MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Department of Computer Science & Engineering
Lecture Plan
Computer Programming

Lecture No.	CONTENT	COs	Bloom's Level	% Coverage (to be calculated based on total syllabus)	MODE
1.	Introduction to Programming, types of computer programming languages	1	LOT	3%	Offline / Black Board Teaching
2.	Program Execution and Translation Process	1	LOT	3%	Offline / Black Board Teaching
3.	Problem solving using Algorithms and Flowcharts	2	LOT	3%	Learning through demonstration
4.	Introduction to C++ Programming: Data Types, Constants, Keywords, variables	4	LOT	3%	Offline / Black Board Teaching
5.	Input/output, Operators & Expressions	4	LOT	2%	Learning Through experimentation
6.	Operators & Expressions, Precedence of operators	4	HOT	3%	Learning through demonstration
7.	Control Statements and Decision Making: goto statement, if statement	2, 4, 5	LOT	3%	Learning through demonstration
8.	If-else statement, nesting of if statements	6	LOT	2%	Learning through demonstration
9.	Nesting of if statements	6	HOT	2%	Activity Based Learning
10.	The switch statement, break and continue statement	6	HOT	3%	Offline / Black Board Teaching
11.	For loop	5, 6	LOT	2%	Learning through demonstration

12.	Nesting of for loops	5, 6	HOT	2%	Activity Based Learning
13.	While loop	6	LOT	2%	Learning through demonstration
14.	Do...while loop	6	LOT	2%	Learning through demonstration
15.	Function Basics, Function Prototypes	3, 4	LOT	3%	Offline / Black Board Teaching
16.	Passing Parameter by value and by reference, Default Arguments	3, 4	HOT	2%	Learning through demonstration
17.	Default Arguments, Recursion	3, 4	HOT	2%	Learning Through experimentation
18.	Arrays: One dimensional Arrays	6	LOT	2%	Offline / Black Board Teaching
19.	Arrays: One dimensional Arrays, Multidimensional Arrays	6	LOT	2%	Learning Through experimentation
20.	Multidimensional Arrays, Passing Arrays to Functions	3, 4, 6	LOT	3%	Offline / Black Board Teaching
21.	Strings, Pointers: operations on Strings, Basics of Pointers & Addresses, reference variable	3, 4	HOT	3%	Offline / Black Board Teaching
22.	Pointer to Pointer, Pointer to Array, Array of Pointers, Pointer to Strings	6	HOT	3%	Learning through demonstration
23.	Dynamic memory allocation using new and delete operators	3, 4	LOT	3%	Offline / Black Board Teaching
24.	Structures, Pointer to Structure	4, 6	LOT	2%	Learning through demonstration
25.	Self-Referential Structures, Union	4	HOT	2%	Learning through demonstration
26.	File Concepts, Study of Various Files and Streams, operations on files	4, 5	LOT	3%	Offline / Black Board Teaching

27.	Object Oriented Paradigm, Features of OOPS	4	LOT	3%	Offline / Black Board Teaching
28.	Procedural Oriented Programming with Object Oriented Programming	3, 4	LOT	3%	Offline / Black Board Teaching
29.	Abstract Data Types, Specification of Class, Visibility Modes	4	LOT	3%	Offline / Black Board Teaching
30.	Defining Member Functions, Scope Resolution Operator	4	LOT	3%	Learning through demonstration
31.	Constructors, its types and Destructors	4	HOT	2%	Offline / Black Board Teaching
32.	Constructors types and Destructors	4	HOT	2%	Learning Through experimentation
33.	Creating of Objects, Static Data Member, Static Member Function	4, 5, 6	LOT	3%	Learning through demonstration
34.	Array of Objects, Object as Arguments	4, 6	HOT	3%	Offline / Black Board Teaching
35.	Inline Function, Friend Function	4	HOT	2%	Learning through demonstration
36.	Polymorphism: Introduction, Type of Polymorphism: Compile Time Polymorphism & Run Time Polymorphism	4, 6	HOT	3%	Offline / Black Board Teaching
37.	Function Overloading, Operator Overloading	4, 6	HOT	3%	Learning through demonstration
38.	Inheritance: Introduction, Visibility Modes	4, 6	LOT	2%	Offline / Black Board Teaching
39.	Types of Inheritance: Single Level, Multilevel, Multiple, Hybrid, Multipath	4, 6	HOT	3%	Offline / Black Board Teaching

Black Board Teaching	Group Based Learning	Learning Through Projects	Learning Through demonstration	Learning Through experimentation	Activity based learning	Onsite/field based learning
46.15%			38.46%	10.26%	5.13%	

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Modes of Teaching

Computer Programming (160122)

