Madhav Institute of Technology & Science, Gwalior

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

Department of Information Technology

Modes of Teaching

SUBJECT: EMBEDDED SYSTEM & IOT (230504)

UNIT	CONTENT	MODES
Unit-I	Embedded System and Microcontroller concepts: Introduction to processors, Application Areas	Black Board Teaching
	Categories of embedded processors	Online
	Hardware architecture	Black Board Teaching
	Software architecture	Black Board Teaching
	Application software, Communication software	Online
	Introduction to Harvard & Von Neumann Architectures	Black Board Teaching
	CISC & RISC Architectures	Group based learning
Unit-II	Embedded System Communication: SPI, SCI (RS-232, RS485), I2C, CAN, Field-bus (Profibus), USB	Online
	Communication under IoT: IoT Protocol: MQTT, CoAP, XMPP and AMQT	Online
	IoT Communication Models	Online
	IoT Communication Technologies: Bluetooth, BLE, Zig-Bee, Zwave, NFC, RFID, LiFi, Wi-Fi	Online
	Interfacing of Communication Technologies	Learning through experimentation
	Embedded Programming	Learning through experimentation
Unit-III	ARM design philosophy	Black Board Teaching
	ARM data flow model and core architecture	Black Board Teaching
	ARM registers, program status register	Black Board Teaching
	Interrupts and vector table, Operating modes	Online
	ARM processor families	Online
	ARM Instruction Sets: Data Processing instructions	Online
	ARM Addressing modes, branch, load, store instruction, PSR instructions and conditional instructions.	Black Board Teaching
Unit-IV	Raspberry Pi: Introduction, generations, board and its processor	Learning through demonstration
	Programming with the Raspberry Pi	Learning through experimentation
	Communication facilities on Raspberry Pi (I2C,	Learning through demonstration

	SPI, UART)	
	Interfacing with sensors and actuators.	Learning through experimentation
Unit-V	Intel Galileo or Edison microprocessors for Embedded System and IoT	Learning through projects
	Application specific integrated circuit (ASIC)	Learning through projects
	Application specific standard parts (ASSPs)	Learning through projects
	System-on-Chip (SoC)	Learning through demonstration
	Field-Programmable Gate Arrays (FPGA)	Black Board Teaching
	Single Board Computers (SBC)	Learning through demonstration

Online	**Offline**						
	Black Board Teaching	Group based Learning	Learning through projects	Learning through demonstration	Learning through experimentation	Activity based Learning	Onsite/field based learning
30%	30%	4%	10%	13%	13%	-	-

Shubham Sharma
Assistant Professor
Department of IT
MITS, Gwalior

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Department of Information Technology

Lecture Plan

SUBJECT: EMBEDDED SYSTEM & IOT (230504)

Teaching Session	Content to be covered	COs	Blooms Level (BL)	% Coverage (To be calculated based on the total syllabus)
1.	Embedded System and Microcontroller concepts: Introduction to processors, Application Areas	1	1,2	2
2.	Categories of embedded processors	1	1,2	3
3.	Hardware architecture	2	2	2
4.	Software architecture	2	2	2
5.	Application software, Communication software	2	3	2
6.	Introduction to Harvard & Von Neumann Architectures	1	1	2
7.	CISC & RISC Architectures	2	2	2
8.	Embedded System Communication: SPI, SCI (RS-232, RS485), I2C, CAN, Field-bus (Profibus), USB	2,4	4	5
9.	Communication under IoT: IoT Protocol: MQTT, CoAP, XMPP and AMQT	2,4	4	4
10.	IoT Communication Models	2	3	3
11.	IoT Communication Technologies: Bluetooth, BLE, Zig-Bee, Zwave, NFC, RFID, LiFi, Wi-Fi	2,5	4	5
12.	Interfacing of Communication Technologies	5	6	4
13.	Embedded Programming	4,5	6	7
14.	ARM design philosophy	2,3	2	2
15.	ARM data flow model and core architecture	3	3	2
16.	ARM registers, program status register	3,4	2	2
17.	Interrupts and vector table, Operating modes	3,4	2	2
18.	ARM processor families	3	2	2
19.	ARM Instruction Sets: Data Processing instructions	3	3	2
20.	ARM Addressing modes, branch, load, store instruction, PSR instructions and conditional instructions.	4	3	4
21.	Raspberry Pi: Introduction, generations, board and its	2,5	2	4

	processor			
22.	Programming with the Raspberry Pi	4,5	6	5
23.	Communication facilities on Raspberry Pi (I2C, SPI, UART)	5	4	4
24.	Interfacing with sensors and actuators.	5	6	5
25.	Intel Galileo or Edison microprocessors for Embedded System and IoT	6	5	4
26.	Application specific integrated circuit (ASIC)	2,6	4	3
27.	Application specific standard parts (ASSPs)	2,6	4	3
28.	System-on-Chip (SoC)	2,6	4	5
29.	Field-Programmable Gate Arrays (FPGA)	2,6	4	5
30.	Single Board Computers (SBC)	2,6	4	4

