SHRI G.S. INSTITUTE OF TECHNOLOGY &SCIENCE

Department of Information Technology

Subject Name: Web Engineering

Subject Code: IT38504

BTech III Yr, Section: A & B

Instructor Name: Dr. Upendra Singh/Mrs. Shraddha Verma

Course Outcomes:

After completion of course, students will be able to:
CO1 Understand the role of Internet, Internet protocols, HTML5, Java Script and CSS for web application development.
CO2 Create dynamic pages using CGI technology.
CO3 Design web applications using JSP, Servlet.
CO4 Explain XML based technologies including web services.
CO5 Explain the search engine and associated technology.
CO6 Identify the requirements of secure web application development.

Pre-Requisites: Basic understanding of PYTHON, Computer Networks.

Lecture Content:

S.No.	Date	Content Covered	Method
1	23/12/24	**UNIT 1**: History of internet protocols, the concept of www	Chalk and Board
2	30/12/24	Internet working concepts and architecture models, basic tools and methods of internet access	PPT
3	1/1/25	ISPs, types of servers, client server architecture	Chalk and Board
4	6/1/25	HTTP: request and response message, the statelessness of HTTP	Chalk and Board
5	7/1/25	URLs, Browsers: working, types, architecture examples; helper application, plugin.	PPT
6	8/1/25	**UNIT 2:**Technologies for Web Applications: Types of web documents: static, dynamic and active	Chalk and Board
7	13/1/25	Language for creation of each type of document; an overview of a web page development language	PPT
8	15/1/25	HTML,DHTML	Live Code(VS code) and Chalk Board
9	20/1/25	HTML5 Basic Concepts, Elements	Live Code and PPT
10	21/1/25	Linking in HTML; Introduction to CGI, The life cycle of CGI	Live Code
11	28/1/25	Introduction to Python, Writing CGI programs in python	Live code
12	29/1/25	**UNIT 3**:CGI vs Servlets, The life cycle of servlets	Chalk and Board
13	30/1/25	Servlet creation in JAVA.	Live code and PPT
14	3/2/25	doGet, and doPost method implementation.	Live Code and PPT
15	4/2/25	Parameters handling, Setting path and classpath variables, Tomcat architecture	PPT
16	10/2/25	Introduction to Java Server Pages technology, JSP tags.	PPT

17	11/2/25	Session Management: methods of session management.	PPT
18	17/2/25	Creating Active Pages: Java Applets basics.	PPT
19	19/2/25	Applet life cycle, simple hello world applet.	Live code
20	24/2/25	**UNIT 4:** Introduction to XML, XML Parser.	Chalk and Board
21	25/2/25	XML DTD,	Live Code
22	1/3/25	XML with XSLT	Live Code
23	3/3/25	Web Services, advantages of web services over web application. Web Service Architecture	PPT
24	4/3/25	Introduction to semantic web, Search Engines: architecture, Crawler.	PPT
25	5/3/25	Robot exclusion protocol.	PPT
26	24/3/25	search engine types, working, example.	Chalk and Board
27	25/3/25	**UNIT 5:** Web site planning, designing and management issues.	Chalk and Board
28	26/3/25	Web security issues: Introduction to Web Server.	PPT
29	1/4/25	Deploy website on Web Server, Firewalls: types of firewalls.	PPT
30	2/4/25	Introduction to MVC architecture using tools like J2EE framework, struts, etc.	PPT/ Live Code
31	7/4/25	Digital signature: public key, private key and session key; NAT, VPN.	Chalk Board

SHRI G.S. INSTITUTE OF TECHNOLOGY & SCIENCE, INDORE

DEPARTMENT OF INFORMATION TECHNOLOGY

LECTURE PLAN

Subject Name : Database Management System
Subject Code : IT 38513
Year/Semester : III yr 6th sem
Instructor Name : Shaivi Bharwe

COURSE OUTCOMES: After learning this course students will be able to:
CO1 Describe the concepts of database management system, its architecture and its applications.
CO2 Design entity relationship diagram and convert it into relational model.
CO3 Use the concepts of SQL in database creation and interaction.
CO4 Illustrate the concept of Functional Dependency, problem of different anomalies, and how it will overcome through normalization.
CO5 Compare the basic database storage structures and access techniques; file organization, and indexing method.
CO6 Describe the concepts of transaction processing and concurrency control.