Course: Branch: CSE   Session: November'2022 - March' 2023

Unit No & Topic	Contents	Mode
Unit-1	Introduction to Course Content, Course Objective, Course Out-Comes, Pre Requisites	Offline & Open discussions
	Fundamental Programming concepts: Introduction to Programming, types of computer programming languages, Program Execution and Translation Process,	Offline learning
	Problem solving using Algorithms and Flowcharts.	Offline & problem solving based learning. *(Understanding basic methodology & Numerical problem practice).*
	Introduction to C++ Programming: Data Types, Constants, Keywords, variables. Introduction to input/output, Operators & Expressions, Precedence of operators.	Offline learning *(Conducting experiment in Computer lab, solving them in programming problem).*
UNIT-2	Control Statements: Control Statements and Decision Making: goto statement, if statement, if-else statement, nesting of if statements.	*Offline & problem solving in group based learning (Conducting experiment in Computer lab, solving them in programming problem).*
	Arrays: One dimensional Arrays, Multidimensional Arrays, Passing Arrays to Functions.	Offline & problem solving in group based learning. (Conducting experiment in Computer lab, solving them in programming problem).
	Strings, Pointers, Structures and File handling, operations on Strings.	Conducting experiment in Computer lab, solving them in programming problem

UNIT-3		
	Basics of Pointers & Addresses, reference variable, Pointer to Pointer, Pointer to Array, Array of Pointers, Pointer to Strings.	Conducting experiment in Computer lab, solving them in programming problem
	Dynamic memory allocation using new and delete operators.	Conducting experiment in Computer lab, solving them in programming problem
	Structures & Union, Pointer to Structure, Self-Referential Structures.	Conducting experiment in Computer lab, solving them in programming problem
	File Concepts, Study of Various Files and Streams, operations on files.Strings, Pointers, Structures and File handling:, operations on Strings.	Conducting experiment in Computer lab, solving them in programming problem.
UNIT 4	Object Oriented Paradigm, Features of OOPS, Comparison of Procedural Oriented Programming with Object Oriented Programming, Abstract Data Types.	Offline learning & Open discussions.
	Specification of Class, Visibility Modes, Defining Member Functions.	Offline & problem solving in group based learning.
	Scope Resolution Operator, Constructors, its types, and Destructors.	Conducting experiment in Computer lab, solving them in programming problem.
	Creating of Objects, Static Data Member, Static Member Function,	Conducting experiment in Computer lab, solving them in programming problem.
	Array of Objects, Object as Arguments, Inline Function, Friend Function.	Conducting experiment in Computer lab, solving them in programming problem.
UNIT-5	Polymorphism: Introduction, Type of Polymorphism: Compile Time Polymorphism & Run Time Polymorphism,	Offline & Experiment with problem solving based learning.
	Function Overloading, Operator Overloading.	Offline & Experiment with problem solving based learning.
	Inheritance: Introduction, Visibility Modes, Types of Inheritance: Single Level, Multilevel, Multiple, Hybrid, Multipath.	Offline & Experiment with problem solving based learning.

OFFLINE Mode			
Black Board Teaching	Learning through in open discussion (class room)	Learning through lab experimentation	Group based Learning & Project based Learning
100%	10%	78%	15%

Ms. Jaimala Jha
Asst. Prof. CSE

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Department of CSE

Emerging Technologies in Computer Science/150123

Semester: Ist

LECTURE PLAN

Lecture No.	Content to be covered	COs	Blooms Level (BM)	% Coverage (to be calculated based on the total syllabus)	Mode
1	Artificial Intelligence: Introduction	1	LOT	3	Offline / Black Board Teaching
2	Need and Scope of AI, History, Definition of AI	1	LOT	4	Offline / Black Board Teaching
3	Techniques of AI, Characteristics of AI applications	1	LOT	4	Offline / Black Board Teaching
4	Basic Search Techniques	1,6	HOT	3	Learning through demonstration
5	General problem solving	1,6	HOT	4	Learning through demonstration
6	Speech Recognition, Natural Language processing	1,6	HOT	3	Learning through demonstration
7	Computer Vision, Introduction of expert systems	1,6	HOT	4	Learning through demonstration
8	Introduction to cloud computing	2	LOT	4	Offline / Black Board Teaching
9	Software as a service, platform as a service, and Infrastructure as a service.	2	LOT	4	Offline / Black Board Teaching
10	Cloud deployment model: Public, Private, Community and Hybrid clouds.	2	LOT	4	Offline / Black Board Teaching
11	Virtualization	2	HOT	4	Learning through demonstration
12	Cloud based Service: provider	2	HOT	4	Offline / Black Board Teaching
13	Overview of Cyber Security	3	LOT	4	Offline / Black Board Teaching
14	Cyber-crime, Cyber warfare, cyber Terrorism, Cyber espionage,	3	LOT	3	Offline / Black Board Teaching
15	Cyber Vandalism, Cyber Stalking	3,4	LOT	4	Offline / Black Board Teaching
16	Internet Frauds and Software piracy, Cyber Security Threats.	3,4	LOT	4	Offline / Black Board Teaching
17	Vulnerabilities: Hacker, Types of Hacker- white, Gray and black.	3,4	HOT	3	Offline / Black