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Modes of Teaching

Subject: DATA SCIENCE USING PYTHON

UNIT	CONTENT	MODE
Unit-1	Introduction to Data Science, Various Fields of Data Science, Impact of Data Science	Offline / Black Board Teaching
	Basics of Python Tool	Online mode
	Data Analytics Life Cycle	Offline / Black Board Teaching
	Data Science Toolkit	Learning through experimentation
	Version Controlling	Online mode
Unit-2	Understanding data, Types of data	Online mode
	Classification of Digital Data	Learning through experimentation
	Numeric, Categorical, Graphical, High Dimensional Data	Online mode
	Structured, Semi-Structured and Unstructured	Online mode
	Source of Data: Time Series, Transactional Data, Biological Data, Special Data, Social Network Data	Learning through demonstration
	Data Evolution	Online mode
Unit-3	Data Acquisition	Activity based Learning
	Data wrangling: Accessing Database, CSV and JSON Data	Offline / Black Board Teaching
	Data Cleaning and Transformation using Pandas and Sklearn	Group based Learning
	Data Visualization, Missing Value Analysis	Group based Learning
	Correction Matrix	Online mode
	Outlier Detection Analysis	Activity based Learning
	Feature Engineering	Online mode
Unit-4	Descriptive Statistics	Offline / Black Board Teaching
	Measures of Center and Spread	Online mode
	Estimation Distributions, Inferential Statistics	Online mode
	Sampling Distributions, Hypothesis Testing	Learning through demonstration
	Probability Theory, Conditional Probability	Online mode
	Maximizing and Minimizing Algebraic Equations	Offline / Black Board Teaching
	Matrix Manipulation and Multiplication	Group based Learning
Unit-5	Supervised Learning, Regression, classification	Offline / Black Board Teaching
	Decision trees, random Forest	Learning through projects
	Unsupervised Learning: PCA, Clustering	Learning through projects
	Application of Data Science, Use Case: Consumer Product usage Analysis, Search Engines, Targeting Recommendation, Gaming etc.	Online mode

Online	Offline						
	Black Board Teaching	Group based Learning	Learning through projects	Learning through demonstration	Learning through experimentation	Activity based Learning	Onsite/field based learning
40%	20%	10%	6.66%	10%	6.66%	6.66%	-

Prepared by: Dr. Dhananjay Bisen

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Lecture Plan

Subject: DATA SCIENCE USING PYTHON

Teaching Session	Content to be covered	COs	Blooms Level (BL)	% Coverage (to be calculated based on the total syllabus)
1	Introduction to Data Science, Various Fields of Data Science, Impact of Data Science Languages	CO1	Understanding	2
2	Basics of Python Tool	CO2	Analyzing	2
3	Data Analytics Life Cycle	CO3	Understanding	2
4	Data Science Toolkit	CO2	Applying	3
5	Version Controlling	CO1	Understanding	2
6	Understanding data, Types of data	CO4	Understanding	3
7	Classification of Digital Data	CO5	Analyzing	3
8	Numeric, Categorical, Graphical, High Dimensional Data	CO4	Understanding	2
9	Structured, Semi-Structured and Unstructured	CO5	Understanding	2
10	Source of Data: Time Series, Transactional Data, Biological Data, Special Data, Social Network Data	CO4	Analyzing	3
11	Data Evolution	CO6	Applying	3
12	Data Acquisition	CO4	Understanding	2
13	Data wrangling: Accessing Database, CSV and JSON Data	CO4	Analyzing	3
14	Data Cleaning and Transformation using Pandas and Sklearn	CO5	Applying	2
15	Data Visualization, Missing Value Analysis	CO5	Analyzing	3
16	Correction Matrix	CO5	Applying	3
17	Outlier Detection Analysis	CO5	Applying	2
18	Feature Engineering	CO5	Applying	2
19	Descriptive Statistics	CO3	Analyzing	3
20	Measures of Center and Spread	CO3	Analyzing	3
21	Estimation Distributions, Inferential Statistics	CO3	Applying	3
22	Sampling Distributions,	CO5	Analyzing	2
23	Hypothesis Testing	CO5	Analyzing	3
24	Probability Theory	CO6	Analyzing	2
25	Conditional Probability reference	CO6	Analyzing	3
26	Maximizing and Minimizi g Algebraic	CO5	Applying	3
27	Matrix Manipulation and Multiplication	CO4	Applying	3
28	Supervised Learning	CO5	Understanding	3
29	Regression	CO6	Applying	3
30	Classification	CO4	Analyzing	2
31	Decision trees Structures	CO3	Analyzing	2