PRE-REQUISITES: Basic knowledge of set theory and Operating System

Lecture No.	Topic to be Covered	Mode.
1	Introduction: database, database users, comparison to conventional system, characteristics of databases.	Slide and Board
2	Data models, schemas and instances, DBMS architecture and data independence,	Slide and Board
3	database languages and interfaces, classification of DBMS	Slide and Board
4	Data modeling using ER-model : Basic concepts,	Slide and Board
5	weak entity types, ER-diagrams,	Slide and Board
6	Subclasses, super classes, and inheritance, specialization and generalization.	Slide and Board

7	Relational data model and relational algebra: relational data model concept,	Slide and Board
8	Constraints- key: super key, primary key, and candidate key, Integrity Constraints- Referential Integrity.	Slide and Board
9	Update operations, basic relational algebra operations, additional relational operations.	Slide and Board
10	SQL: data definition and update statements, basic queries in SQL,	Slide and Board
11	views, functions, constraints,	Slide and Board
12	joins and nested queries, co-related queries,	Slide and Board
13	Functional dependencies and normalization: Features of good relational designs,	Slide and Board
14	database design approaches, anomalies, functional dependencies - Definition and rules of axioms,	Slide and Board
15	1NF, 2NF,	Slide and Board
16	3NF and BCNF.	Slide and Board
17	Dependency preservation, properties, loss less join decomposition	Slide and Board
18	Decomposition using multi valued dependency, more normal forms	Slide and Board
19	Decomposition using multi valued dependency, more normal forms	Slide and Board
20	Record storage and file organization: secondary storage devices, file of ordered records and file of unordered records,	Slide and Board

21	Hashing Techniques: Internal Hashing, External Hashing for Disk Files,	Slide and Board
22	RAID.	Slide and Board
23	Index structure for files: single level ordered indexes, multi level indexes,	Slide and Board
24	dynamic multilevel indexes using B-Tree and	Slide and Board
25	B^+ Tree.	Slide and Board
26	Query Processing and Optimization: steps of query optimization.	Slide and Board
27	Introduction to transaction processing: transaction and system concepts,	Slide and Board
28	desirable properties of transactions,	Slide and Board
29	schedules and recoverability,	Slide and Board
30	serializability of schedules, types of serializability and test for serializability,	Slide and Board
31	locking techniques for concurrency control,	Slide and Board
32	concurrency control based on timestamp ordering.	Slide and Board
33	Multiversion schemes.	Slide and Board
34	Recovery: Basic concepts, techniques based on deferred update and immediate update, Shadow paging, check points.	Slide and Board

Lectur Plan

Subject Name : Compiler Design
Subject Code : IT38506
Year/Semester : III yr 6th sem
Instructor Name : Manjeet Kumar Soni

COURSE OUTCOMES: After completion of the course, students will be able to:
CO1 Apply the knowledge of the structure of compiler and lexical analysis phase.
CO2 Design parsers for a given parser specification manually or using tools.
CO3 Apply the concept of syntax directed translation (SDT) in various situations.
CO4 Explain the concept of runtime environment and different optimization techniques.
CO5 Produce different forms of intermediate codes for given source code.
CO6 Apply analysis methods and apply different optimizations on given code