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					Board Teaching
18	Malicious Software: Virus, Worm, Trojan Horse, Backdoors and Spywares, Sniffers, Denial of Service attack and Phishing.	3,4	HOT	**4**	Learning through demonstration
19	IoT definition, Characteristics, IoT conceptual and architectural framework.	5	LOT	**3**	Offline / Black Board Teaching
20	Components of IoT ecosystems, Review of Basic Microcontrollers and interfacing	5	HOT	**4**	Learning through experimentation
21	Sensor, Sensor features, RFID: Features & working principle.	5	HOT	**4**	Learning through experimentation
22	Introduction to Big data, Big data characteristics, Traditional data versus Big data	6	HOT	**4**	Offline / Black Board Teaching
23	Evolution of Big data, challenges with Big Data,	6	HOT	**3**	Offline / Black Board Teaching
24	Technologies available for Big Data, Use of Data Analytics	1,6	HOT	**4**	Offline / Black Board Teaching
25	Hadoop Eco system,	1,6	HOT	**3**	Learning through demonstration
26	Core Hadoop components	1,6	HOT	**4**	Learning through demonstration
27	ETL Processing	1,6	HOT	**4**	Activity based learning

Department of CSE
Computer Science and Design
Modes of Teaching
Subject: Introduction to CSD (290121)
Session: November'2022 - March' 2023

UNITs	CONTENTs	MODEs
Unit I - Introduction to Computer:	Introduction, Generation of computers, Classification of Computers, Hardware components, system bus.	Offline / Black Board Teaching
	Computer memory and its types - RAM, ROM, Cache memory,	Learning through demonstration
	Registers, secondary memory, memory hierarchy.	Group based Learning
	Computer software - System software, application software	Offline / Black Board Teaching
	Operating system, its types and services. Booting	Offline / Black Board Teaching
Unit II - Digital Logic Design:	Von-Neumann Model, Various Subsystems	Offline / Black Board Teaching
	Binary numbers, Number Base Conversions, Complements, Signed Binary numbers, Binary Codes	Offline / Black Board Teaching
	Digital Logic Gates, Representation of sign (sign magnitude, two's complement).	Learning through demonstration
	Boolean algebraic axioms	Offline / Black Board Teaching
	Boolean functions, truth tables.	Offline / Black Board Teaching
	Adders and subtractors.	Activity based Learning
Unit III – Introduction to Algorithm	Fundamentals of Algorithmic Problem Solving	Offline / Black Board Teaching
	Characteristics, need for algorithms,	Learning through demonstration
	Important Problem Types, Flowcharts for different problems	Offline / Black Board Teaching
	Procedural, Object oriented	Learning through projects
Unit IV - Computer Networks	Introduction, Types- LAN, MAN & WAN	Offline / Black Board Teaching
	Data transmission modes- Serial & Parallel, Simplex, Half duplex & full duplex,	Offline / Black Board Teaching
	Synchronous & Asynchronous transmission	Group based Learning
	Transmission medium- Guided & Unguided, Cables- Twisted pair, Coaxial cable & Optical Fiber,	Learning through demonstration
	Networking Devices-Repeaters, Hub, Switch, Bridge,	Learning through demonstration
	Router, Gateway and Modem	Offline / Black Board Teaching
Unit V - Software and Web Design:	The evolving role of software, changing nature of software,	Offline / Black Board Teaching
	Software myths. Software engineering – a layered technology, a process framework.	Learning through projects
	Software Development Models - The waterfall model, incremental models, evolutionary models.	Offline / Black Board Teaching
	Web Designing Technologies: The World Wide Web, Web Browsers, Web Servers, Uniform Resource Locators, Domain name system (DNS),	Offline / Black Board Teaching
	Multipurpose Internet Mail Extensions, The Hypertext Transfer Protocol, FTP, HTML, Basic Text Markup, Lists, Tables, Forms, Frames, Hyperlinks, Images, Multimedia, Forms and Controls.	Learning through projects

Online	Offline						
	Black Board Teaching	Group based Learning	Learning through projects	Learning through demonstration	Learning through experimentation	Activity based Learning	Onsite / field based learning
-	57.69	7.69	11.53	19.23	-	3.84	-

Prof Smita Parte
Assistant Professor
Department of CSE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Modes of Teaching

Course: Theory of Computation

Branch: CSE   **Session: Jan 2023 - June 2023**

Unit No. & Title	Session	Contents	COs	Blooms Level(BL)	% Coverage(to be calculated based on total syllabus)	Mode
Unit-I **Introduction to Automata theory**	1	**Introduction – Basic Mathematical Notation and Techniques** (Symbols, Alphabets, String, Language ans Sets)	CO1/CO2	LOTS	1.50%	**Offline & Black Board Teaching** (Understanding Mathematical concepts)
	2	**Automata Theory** (Basic definition and Examples of automata machines)	CO1/CO2	LOTS	1.50%	**Offline & problem solving based learning** (Design Automata and solve real time problems)
	3	**Finite Automata as a language acceptor and translator** (Differrences between Acceptor and Translator)	CO1/CO5	LOTS	1.50%	**Offline & Black Board Teaching** (Understanding concept of Acceptor and Translator)