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Lecture Plan

Subject: DATA SCIENCE USING PYTHON

Teaching Session	Content to be covered	COs	Blooms Level (BL)	% Coverage(to be calculated based on the total syllabus)
32	Random Forest	CO4	Understanding	2
33	Unsupervised Learning	CO5	Analyzing	3
34	PCA	CO6	Analyzing	2
35	Clustering	CO5	Understanding	2
36	Application of Data Science Analysis	CO4	Applying	3
37	Use Case: Consumer Product usage	CO5	Applying	2
38	Search Engines	CO6	Analyzing	3
39	Targeting Recommendation	CO6	Applying	2
40	Gaming etc.	CO6	Applying	2

Dr. Dhananjay Bisen

Madhav Institute of Technology & Science, Gwalior

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Modes of Teaching

Subject: 160513 Theory of Computation

UNIT	CONTENT	MODE
Unit-1	Introduction of Automata Theory, Examples of automata machines	Offline / Black Board Teaching
	Finite Automata as a language acceptor and translator	Online mode
	Moore machines and mealy machines,	Offline / Black Board Teaching
	composite machine	Learning through experimentation
	Conversion from Mealy to Moore and vice versa.	Online mode
Unit-2	Types of Finite Automata: Non Deterministic Finite Automata (NDFA	Online mode
	Deterministic finite automata machines	Learning through experimentation
	conversion of NDFA to DFA,	Online mode
	minimization of automata machines,	Online mode
	regular expression, Arden's theorem	Learning through demonstration
	Meaning of union, intersection, concatenation and closure, 2 way DFA.	Online mode
Unit-3	Grammars: Types of grammar, Derivation trees	Activity based Learning
	ambiguity in grammar,	Offline / Black Board Teaching
	simplification of context-free grammar	Group based Learning
	Data Visualization, Missing Value Analysis	Group based Learning
	conversion of grammar to automata machine and vice versa	Online mode
	Chomsky hierarchy of grammar	Activity based Learning
	Chomsky normal form and Greibach normal form.	Online mode
Unit-4	Push down Automata	Offline / Black Board Teaching
	example of PDA	Online mode
	deterministic and	Online mode
	non-deterministic PDA	Learning through demonstration
	conversion of PDA into context-free grammar and vice versa,	Online mode
	CFG equivalent to PDA	Offline / Black Board Teaching
	Petrinet model	Group based Learning
Unit-5	Turing Machine: Techniques for construction	Offline / Black Board Teaching
	Universal Turing machine Multitape	Learning through projects
	multihead and multidimensional Turing machine	Learning through projects
	N-P complete problems, Decidability and Recursively Enumerable Languages, decidability, decidable languages, undecidable languages Halting problem of Turing machine & the post correspondence problem.	Online mode

Online	Offline						
	Black Board Teaching	Group based Learning	Learning through projects	Learning through demonstration	Learning through experimentation	Activity based Learning	Onsite/field based learning
40%	20%	10%	6.66%	10%	6.66%	6.66%	-

Prepared by: Dr. Aditya Dubey

Madhav Institute of Technology & Science, Gwalior

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Subject: Theory of Computation (230503)