PRE-REQUISITES: Theory of computation, Data Structures

S.No.	Topic Covered	Mode
1	Introduction to Compiler, Different Phases of Compiler	Slides and Board
2	Bootstrapping, Cross compiler, single pass and multi pass compiler, Token Patterns and Lexems	Slides and Board
3	Review of language, Automata, and Regular Expression,	Slides and Board
4	RE to DFA using Syntax tree method	Slides and Board
5	Introduction to LEX- a lexical analyzer generator, Writing LEX source programs using regular Expressions	Slides and Board
7	Syntax Analysis, Context Free Grammar, Ambiguity, Push Down Automata, Left Recursion, Left Factoring	Slides and Board
8	Introduction to Parsers, Top Down Parsers, Recursive descent parser	Slides and Board
9	Model of Table driven predictive parser, Calculating FIRST and FOLLOW	Slides and Board
11	Construction of Predictive parsing table for LL(1) Parser	Slides and Board
12	Bottom-up Parsing, Shift reduce and reduce-reduce conflicts	Slides and Board
13	Operator Precedence grammar and Operator precedence parser, Precedence function, Computing LEADING and TRAILING set, operator precedence relation.	Slides and Board
14	LR Parses, Model and behaviour of LR Parsers, Classificaton of LR parsers	Slides and Board
15	Constructing cannonical collection of LR(0) items, constructing LR(0) parsing table, conflicts in LR(0) Parsing Table, SLR(1) Parsers,	Slides and Board
16	Constructing cannonical collection of LR(1) items, CLR(1) and LALR(1) Parsing table construction	Slides and Board

17	Handling ambiguous grammar. YAAC	Slides and Board
18	Introduction to semantic analysis, attribute grammar, synthesised and inherited attribute	Slides and Board
19	Syntax directed definitions, construction of syntax tree from SDD for given input	Slides and Board
20	Type checking and Run time environment	Slides and Board
21	Intermediate code generation, Three address codes, translating code into three address code	Slides and Board
22	Back patching, Code generation, Issues in designing code generator	Slides and Board
23	Basic blocks and Flow graphs,tranformations on basic blocks	Slides and Board
24	DAG representation of basic blocks, generating code from DAG	Slides and Board
25	Peephole optimization	Slides and Board
26	Code optimization, principle source of code optimization	Slides and Board
27	Data Flow Analysis, Control Flow Analysis	Slides and Board

SHRI G.S. INSTITUTE OF TECHNOLOGY & SCIENCE, INDORE
DEPARTMENT OF INFORMATION TECHNOLOGY
LECTURE PLAN

Subject Name : **DISTRIBUTED COMPUTING**
Subject Code : IT 38501
Year/Semester : III yr 6th sem
Instructor Name : Vivek Menon

Course Outcome:

CO1: Recognize the fundamental features and challenges of distributed system.
CO2: Illustrate the conceptual models of distributed system.
CO3: Identify the networking issues for distributed systems.
CO4: Summarise the distributed file system components and name services.
CO5: Explain time issues, coordination and agreement within distributed system.
CO6: Describe transaction and concurrency control in distributed system.

Prerequisite: Computer Network

S. No.	Date	Topics	Mode of Lecture
1	6/1/25	Characterization of Distributed Systems: Introduction, Examples of Distributed Systems, Resource Sharing and the Web	Blackboard & chalk
2	7/1/25	Challenges	Blackboard & chalk
3	8/1/25	Architectural Models	Blackboard & chalk
4	13/1/25	Fundamental Models	Blackboard & chalk
5	15/1/25	The Operating System Layer, Protection, Processes and Threads, Communication and Invocation	Blackboard & chalk
6	20/1/25	Networking issues for distributed systems: External Data Representation and Marshalling	Blackboard & chalk
7	21/1/25	Group Communication	Blackboard & chalk
8	22/1/25	Distributed Objects and Remote Invocation: Introduction, Communication between Distributed Objects	Blackboard & chalk
9	27/1/25	Remote Procedure Calling, Events and Notifications	Blackboard & chalk
10	28/1/25	Java RMI Case Study	Blackboard & chalk
11	29/1/25	Distributed File Systems: Introduction, File Service Architecture	Blackboard & chalk
12	3/2/25	Sun Network File System	Blackboard & chalk