	4	**Moore Machines and Mealy Machines** (Define machine with output with example)	CO3/CO6	LOTS	2%	**Offline & Group based Learning** (*Analysing and Design machine for sequential circuit)*
	5	**Conversion from Mealy to Moore and vice versa**	CO3/CO6	LOTS	2%	**Offline & Group based Learning** (Analysing and Design machine for sequential circuit)
Unit-II **Type of Finite Automata**	6	**Types of Finite Automata** (Basic concept of FA, Finite automata with and without output)	CO3/CO6	HOTS	3%	**Offline & Black Board Teaching** (Understanding Basic concepts)
	7	**Deterministic Finite Automata (DFA)** (Automata tuples, working and examples)	CO3/CO6	HOTS	3%	**Offline & Group based Learning** (Analysing and Design machine for real time problem)
	8	**Non Deterministic Finite Automata (NDFA)** (Automata tuples, working and examples)	CO2/CO3	HOTS	3%	**Offline & Group based Learning** (Analysing and Design machine for real time problem)
	9	**Equivalence of NDFA and DFA** (Conversion NFA to DFA)	CO2/CO3	HOTS	3%	**Offline & problem solving based learning** (Design Automata and solve real time problems)
	10	**Minimization of DFA** (Partition Method)	CO1/CO2	LOTS	1.50%	**Offline & problem solving based learning** (Design Automata and solve real time problems)

	11	**Regular Expression , Arden's theorem** (Regular set, Regular expression,RE to FA, FA to RE)	CO1/CO2	HOTS	2.50%	**Offline & Group based Learning** (Construct regular expression for languase and FA)
	12	**Meaning of union, intersection, concatenation and closure** (Clouser Proparties of Regular Expression)	CO1/CO2	HOTS	3%	**Offline & Black Board Teaching** (Learning and understanding clouser proparties of regular expession)
	13	**Pumping Lemma for Regular Set** (Proof Laguages is not Regular)	CO1/CO2	HOTS	3%	**Offline & Activity based Learning** (Analysing languages that is regular or not)
Unit-III **Introduction to Grammers**	14	**Grammars Introduction, Types of grammar** (Chomeskey Normal form, Type 0, Type 1, Tye2, Type 3 Grammer)	CO4/CO6	HOTS	2.50%	**Offline & Learning through demonstration** (Design Machine for different laguages)
	15	**Context Free Grammar** (Example, CFG to CFL and CFL to CFG Conversion)	CO4	HOTS	2%	**Offline & Black Board Teaching** (Learn and understand the CFL)
	16	**Context Sensitive Grammar** (Defination, Example and Applications)	CO4	HOTS	4%	**Offline & Black Board Teaching** (Learn and understand the CFL)
	17	**Relation between Derivation and Derivation Tree** (Derivation tree, Left most derivation, Right most derivation)	CO4	LOTS	2%	**Offline & problem solving based learning** (Derive derivation tree for CFG)
	18	**Ambiguity in grammar** (Defination, Ambiguous Grammar, Example)	CO4	HOTS	4%	**Offline & Activity based Learning** (Check given gerammer is ambigious or not)

	19	**Simplification of Context Free Grammar** (Remove useless symbols)	CO2/CO3	HOTS	1.50%	**Offline & Group based Learning** (Analysing and Simplify grammer and remove useless symboles)
	20	**Conversion of grammar to automata machine and vice versa** (Examples)	CO2/CO3	HOTS	5.50%	**Offline & problem solving based learning** (Convert CFG into Machine)
	21	**Chomsky hierarchy of grammar** (Defination)	CO2/CO3	LOTS	3%	**Offline & Black Board Teaching** (Understand concept of Gerammer)
	22	**killing null and unit productions** (Remove unit production and null production from grammer)	CO2/CO3	HOTS	5%	**Offline & problem solving based learning** (Learn how to eliminate null poroduction and unit production)
	23	**Chomsky Normal Form (CNF)** (Defination, Conver CFG into CNF)	CO2/CO3	HOTS	5%	**Offline & Learning through demonstration** (understand methods for converting CFG into CNF)
	24	**Greibach Normal Form (GNF)** (Defination, Conver CFG into GNF)	CO2/CO3	HOTS	5%	**Offline & Learning through demonstration** (understand methods for converting CFG into GNF)
	25	**Push Down Automata (PDA), example of PDA** (Defination, Design, Examples)	CO2/CO3	HOTS	3%	**Offline & Black Board Teaching** (Understanding Basic concepts)
	26	**Deterministic and Non-deterministic PDA** (Defination, Design, Examples)	CO2/CO3	LOTS	2%	**Offline & Black Board Teaching (Understanding Basic concepts)**