Lecture Plan

Teaching Session	Content to be covered	COs	Blooms Level (BL)	% Coverage (to be calculated based on the total syllabus)
1.	Introduction of Automata Theory	1	2	2.5
	Examples of automata machines	1,2,3	2	2.5
2.	Finite Automata as a language acceptor and translator	1,3	2	2.5
3.	Moore machines	1,2,3	2	2.5
	and mealy machines, composite machine,	1,2,3	2	5
4.	Conversion from Mealy to Moore and vice versa.	1,2,3	2	5
5.	Types of Finite Automata: Non Deterministic Finite Automata (NDFA), Deterministic finite automata machines,	1,2,3	2	5
6.	conversion of NDFA to DFA,	1,2,3	2	2.5
7.	minimization of automata machines,	1,2,3	2	2.5
8.	regular expression,	1,2,3	2	2.5
9.	Arden's theorem	1,2,3	2	2.5
10.	Meaning of union, intersection, concatenation and closure	1,2,3	2	2.5
11.	2 way DFA.	1,2,3	2	2.5
12.	Grammars: Types of grammar,	4	2	2.5
	Derivation trees	4	2	2.5
13.	ambiguity in grammar,	2,4	2	2.5

14.	simplification of context-free grammar	4	2	2.5
15.	conversion of grammar to automata machine and vice versa	1,3,4	2	5
16.	Chomsky hierarchy of grammar	4,5	2	2.5
17.	killing null and unit productions.	4	2	2.5
18.	Chomsky normal form	4	2	2.5
19.	and Greibach normal form.	4	2	2.5
20.	Push down Automata: example of PDA	1,2,3,6	2	2.5
21.	deterministic	1,2,3,6	2	2.5
22.	and non-deterministic PDA	1,2,3,6	2	2.5
23.	conversion of PDA into context-free grammar and vice versa,	1,2,3,4	2	5
24.	CFG equivalent to PDA,.	1,2,3,4	2	2.5
25.	Petrinet model		2	2.5
26.	Turing Machine: Techniques for construction	1,2,3,6	2	2.5
27.	Universal Turing machine Multitape	1,2,3,6	2	2.5
28.	multihead and multidimensional Turing machine	1,2,3,6	2	2.5
29.	N-P complete problems.	1,2,3	2	2.5
30.	Decidability and Recursively Enumerable Languages	1,2,3	2	5
31.	decidability, decidable languages, undecidable languages	1,2,3	2	5
32.	Halting problem of Turing machine & the post correspondence problem.	1,2,3	2	5

Abhilash Sonker
Assistant Professor
MITS Gwalior

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Department of Information Technology

Mode of Teaching

SUBJECT: SOFT COMPUTING TECHNIQUE (160515)

UNIT	CONTENT	MODES
Unit-1	Introduction to soft computing: Soft computing v/s Hard computing,	Learning through Demonstration
	Basic models of Artificial Neural Networks,	Black Board Teaching
	Terminologies of ANNs McCulloch-Pitts Neurons,	Black Board Teaching
	Linear Separability,	Black Board Teaching
	Hebb Network,	Learning through Demonstration
	Supervised Learning Networks: Introduction, Perceptron Networks,	Learning through Demonstration
	Back Propagation Networks,	Black Board Teaching
	Radial Basis Function Networks,	Learning through Demonstration
	Hopefield Networks.	Learning through Experimentation
Unit-2	Fuzzy Set Theory: Fuzzy Sets, Fuzzy Membership functions,	Black Board Teaching
	Operations on Fuzzy Sets,	Black Board Teaching
	Fuzzy Relations, Fuzzy Rules, Fuzzy Reasoning,	Learning through Experimentation
	Defuzzification: Lembda-Cuts for Fuzzy Sets (Alpha-Cuts), Lembda- Cuts for Fuzzy Relations,	Learning through Experimentation
	Fuzzy Inference System: Introduction,	Learning through Experimentation
	Mamdani Fuzzy Model,	Black Board Teaching
	Takagi-Sugeno Fuzzy Model.	Black Board Teaching
Unit-3	Evolutionary Algorithm: Traditional optimization and Search Techniques,	Black Board Teaching
	Basic Terminologies in GA,	Black Board Teaching
	Operators in Genetic Algorithm,	Online
	Stopping Condition for Genetic Algorithm Flow,	Learning through Demonstration
	Classification of Genetic Algorithm,	Learning through Demonstration
	Comparison with Evolutionary algorithm,	Group Based Learning
	Application of Genetic algorithm.	Learning through Projects

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Department of Information Technology

Modes of Teaching

SUBJECT: SOFT COMPUTING TECHNIQUES (160515)