13	10/2/25	The Andrew File System, Recent advances	Blackboard & chalk
14	11/2/25	Name Services and the Domain Name System, Directory and Discovery Services	Blackboard & chalk
15	17/2/25	Case study of the Global Name Service and X.500 Directory Service	Blackboard & chalk
16	24/2/25	Global States & Coordination: Introduction, Clocks, Events, and Process States	Blackboard & chalk
17	25/2/25	Synchronizing Physical Clocks, Logical Time and Logical Clocks	Blackboard & chalk
18	28/2/25	Global States, Distributed debugging, Failure Detectives	Blackboard & chalk
19	3/3/25	Distributed Mutual Exclusion	Blackboard & chalk
20	4/3/25	Elections	Blackboard & chalk
21	5/3/25	Multi cast Communication, Consensus and Related Problems	Blackboard & chalk
22	24/3/25	Transactions and Concurrency Control: Introduction, Transactions, Nested Transactions	Blackboard & chalk
23	25/3/25	Locks	Blackboard & chalk
24	26/3/25	Optimistic Concurrency Control	Blackboard & chalk
25	29/3/25	Flat and Nested Distributed Transactions, Atomic Commit Protocols	Blackboard & chalk
26	1/4/25	Concurrency Control in Distributed Transactions, Distributed Deadlocks, Transaction Recovery	Blackboard & chalk
27	2/4/25	Case Study of CORBA: CORBA RMI, CORBA Services	Blackboard & chalk

SHRI G.S. INSTITUTE OF TECHNOLOGY & SCIENCE, INDORE
Department of Information Technology

Subject Name : Intelligent System
Subject Code : IT 35662
Year/Semester : III yr 6th sem
Instructor Name : Dr. Puja Gupta

Course Outcome: At the end of this course students will be able to :

CO 1: Explain the basics concepts of A.I. and problem solving through searching.
CO 2: Apply fuzzy logic concepts for given situations.
CO 3: Design the neural network model for given real world scenario.
CO 4: Describe various machine learning algorithms to solve real time problem.
CO 5: Apply various machine algorithms for given dataset.
CO 6: Explain concept of intelligent system , agent and significant of machine leaning

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Prerequisites : Discrete Mathematics ,Computer Programming (Python/C/C++) , Machine Learning (Introductory level) ,Statistics and Probability ,Logic and Reasoning (Propositional and Predicate Logic)

Lecture Content :

S.No	Content Covered	Method
1	Introduction to Artificial Intelligence (AI), Intelligent Agents	Lecture with PPT
2	Areas of Artificial Intelligence	Lecture with PPT
3	Problem Solving and Search Methods in AI	Lecture with PPT
4	Knowledge, Reasoning, and Planning (KRP) in AI	Lecture with PPT
5	Uncertainties and Probabilities in KRP	Lecture with PPT
6	Foundations of Fuzzy Logic	Lecture with PPT
7	Foundations of Fuzzy Control	Lecture with PPT
8	Numerical on Fuzzy Logic & Fuzzy Control	Lecture with PPT
9	Types of Fuzzy Controllers	Lecture with PPT
10	Fuzzy Logic Toolbox in MATLAB	Lecture with PPT
11	Numerical on Fuzzy Controller and real life case study with MATLAB	Lecture with PPT
12	Creation of Fuzzy Inference System	Lecture with PPT
13	Creation of Fuzzy Controllers	Lecture with PPT

14	Neuron Model and Perceptron Model	Lecture with PPT
15	Modeling Basic Logic Functions using Perceptrons	Lecture with PPT
16	Numerical on Neuraon model and modeling basic logic	Lecture with PPT
17	Feedforward Neural Network	Lecture with PPT
18	Backpropagation Error in Neural Networks	Lecture with PPT
19	Numerical on Feedford NN and Backpropagation error	Lecture with PPT
20	Function Approximation with Two-layer Feedforward Network	Lecture with PPT
21	Character Recognition using Neural Networks	Lecture with PPT
22	Introduction to Machine Learning, Types and Applications	Lecture with PPT
23	Supervised Learning and Linear Regression	Lecture with PPT
24	Support Vector Machines and Naive Bayes	Lecture with PPT
25	Decision Tree, Ensemble Methods: Bagging and Boosting	Lecture with PPT
26	Evaluating Learning Algorithms	Lecture with PPT
27	Classification Problems and Decision Boundaries	Lecture with PPT
28	Nearest Neighbor Methods and Logistic Regression	Lecture with PPT
29	Introduction to Unsupervised Learning	Lecture with PPT
30	Cluster Analysis: K-means and Hierarchical Clustering	Lecture with PPT
31	Expectation Maximization Method	Lecture with PPT
32	Mixture of Gaussians and Factor Analysis	Lecture with PPT
33	Principal Component Analysis (PCA)	Lecture with PPT
34	Introduction to Reinforcement Learning	Lecture with PPT
35	Numerical on previous topics	Lecture with PPT