Unit		No.	Topic	CO				Mode
Unit-IV **Push Down Automata**		27	**Conversion of PDA into Context free grammar and vice versa** (Examples)	CO2/CO3	LOTS	2%		**Offline & problem solving based learning** (Understanding concept for converting PDA to Grammer)
		28	**CFG equivalent to PDA** (Examples)	CO1/CO5	LOTS	2.50%		**Offline & problem solving based learning** (Understanding concept for converting CFG to PDA)
		29	**Petrinet model.** (Define and Explain)	CO1/CO5	LOTS	1.50%		**Offline & Learning through projects** (Implement Petrinet model)
Unit-V **Turing Machine**		30	**Turing machine, Techniques for Construction.** (Defination, Example and Applications)	CO1/CO5	HOTS	2%		**Offline & Black Board Teaching** (Understanding Basic concepts)
		31	**Universal Turing Machine (UTM)** (Defination, Example and Applications)	CO1/CO5	LOTS	1.50%		**Offline & Black Board Teaching** (Understanding Basic concepts)
		32	**Types of Turing Machine** (Multitape, Multihead and Multidimensional Turing Machine)	CO1/CO5	LOTS	2%		**Offline & Black Board Teaching** (Understanding Basic concepts)
		33	**Decidability and Undecidability Language** (Define, Example)	CO4/CO6	LOTS	1.50%		**Offline & problem solving based learning** (Learn and understand real problem that is decidable or not)

	34	**Recursively and Recursively Enumerable Language** (Define, Example)	CO4/CO6	LOTS	2%	**Offline & Learning through demonstration**
	35	**P and N-P complete problems.** (Define, Example)	CO4/CO6	LOTS	3%	**Offline & Black Board Teaching** (Understand the concept of P and NP Problem)
	36	**The Post Correspondence Problem** (Define, Example)	CO4/CO6	LOTS	1.50%	**Offline & Learning through projects** (understand and implement PCP Problem)

Offline						Online
Black Board Teaching	**46.11**	Group based Learning	**17.6**	Learning through projects	**5.55**	Nil
Learning through demonstration	**4.44**	Learning through experimentation	**27.12**	Onsite/field based learning	-	

Mr. Mahesh Parmar

Assistant Professor

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Department of Computer Science & Engineering
Lecture Plan
Machine Learning Using Python

Lecture No.	CONTENT	COs	Bloom's Level	% Coverage (to be calculated based on total syllabus)	MODE
1.	Introduction to Python programming, setting up of Programming Environment	1, 2	LOTS	3%	Offline / Black Board Teaching
2.	Running Python Programs from a terminal	1, 2	LOTS	3%	Learning through demonstration
3.	Variables and Data Types (Numeric, String, List, Tuple ,Dictionary)	1, 5	HOTS	3%	Learning Through experimentation
4.	Conditional Statements and Loops	1	HOTS	2.5%	Learning through demonstration
5.	Lambda Functions, Read Write Operations in Files	1	HOTS	2.5%	Learning Through experimentation
6.	Various Inbuilt Functions, Read Write Operations in Python	1	HOTS	3%	Learning Through experimentation

7.	Python Packages and Modules	1	HOTS	2%	Learning through demonstration
8.	Pandas	1, 2	HOTS	3%	Learning through demonstration
9.	Numpy	1, 2	HOTS	2%	Learning Through experimentation
10.	Matplotlib and plotly	1, 2	HOTS	1.5%	Learning through demonstration
11.	Slicing, Merging, Concatenation on various datasets	1, 2,	HOTS	2.5%	Learning through demonstration
12.	Data Visualization Line, bar-graph, scatter plot	1, 2,	HOTS	2%	Learning through demonstration
13.	Histogram, piecharts	2,	HOTS	2.5%	Offline / Black Board Teaching
14.	Introduction to Machine Learning	2,	LOTS	3.5%	Learning through demonstration
15.	Applications and Challenges of Machine Learning	2,	LOTS	2%	Learning through demonstration
16.	Supervised and unsupervised and Reinforcement Learning	1, 2,	LOTS	2%	Offline / Black Board Teaching
17.	Basic steps of Machine Learning, Lifecycle of ML	2,	LOTS	3%	Offline / Black Board Teaching

18.	Data Collection	2	HOTS	2.5%	Learning through demonstration
19.	Data Preparation	2	HOTS	2%	Learning through demonstration
20.	Choosing a Learning Model	2	HOTS	4%	Learning Through experimentation
21.	Training a Model	2	HOTS	2.5%	Offline / Black Board Teaching
22.	Evaluation of a Model	2	HOTS	3%	Learning through demonstration
23.	Parameter Tuning and Prediction	2	HOTS	3%	Offline / Black Board Teaching
24.	Supervised Learning Introduction, its types	3	LOTS	2%	Learning through demonstration
25.	Linear regression	3,4	HOTS	2.5%	Offline / Black Board Teaching
26.	Gradient Descent	3,4	HOTS	2%	Offline / Black Board Teaching
27.	Overfitting and Underfitting	3,4	HOTS	3%	Activity based learning
28.	Regularization	3,4	HOTS	2%	Learning Through experimentation
29.	Complexity, Training, Testing and Validation	3,4	HOTS	2%	Learning through demonstration
30.	Performance matrix, Mean Squared Error,	3,4	HOTS	2.5%	Learning through demonstration