UNIT	CONTENT	MODES
Unit-4	Introduction to Nature-Inspired Optimization Algorithms:	Black Board Teaching
	Particle Swarm Optimization (PSO) Algorithm,	Learning through Demonstration
	Differential Evolution (DE) Algorithm,	Black Board Teaching
	Artificial Bee Colony (ABC) Algorithm,	Learning through Experimentation
	Ant Colony Optimization (ACO) Algorithm,	Black Board Teaching
	Cuckoo Search (CS),	Black Board Teaching
	Firefly Algorithm (FA),	Black Board Teaching
	Immune Algorithm (A),	Black Board Teaching
	Grey Wolf Optimization (GWO),	Black Board Teaching
	Spider Monkey Optimization.	Black Board Teaching
Unit-5	Hybrid Soft Computing Techniques: Introduction,	Learning through Demonstration
	Neuro-fuzzy Hybrid system,	Activity based Learning
	Adaptive Neuro fuzzy inference system(ANFIS),	Learning through Demonstration
	Genetic Neuro Hybrid system,	Black Board Teaching
	Application of Soft Computing Techniques	Black Board Teaching

Online	Offline						
	Black Board Teaching	Group based Learning	Learning through projects	Learning through demonstration	Learning through experimentation	Activity based Learning	Onsite/field based learning
2.63%	52.63%	2.63%	2.63%	23.685%	13.16%	2.63%	-

Akanchha Tiwari
Assistant Professor
Department of IT
MITS, Gwalior

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Department of Information Technology

Lecture Plan

SUBJECT: SOFT COMPUTING TECHNIQUE (160515)

Branch: Information Technology (IT)			**Session: July-D**	
S.No.	**Teaching Session**	**Topics**	**COs**	**I**
		UNIT -I		
01.	2	Introduction to soft computing: Soft computing v/s Hard computing, Basic models of Artificial Neural Networks, Terminologies of ANNs McCulloch-Pitts Neurons, Linear Separability, Hebb Network, Supervised Learning Networks: Introduction, Perceptron Networks, Back Propagation Networks, Radial Basis Function Networks, Hopefield Networks.	2,4	B
02.	2		1,2,3	B
03.	1		1	B
04.	3		1,2,3	B
		UNIT -II		
05.	1	Fuzzy Set Theory: Fuzzy Sets, Fuzzy Membership functions, Operations on Fuzzy Sets, Fuzzy Relations, Fuzzy Rules, Fuzzy Reasoning, Defuzzification: Lembda-Cuts for Fuzzy Sets (Alpha-Cuts), Lembda- Cuts for Fuzzy Relations, Fuzzy Inference System: Introduction, Mamdani Fuzzy Model, Takagi-Sugeno Fuzzy Model.	1,6	B
06.	2		1,6	I
07.	3		3,4,5	I
08.	1		5,6	I
09.	1		5	I
		UNIT -III		

11.	2		1,4,5	BL 2,3
12.	1		1,3	BL 3,4
13.	2		1,5	BL 2,3,4
14.	1		5,6	BL 2,3
UNIT -IV				
15.	1	IP & Web Security Overview: SSL (Secure Socket Layer),	3,4,6	BL 3, 5, 6
16.	2	TLS (Transport Layer Security), SET (Secure Electronic Transaction).	3,4,6	BL 3, 5, 6
17.	2	IDS (Intrusion detection system): Statistical Anomaly Detection and Rule-Based Intrusion Detection,	4,5	BL 3, 5, 6
18.	1	Penetration Testing, Risk Management.	5	BL 1,2
19.	1	Firewalls: Types, Functionality and Polices.	2,5	BL 2,3
UNIT -V				
20.	1	Phishing: Attacks and its Types, Buffer Overflow Attack,	2,4	BL 3,4
21.	2	Cross Site Scripting, SQL Injection Attacks, Session Hijacking.	2,4,5	BL 3,4
22.	2	Denial of Service Attacks: Smurf Attack, SYN Flooding, Distributed Denial of Service.	5,6	BL 3,4
23.	1	Hacker: Hacking and Types of Hackers, Foot Printing,	5,6	BL 3,4
24.	2	Scanning: Types: Port, Network, Vulnerability), Sniffing in Shared and Switched Networks, Sniffing Detection & Prevention, Spoofing.	4,5,6	BL 3, 5, 6

Modes of Teaching
Subject: Discrete Structures (230501)