SHRI G.S. INSTITUTE OF TECHNOLOGY & SCIENCE, INDORE
DEPARTMENT OF INFORMATION TECHNOLOGY

LECTURE PLAN

SUBJECT NAME: **Advanced Computer Networks**

SUBJECT CODE: **IT38509**

YEAR/SEMESTER: **III/VI**

INSTRUCTOR NAME: **Megha Kuliha**

COURSE OUTCOMES: After completion, of course, students will be able to:

CO1 Extend the knowledge of computer networks course to advance networking concepts.
CO2 Study the TCP/IP protocols as being used in real world the internet.
CO3 Describe the working of realistic and efficient network applications and their architecture.
CO4 Explain the working of network management in real world for large infrastructure network.
CO5 Compute the efficiency of various protocols through simulations and modelling.
CO6 Operate the various protocols through simulators or on text-beds.

PRE-REQUISITES: Computer Networks.

LECTURE CONTEN

S.No.	Date	Content Covered	Method Lecture/Live coding/
1	8/1/2025	Review of computer networks	**Lecture PPTs & Notes**
2	9/1/2025	TCP/IP protocol stack	**Lecture PPTs & Notes**
3	10/1/2025	Addresing ,Routing	**Lecture PPTs & Notes**
4	15/01/2025	Socket Programming	**Lecture PPTs & Notes**
5	16/01/2025	IPV6 & IPV4	**Lecture PPTs & Notes**
6	17/01/2025	Introduction to optical network	**Lecture PPTs & Notes**
7	22/01/2025	Advanced Network layer Concepts	**Lecture PPTs & Notes**
8	22/01/2025	IntraAS Routing,RIP	**Lecture PPTs & Notes**
9	22/01/2025	OSPF,BGP	**Lecture PPTs & Notes**
10	23/01/2025	Broadcast & Multicast Routing	**Lecture PPTs & Notes**
11	24/01/2025	Content Addressable Routing,DHT,Pastry	**Lecture PPTs & Notes**
12	29/01/2025	IPV6 addressing	**Lecture PPTs & Notes**

13	29/01/2025	Network Simulation	**Lecture PPTs & Notes**
14	30/01/2025	Advanced concept in Transport Layer	**Lecture PPTs & Notes**
15	31/01/2025	Reciew of TCP and UDP	**Lecture PPTs & Notes**
16	13/02/2025	TCP Transition diagram	**Lecture PPTs & Notes**
17	14/02/2025	Nagle's algorithm	**Lecture PPTs & Notes**
18	14/02/2027	Sliding window Algorithm	**Lecture PPTs & Notes**
19	19/02/2025	multipath TCP,TCP Pacing and TCP Low Priority	**Lecture PPTs & Notes**
20	20/02/2025	SNMP	**Lecture PPTs & Notes**
21	21/02/2025	SNMP operation,	**Lecture PPTs & Notes**
22	27/02/2025	MIB	**Lecture PPTs & Notes**
23	28/02/2025	SDN	**Lecture PPTs & Notes**
24	5/3/2025	Openflow	**Lecture PPTs & Notes**
25	6/3//2025	Real Time Protocol	**Lecture PPTs & Notes**
26	7/3//2025	RTP	**Lecture PPTs & Notes**
27	26/03/2025	Scheduling	**Lecture PPTs & Notes**
28	27/03/2026	RSVP	**Lecture PPTs & Notes**
29	27/03/2027	RSVP	**Lecture PPTs & Notes**
30	1/4/2025	Policing	**Lecture PPTs & Notes**