	Root Mean Squared Error, Mean Absolute Error				
31.	R^2 and Coefficient of Determination	3,4	HOTS	2%	Offline / Black Board Teaching
32.	Multivariate Regression, Applications of Regression	3,4	HOTS	2%	Activity based learning
33.	Classification, Binary Classification, Multiclass Classification, Multilabel Classification	3, 4	HOTS	2%	Learning through demonstration
34.	Logistic Regression, Support Vector Machines	3, 4	HOTS+LOTS	4%	Learning through demonstration
35.	K- nearest Neighbour, Decision Trees, Random Forests	3, 4	HOTS+LOTS	2.5%	Offline / Black Board Teaching
36.	Neural Networks and Comparison Matrix	3,4	LOTS+ HOTS	2%	Offline / Black Board Teaching
37.	Introduction to Unsupervised Learning, Clustering and Association Rules Mining	5, 4	HOTS+LOTS	2.5%	Offline / Black Board Teaching

38.	DBSCAN, Principal Component Analysis	4, 5	HOTS+LOTS	2%	Learning Through experimentation
39.	Apriori Algorithm, Association Rules Learning Problems	4, 5	HOTS+LOTS	3%	Activity based learning
40.	Machine learning Model Building, ML Library, Scikit Learn	4, 5	HOTS+LOTS	2%	Learning through demonstration

Black Board Teaching	Group Based Learning	Learning Through Projects	Learning Through demonstration	Learning Through experimentation	Activity based learning	Onsite/field based learning
30%		10%	50%	5%	5%	

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Department of Computer Science And Engineering

LECTURE PLAN

Teaching Session	Content to be covered	COs	Blooms Level (BM)	% Coverage (to be calculated based on the total syllabus)	MODE
1	**Introduction:** Advantage of DBMS approach, various view of data	CO1/CO2	**LOTS**	**1.5%**	Offline / Black Board Teaching
2	Data independence, schema and sub-schema, primary concepts of data models	CO1/CO2	**LOTS**	**1.5%**	Learning through demonstration
3	Database languages, transaction management	CO1/CO5	**LOTS**	**1.5%**	Learning through demonstration
4	Database administrator and users, data dictionary	CO3/CO6	**LOTS**	**2%**	Learning through demonstration
5	Overall system architecture	CO3/CO6	**LOTS**	**2%**	Offline / Black Board Teaching
6	**ER model:** basic concepts, design issues	CO3/CO6	**HOTS**	**3%**	Activity based Learning
7	Mapping constraint, keys, ER diagram	CO3/CO6	**HOTS**	**3%**	Learning through projects
8	Weak and strong entity sets, specialization and generalization	CO2/CO3	**HOTS**	**3%**	Learning through projects
9	Aggregation, inheritance, design of ER schema, reduction of ER schema to tables.	CO2/CO3	**HOTS**	**3%**	Learning through projects
10	Domains, relations, kind of relations	CO1/CO2	**LOTS**	**1.5%**	Offline / Black Board Teaching
11	Relational database, various types of keys	CO1/CO2	**HOTS**	**2.5%**	Learning through demonstration
12	Candidate, primary, alternate and foreign keys.	CO1/CO2	**HOTS**	**3%**	Activity based Learning
13	Relational algebra with extended with extended operations	CO1/CO2	**HOTS**	**3%**	Offline / Black Board Teaching
14	Modifications of Database,	CO4/CO6	**HOTS**	**2.5%**	Offline / Black Board