UNIT	CONTENT	MODE
Unit-1	Finite and infinite sets	Offline mode
	Mathematical Induction	Offline / Black Board Teaching
	Principles of inclusion and Exclusion	Offline mode
	Multisets	Offline mode
	Functions and Relations	Offline / Black Board Teaching
	Binary relation	Offline mode
	Equivalence Relations and partitions	Group based learning
	Partial ordering Relations and Lattices	Offline / Black Board Teaching
	Chains	Offline / Black Board Teaching
	Pigeonhole principle	Offline / Black Board Teaching
Unit-2	Prepositional logic	Offline mode
	Syntax	Offline / Black Board Teaching
	Semantics of ATF(atomic Formula)	Offline / Black Board Teaching
	WFF(Well Formed Formula's)	Learning through experimentation
	Validity and Satisfiability of WFF by Quine's Method	Offline mode
	Normal and Closure Form of Prepositional Calculus	Offline / Black Board Teaching
Unit-3	Introduction and Basic terminology of Graphs	Online
	Planner Graphs	Offline mode
	Multi-Graphs and Weighted Graph	Offline / Black Board Teaching
	Shortest Path in Weighted Graph	Offline / Black Board Teaching
	Introduction to Eularian Paths and circuits	Online
	Hamiltonian Paths and circuits	Offline
	Introductions to trees	Online
	Rooted trees	Offline
	Path length in rooted trees	Offline / Black Board Teaching
	Spanning trees and cut trees	Offline / Black Board Teaching
Unit-4	Introduction to discrete numeric functions and generating functions	Offline mode
	Recurrence Relations and Recursive Algorithm	Learning through experimentation
	Linear recurrence relations with constant coefficients	Learning through demonstration
	Homogeneous solutions	Offline / Black Board Teaching
	Particular solutions and total solutions	Offline mode
Unit-5	Introduction to groups	Online
	Subgroups	Online
	Generations and Evaluations of power	Offline mode
	Cosets and Lagrange's theorem	Offline mode
	Group codes	Offline / Black Board Teaching
	Isomorphism and Automorphism	Offline / Black Board Teaching
	Homomorphism and normal subgroups	Offline / Black Board Teaching
	Ring	Offline / Black Board Teaching
	Integral domain and field	Offline / Black Board Teaching

Online	Offline						
	Black Board Teaching	Group based Learning	Learning through projects	Learning through demonstration	Learning through experimentation	Activity based Learning	Onsite/field based learning
12.5%	72.5%	5%	-	2.5%	7.5%	-	-

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LECTURE PLAN

Name of the course with code: Discrete Structure
(V Semester)
Session: July- Dec 2023

Teaching Session	Content to be covered	COs	Bloom sLevel (BL)	% Coverage (to be calculated based on the total syllabus)
1	Finite and infinite sets	1	I	2
2	Mathematical Induction	2	II	4
3	Principles of inclusion and Exclusion	2	II	4
4	Multisets	2	II	4
5	Functions and Relations	1	I	4
6	Binary relation	2	II	3
7	Equivalence Relations and partitions	2	II	2
8	Partial ordering Relations and Lattices	2	II	2
9	Chains	2	II	2
10	Pigeonhole principle	3	III	2
11	Prepositional logic	1	I	2
12	Syntax	2	II	2
13	Semantics of ATF(atomic Formula)	2	II	2
14	WFF(Well formed formula's)	2	II	3
15	Validity and Satisfiability of WFF by Quine's Method	2	II	2
16	Normal and Closure Form of prepositional calculus	3	III	2
17	Introduction and Basic terminology of Graphs	1	I	2
18	Planner Graphs	3	III	2
19	Multi-Graphs and weighted Graph	3	III	3
20	Shortest Path in Weighted Graph	3	III	2
21	Introduction to Eularian Paths and circuits	3	III	2
22	Hamiltonian Paths and circuits	3	III	2
23	Introductions to trees	3	III	2
24	Rooted trees	3	III	2
25	Path length in rooted trees	3	III	3
26	Spanning trees and cut trees	3	III	3
27	Introduction to discrete numeric functions and generating functions	1	I	3
28	Recurrence Relations and Recursive Algorithm	3	III	3
29	Linear recurrence relations with constant coefficients	4	IV	4
30	Homogeneous solutions	5	V	3
31	Particular solutions and total solutions	5	V	2
32	Introduction to groups	1	I	3
33	Subgroups	2	II	2
34	Generations and Evaluations of power	2	II	2
35	Cosets and Lagrange's theorem	3	III	2
36	Group codes	4	IV	2
37	Isomorphism and Automorphism	5	V	3
38	Homomorphism and normal subgroups	5	V	2
39	Ring	4	IV	2
40	Integral domain and field	5	V	2

