSL501)

Practical	:	3 Periods/Week	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite: DLD (14CS303), CO (14CS403)

Course Outcomes: Students will be able to:

14CSL501.1 Have knowledge to program using 8086 microprocessor.

14CSL501.2 Be equipped with the basic knowledge of microprocessor and microcontroller interfacing and their applications.

14CSL501.3 Interpret programs in assembly language Format.

14CSL501.4 Analyze the interfacing circuitry and programs required for peripheral support chips and other hardware.

LIST OF EXPERIMENTS

1. Write a 8086 assembly language program to arrange the given numbers in ascending order.
2. Write a 8086 assembly language program to count number of +ve elements, -ve elements, zeros in the given array.
3. Write a 8086 assembly language program to find the square of a number using look-up-table.
4. Write a 8086 assembly language program to move a sting byte from a memory location to another memory location.
5. Write a 8086 assembly language program to calculate the maximum and minimum in an array.
6. Write a 8086 assembly language program to convert BCD to binary using near procedures.
7. Write a 8086 assembly language program to demonstrate passing parameters to procedures through registers.
8. Write a assembly language program to move a string from one location to another location using macros.
9. Write a8086 assembly language program to calculate nCr by using near procedures.
10. Assume that 5 BCD data items are stored in RAM locations starting at 40H. Write a program to find the sum of all the numbers. The result must be in BCD.
11. Write a program with three sub-routine to transfer the data from on-chip ROM to RAM location starting at 40H b) add them and save in 60Hc)find the average of the data and store it in R7.notice that data is stored in a code space of on-chip ROM.
12. Program the 8051 to arrange the given no. in ascending order.

RDBMS LABORATORY USING: ORACLE 9i

III B.Tech – V Semester (Code: 14CSL502)

Practical	:	3 Periods/Week	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite:

Course Outcomes: Students will be able to:

14CSL502.1 Know how to create tables and views and apply commit and roll back along with save point.

14CSL502.2 Use Selection, Projection, Sorting and Nested Queries on database.

14CSL502.3 Use concepts of Joins along with Set operations.

14CSL502.4 Create user defined objects and Exceptions.

14CSL502.5 Use PL/SQL named and unnamed blocks and Cursors.

14CSL502.6 Use Procedures, Functions, Packages, and Triggers.

LIST OF EXPERIMENTS

1. **Commands in SQL.**
   - i. Creating objects: tables, views, users, sequences, Collections etc.
   - ii. Privilege management through the Grant/Revoke commands
   - iii. Transaction processing using Commit/Rollback
   - iv. Save points.
2. **Simple queries: selection, projection, sorting on a simple table**
   - i. Small-large number of attributes
   - ii. Distinct output values
   - iii. Renaming attributes
   - iv. Computed attributes
   - v. Simple-complex conditions (AND, OR, NOT)
   - vi. Partial Matching operators (LIKE, %, _, *, ?)
   - vii. ASC-DESC ordering combinations
   - viii. Checking for Nulls
3. **Nested queries**
   - i. In, Not In
   - ii. Exists, Not Exists
   - iii. Dynamic relations (as part of SELECT, FROM, and WHERE clauses)
4. **Set Oriented Operations**
   - i. Union
   - ii. Difference
   - iii. Intersection
   - iv. Division
5. **Multi-table queries (JOIN OPERATIONS)**
   - i. Simple joins (no INNER JOIN)
   - ii. Aliasing tables – Full/Partial name qualification
   - iii. Inner-joins (two and more (different) tables)
   - iv. Inner-recursive-joins (joining to itself)
   - v. Outer-joins (restrictions as part of the WHERE and ON clauses)
   - vi. Using where & having clauses

6. **User Defined Types**
    i. Creating Objects
    ii. Creating User Defined Operators
7. **PL/SQL Programming I**
    i. Programs using named and unnamed blocks
    ii. Programs using Cursors, Cursor loops and records
8. **PL/SQL Programming II**
    i. Creating stored procedures, functions and packages
    ii. Error handling and Exception
    iii. Triggers and auditing triggers

Text Books :

1. Oracle Database 10g The Complete Reference by Kevin Loney, Tata McGraw-Hill Publishing Company Limited.
2. Oracle 9i PL/SQL Programming by Scott Urman, Tata McGraw-Hill Publishing Company Limited.
3. Simplified Approach to Oracle by Parteek Bhatia, Sanjiv Datta, Ranjit Singh, Kalyani Publishers.

ENTERPRISE PROGRAMMING-I LAB

III B.Tech – V Semester (Code: 14CSL503)

Practical	:	3 Periods/Week	Continuous Assessment	:	40
Final Exam	:	3 hours	Final Exam Marks	:	60

Pre-Requisite: Object Oriented Programming (14CS306), Web Technologies (14CS406)

Course Outcomes: Students will be able to:

14CSL503.1 Understand the environment of .NET Framework and Visual Studio and it helps to develop various applications with the help of Web Form fundamentals, Web controls and HTML Server controls.

14CSL503.2 Understand the concepts of State Management, Validation of Web Pages and Displaying Web Pages more effectively by using Rich Controls and Styles, Themes & Master Pages.

14CSL503.3 Understand the concepts ADO.NET Fundamentals & Data Binding and Connecting to a Database by using Data Controls & LINQ.

14CSL503.4 Understand the deployment of ASP.NET Applications and How to Work with Services & MVC Application.

LIST OF EXPERIMENTS

1. Design an ASP.NET application to demonstrate Web Form markup and redirection.
2. Design an ASP.NET application to demonstrate Web Controls.
3. Design an ASP.NET application to demonstrate View State to transfer data between Web Pages.
4. Design an ASP.NET application to demonstrate the use of Cookies.
5. Design an ASP.NET application to demonstrate Session State to transfer data between Web Pages.
6. Design an ASP.NET application to demonstrate Validating ASP.NET Web Pages using Validation Controls.
7. Design an ASP.NET application to demonstrate User Controls.
8. Design an ASP.NET Web Site with Styles, Themes and Master Pages.
9. Design an ASP.NET application to work with SQL Server Database using ADO.NET and Data Controls.
10. Design an ASP.NET application to work with SQL Server Database using LINQ Queries.
11. Design an application to demonstrate a Web Service Creation and Consumption.
12. Design a Simple MVC Web Pages Application.