Dr. Parul Saxena
Assistant Professor

	idea of relational calculus				Teaching
15	Basic structure of SQL, set operations	CO4	**HOTS**	**2%**	Group based Learning
16	Set operations, aggregate functions, null values, nested sub queries	CO4	**HOTS**	**4%**	Learning through experimentation
17	Derived relations, views, modification of Database	CO4	**LOTS**	**2%**	Learning through experimentation
18	Join relations, DDL in SQL.	CO4	**HOTS**	**4%**	Group based Learning
19	**Functional Dependencies and Normalization:** basic definitions	CO2/CO3	**HOTS**	**1.5%**	Offline / Black Board Teaching
20	Trivial and non trivial dependencies, closure set of dependencies and of attributes	CO2/CO3	**HOTS**	**5.5%**	Learning through demonstration
21	Irreducible set of dependencies	CO2/CO3	**LOTS**	**3%**	Learning through demonstration
22	Non loss decomposition, FD diagram	CO2/CO3	**HOTS**	**5%**	Activity based Learning
23	First, second Normal forms	CO2/CO3	**HOTS**	**5%**	Group based Learning
24	Third, BCNF Normal forms	CO2/CO3	**HOTS**	**5%**	Group based Learning
25	Dependency preservation	CO2/CO3	**HOTS**	**3%**	Learning through experimentation
26	Multivalued dependencies and fourth normal form	CO2/CO3	**LOTS**	**2%**	Learning through experimentation
27	Join dependency and fifth normal form	CO2/CO3	**LOTS**	**2%**	Learning through experimentation
28	**Transaction:** basic concepts, ACID properties	CO1/CO5	**LOTS**	**2.5%**	Offline / Black Board Teaching
29	Transaction states, implementation of atomicity and durability	CO1/CO5	**LOTS**	**1.5%**	Offline / Black Board Teaching
30	Concurrent executions, basic idea of serializability	CO1/CO5	**HOTS**	**2%**	Activity based Learning
31	Basic idea of concurrency control	CO1/CO5	**LOTS**	**1.5%**	Learning through demonstration
32	Basic idea of deadlock	CO1/CO5	**LOTS**	**2%**	Learning through demonstration
33	Failure classification, storage structure types	CO4/CO6	**LOTS**	**1.5%**	Offline / Black Board Teaching
34	Stable storage	CO4/CO6	**LOTS**	**2%**	Offline / Black Board

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	implementation, data access, Recovery and atomicity- log based recovery				Teaching
35	Deferred Database modification, immediate Database modification, checkpoints.	CO4/CO6	**LOTS**	3%	Activity based Learning
36	**Distributed Database:** basic idea, distributed data storage, Data replication, data fragmentation- horizontal vertical and mixed fragmentation	CO4/CO6	**LOTS**	1.5%	Offline / Black Board Teaching
37	Overview of physical storage media, magnetic disks-performance and optimizations	CO4/CO6	**LOTS**	1%	Offline / Black Board Teaching
38	Basic idea of RAID, File organizations, organization of records in files	CO4/CO6	**LOTS**	1.5%	Offline / Black Board Teaching
39	Basic concepts of indexing, ordered indices	CO4/CO6	**LOTS**	1.5%	Offline / Black Board Teaching
40	B-tree organization, B+-tree organization	CO4/CO6	**HOTS**	2.5%	Activity based Learning

Online	Offline						
	Black Board Teaching	**Group based Learning**	**Learning through projects**	**Learning through demonstration**	**Learning through experimentation**	**Activity based Learning**	**Onsite / field based learning**
-	**35%**	**10%**	**7.5%**	**20%**	**12.5%**	**15%**	**-**

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Department of Computer Science & Engineering
Lecture Plan
Database System(620111)

Lecture No.	CONTENT	COs	Bloom's Level	% Coverage (to be calculated based on total syllabus)	MODE
1.	Characteristics & Implications of Database Approach.	1, 2	LOTS	1%	Offline / Black Board Teaching
2.	High Level or conceptual, Low-Level or Physical, Representation or implementation	1, 2	LOTS	3%	Offline / Black Board Teaching
3.	Internal Schema, Conceptual Schema, External Schema.	1, 2,4	LOTS	3%	Offline / Black Board Teaching
4.	Data Definition Language (DDL), Storage Definition Language (SDL), View Definition Language (VDL),	1, 2,4	HOTS	5%	Learning Through experimentation
5.	Data Manipulation Language(DML)	1,2,4	HOTS	3%	Learning Through experimentation
6.	Data Models, Relational data Models, Object Data Models, Hierarchical and Network Data Models .	1, 2,4	HOTS	2%	Learning Through experimentation

7.	Logical Data Independence, Physical Data Independence in three level scheme architecture.	1, 2,4	LOTS	2%	Offline / Black Board Teaching
8.	Entity Types, Entity Sets, Attributes Types and Keys, ,	1,2,5	LOTS	2.5%	**Learning Through demonstration**
9.	Relationships Types, Relationship sets, Roles	1,2,5	LOTS	2.5%	Offline / Black Board Teaching
10.	ER-Diagrams, Design Issues	1,2,5	HOTS	5%	**Activity based learning**
	Overview of object database Concept, Object Identity, and Objects versus Literals,	2,4	LOTS	3%	Offline / Black Board Teaching
	Complex Type Structures for Objects and Literals	2,4	LOTS	3%	Offline / Black Board Teaching
11.	Specifying Object Persistence via Naming and Reach ability	2,4	LOTS	3%	Offline / Black Board Teaching
12.	Simplified Model for Inheritance, Constraints on Extents	2,4	HOTS	3%	Offline / Black Board Teaching