Modes of Teaching

Subject: Disaster Management(1000006)

UNIT	CONTENT	MODE
Unit-1	Introduction to disaster management	Online mode
	Concepts and definitions: Disaster, vulnerability, risk severity, frequency and details, capacity impact, prevention, mitigation.	Online mode
Unit-2	Disasters classification	Online mode
	Demographic aspects (gender, age, special needs)	Online mode
	Hazard locations; global and national disaster trends	Learning through projects
	Hazard and vulnerability profile of India	Online mode
Unit-3	Disaster impact (environmental, physical, social, ecological, economic, political, etc.)	Online mode
	Health, psycho-social issues, Impact of natural disasters	Groups based learning
	Impact of manmade disasters	Groups based learning
Unit-4	Disaster Risk Reduction (DRR)	Online mode
	Disaster management cycle- its phases: prevention, mitigation, preparedness, relief and recovery	Groups based learning
	Structural and non- structural measures; risk analysis, vulnerability and capacity assessment; early warning systems	Online mode
	Post disaster environmental response	Online mode
	Roles and responsibilities of government, community, local institutions, NGOs and other stakeholders: Policies and legislation for disaster management.	Learning through projects
	DRR programmes in India and the activities of National Disaster Management Authority.	Online mode
	Disasters, Environment and Development	Online mode

Unit-5	Factors affecting vulnerability such as impact of development projects	
	Environmental modifications (including of dams, land use changes, urbanization etc.)	Online mode
	Sustainable and environmental friendly recovery; reconstruction and development methods	Online mode

Online	*Offline*						
	BlackBoard Teaching	*Groupbased Learning*	*Learning through projects*	*Learning through demonstration*	*Learningthrough experimentation*	*Activity based Learning*	*Onsite/field based Learning*
70.58%	-	17.64%	11.76%	-	-	-	-

TANUJA SHARMA
ASSISTANT PROFESSOR
DEPT OF IT
MITS,GWALIOR

Lecture Plan				
Teaching Session	**Content to be covered**	**COs**	**Blooms Level (BL)**	**% Coverage(To be calculated based on the total syllabus)**
1.	Introduction to disaster management	1	BL 1	3%
2.	Concepts and Definitions	1	BL 1	2%
3.	Disaster	1	BL 1	2%
4.	Vulnerability	1	BL 1	2%
5.	Risk Severity	1	BL 1	2%
6.	Frequency and Details	1	BL 1	2%
7.	Capacity Impact	1	BL 1	2%
8.	Prevention	1	BL 1	2%
9.	Mitigation	1	BL 1	2%
10.	Disasters Classification	1	BL 1	5%
11.	Demographic Aspects (gender, age, special needs)	1	BL 1	5%
12.	Global and National Disaster Trends	1	BL 1	4%
13.	Hazard and Vulnerability Profile of India	1	BL 2	5%
14.	Disaster Impacts	2	BL 2	2%
15.	Disaster impact (environmental, physical, social, ecological, economic, political, etc.);	2	BL 2	4%
16.	Psycho-Social issues	2	BL 2	2%
17.	Impact of natural disasters (floods, draughts, cyclones, volcanoes, earthquakes, tsunami, landslides etc.)	3	BL 2	6%
18.	Impact of manmade disasters (industrial pollution, artificial flooding in urban areas, urban disasters, transportation accidents etc.)	3	BL 2	8%
19.	Disaster Risk Reduction (DRR)	4	BL 2	2%
20.	Disaster management cycle- its phases: prevention, mitigation, preparedness, relief and recovery	4	BL 2	4%
21.	Structural and non- structural measures; risk analysis, vulnerability and capacity assessment; early warning systems	4	BL 2	4%

22.	Post disaster environmental response	5	BL 3	4%
23.	Roles and responsibilities of government, community, local institutions, NGOs and other stakeholders: Policies and legislation for disaster management.	4	BL 3	5%
24.	DRR programmes in India and the activities of National Disaster Management Authority.	5	BL 3	4%
25.	Disasters, Environment and Development Factors affecting vulnerability such as impact of development projects	5	BL 4	5%
26.	Environmental modifications (including of dams, land use changes, urbanization etc.)	5	BL 4	5%
27.	Sustainable and environmental friendly recovery; reconstruction and development methods	5	BL 4	5%