	Corresponding to a Type Hierarchy.				
13.	Polymorphism of Operations (Operator Overloading),	2,4	HOTS	2%	Offline / Black Board Teaching
14.	Multiple Inheritance and Selective Inheritance	2,4	HOTS	3%	**Learning Through demonstration**
15.	Object Database Conceptual Design, Differences between Conceptual Design of ODB and RDB	2,4	HOTS	3%	Offline / Black Board Teaching
16.	Simple OQL Queries, Database Entry Points, and Iterator Variables.	2,4	HOTS	3%	Learning Through experimentation
17.	Distributed Databases: Concepts. Fragmentation, Replication	2, 4	HOTS	3%	Offline / Black Board Teaching
18.	Allocation Techniques for Distributed Database Design,	2,4	HOTS	3%	Offline / Black Board Teaching
19.	Types of Distributed ·Database Systems	2,4,5	LOTS	3%	Offline / Black Board Teaching
20.	Query Processing, Concurrency Control and	2,4,5	HOTS	3%	Offline / Black Board Teaching

	Recovery.				
21.	Distributed Databases in Oracle.	2,4,5	LOTS	3%	Offline / Black Board Teaching
22.	Transaction Processing: Introduction, Transaction and System Concepts,	4, 6	LOTS	2.5%	Offline / Black Board Teaching
23.	Properties of Transactions, Schedules & Recoverability	1,2,3	LOTS	3%	Offline / Black Board Teaching
24.	Serializability of Schedules	1,2,3	HOTS	3%	Offline / Black Board Teaching
25.	Schedules & Recoverability	1,2,3	HOTS	3%	Offline / Black Board Teaching
26.	Concurrency Control Techniques: Two-Phase Locking Techniques,	1,2,3	HOTS	3.5%	Offline / Black Board Teaching
27.	Binary Locks. Shared/Exclusive (or Read/Write) Locks,	1,2,3	LOTS	3%	Offline / Black Board Teaching
28.	Basic, Conservative Strict, and Rigorou	1,2,3	HOTS	3%	Offline / Black Board Teaching
29.	Concurrency Contr Based, on Timestamp Orderir	1,2,3	HOTS	3%	Offline / Black Board Teaching
30.	Modelling and Storage of Image	2, 4,6	LOTS	3%	Learning through

	and Multimedia Data:				demonstration
31.	Data Structures: R-Trec. k-d Tree. Quad Trees	2, 4,6	HOTS	3%	Offline / Black Board Teaching
32.	Content Based Retrieval: color Histograms, Textures, etc,	2,4,6	LOTS	3%	Offline / Black Board Teaching
33.	Image Features, Spatial and Topological Relationships.	2,4,6	LOTS	3%	Offline / Black Board Teaching
34.	WEB Database Accessing Databases through WEB, WEB Servers.	2,4,6	HOTS	3%	**Activity based learning**
35.	XML Databases, Commercial Systems, ,	2, 4, 6	HOTS	3%	Offline / Black Board Teaching
36.	Mobile Databases	2,4,6	HOTS	3%	Learning Through experimentation
37.	Case Study: Oracle Xi	2,4,6	HOTS	3%	**Learning Through demonstration**

Black Board Teaching	Group Based Learning	Learning Through Projects	Learning Through demonstration	Learning Through experimentation	Activity based learning	Onsite/field based learning
49%			**11.5%**	**11.5%**	**8%**	

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course: High Speed Networks (620113)

Branch: CSE | **Session: November'2022 - March' 2023**

Unit No & Topic	Contents	Mode
Unit-1	Introduction to Course Content, Course Objective, Course Out-Comes, Pre Requisites	Offline & Open discussions
	Review of Networking Models: OSI and TCP	Offline learning
	Internet Protocols(IPV4 and IPV6) Class full and Classless addressing, Subnetting and Supernetting	Offline & problem solving based learning. *(Understanding basic methodology & Numerical problem practice).*
	Routing techniques, unicasting, multicasting and broadcasting, Congestion Control at Network Layer	Offline learning *(Conducting experiment in Cisco Packet Tracer to understand the concepts).*
UNIT-2	Transport Layer: Design Issues, UDP: Header Format, TCP: Connection Management, Reliability of Data Transfers, TCP Flow Control, TCP Congestion Control, TCP Header Format,	*Offline & problem solving in group based learning*
	Application Layer: WWW and HTTP, FTP, SSH, Email (SMTP, MIME, IMAP), DNS, Network Management (SNMP).	Offline learning.
UNIT-3	Overview of Optical Networks, Optical networking Devices	Offline & Open discussions *group based learning*
	Wavelength Allocation in Networks, WDM Network Elements	Offline & problem solving based learning *(Understanding basic methodology & Numerical problem practice).*
	WDM Network Elements: Optical Line terminals and amplifiers	Offline learning

UNIT 4	ATM Based Services and Applications	Offline & problem solving based learning *(Understanding basic methodology & Numerical problem practice).*
	ATM Switching and transmissions	
	Wireless and Mobile ATM, Security in ATM Networks	
	VPN: Tunneling and Overlays Networks	
	Introduction to VoIP	
UNIT-5	Overview of Wireless and Mobile AdHoc Networks	Offline & problem solving based learning *(Understanding basic methodology & Numerical problem practice).*
	Routing techniques and Protocols	
	Wireless Sensor Networks and its Protocol Structures	

Ms. Sapna Kushwah
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