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: OPERATING SYSTEM (160324)

UNIT	CONTENT	MODES
Unit-1	Basics of Operating System	Black Board Teaching
	Generations	Black Board Teaching
	Types	Learning through Projects
	Services	Black Board Teaching
	System Calls	Black Board Teaching
	System Boot	Learning through Demonstration
	System Programs	Learning through Experimentation
	Protection and Security	Activity based Learning
Unit-2	Process Management	Black Board Teaching
	Process Concepts	Online
	Process States	Black Board Teaching
	Process Control Block	Online
	Scheduling-Criteria	Learning through Demonstration
	Scheduling Algorithms and their Evaluation	Learning through Experimentation
	Threads	Learning through Demonstration
	Threading	Online
	Issues	Learning through Experimentation
Unit-3	Process Synchronization	Learning through Demonstrations
	Background	Black Board Teaching
	Critical-Section Problem	Group based Learning
	Peterson's Solution	Group based Learning
	Synchronization Hardware	Activity based Learning
	Semaphores	Black Board Teaching
	Classic Problems of Synchronization	Group based Learning
	Monitors	Group based Learning

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Department of Information Technology

Modes of Teaching

SUBJECT: OPERATING SYSTEM (2230324)

UNIT	CONTENT	MODES
Unit-3	Deadlock	Black Board Teaching
	System Model	Online
	Deadlock Characterization	Learning through Projects
	Deadlock Prevention	Learning through Experimentation
	Detection and Avoidance	Activity based Learning
	Recovery from Deadlock	Activity based Learning
Unit-4	Memory Management	Online
	Main Memory Swapping	Online
	Contiguous Memory Allocation	Learning through Experimentation
	Paging	Black Board Teaching
	Structure of Page Table	Black Board Teaching
	Segmentation	Black Board Teaching
	Virtual Memory	Black Board Teaching
	Demand Paging	Black Board Teaching
	Page Replacement Algorithms	Learning through Demonstration
	Allocation of Frames	Learning through Demonstration
	Thrashing	Black Board Teaching
Unit-5	Storage Management	Black Board Teaching
	Mass-Storage Structure	Learning through Projects
	Overview	Black Board Teaching
	Disk Structure	Black Board Teaching
	Disk Attachment	Learning through Demonstration
	Disk Scheduling	Learning through Demonstration

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Modes of Teaching

SUBJECT: OPERATING SYSTEM (2230324)

Online	Offline						
	Black Board Teaching	Group based Learning	Learning through projects	Learning through demonstration	Learning through experimentation	Activity based Learning	Onsite/field based learning
12.24%	40.82%	8.16%	6.13%	14.29%	10.20%	8.16	-

Dr. Saumil Maheshwari
Assistant Professor
Department of IT

Lecture Plan				
Teaching Session	**Content to be covered**	**COs**	**Blooms Level (BL)**	**% Coverage(To be calculated based on the total syllabus)**
1.	Basics of Operating System	1	BL 1	1%
2.	Generations	1	BL 1	1%
3.	Types	3	BL 2	2%
4.	Structure	1	BL 1	1%
5.	Services	1	BL 1	2%
6.	System Calls, System Boot, System Programs	1	BL 1	3%
7.	Protection and Security	2	BL 3	2%
8.	Process Management, Process Concepts	2	BL 3	3%
9.	Process States, Process Control Block	1	BL 1	4%
10.	Scheduling-Criteria	5	BL 2	1%
11.	Scheduling Algorithms and their Evaluation	6	BL 3	4%
12.	Threads	1	BL 1	5%
13.	Process Synchronization	2	BL 2	3%
14.	Critical-Section Problem	3	BL 5	6%

15.	Peterson's Solution	4	BL 5	3%
16.	Synchronization Hardware	2	BL 2	3%
17.	Semaphores	2	BL 1	3%
18.	Classic Problems of Synchronization, Monitors	2	BL 4	4%
19.	Deadlock	3	BL 2	3%
20.	Deadlock Characterization	3	BL 2	2%
21.	Deadlock Prevention, Detection and Avoidance	4	BL 3	7%
22.	Recovery from Deadlock	4	BL 3	4%
23.	Memory Management	2	BL 3	2%
24.	Main Memory Swapping	2	BL 2	2%
25.	Contiguous Memory Allocation	2	BL 2	2%
26.	Paging	2	BL 2	2%
27.	Structure of Page Table	2	BL 2	2%
28.	Segmentation	3	BL 3	3%
29.	Virtual Memory	2	BL 2	1%
30.	Demand Paging	3	BL 2	2%
31.	Page Replacement Algorithms	4	BL 3	2%
32.	Allocation of Frames	5	BL 2	2%
33.	Thrashing	2	BL 1	1%
34.	Storage Management	2	BL 2	3%
35.	Mass-Storage Structure	2	BL 1	2%
36.	Overview: Disk Structure, Disk Attachment, Disk Scheduling	2	BL 1	8%

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Department of Information Technology

Mode of Teaching

SUBJECT: DESIGN & ANALYSIS OF ALGORITHMS (2160322)

UNIT	CONTENT	MODES
Unit-1	Introduction to Computational Model: Algorithms and its Importance	Learning through Demonstration
	Recurrences	Black Board Teaching
	Asymptotic Notations	Black Board Teaching
	Mathematical Analysis of Non-Recursive Algorithm	Learning through Demonstration
	Mathematical Analysis of Recursive Algorithm	Learning through Demonstration
	Review of Sorting	Learning through Experimentation
	Searching Algorithms	Learning through Experimentation
	B-Trees and	Black Board Teaching
	Traversal Techniques	Learning through Demonstration
	Topological sort	Black Board Teaching
Unit-2	Divide and Conquer Method: Introduction and its Examples	Black Board Teaching
	Finding the Maximum and Minimum	Learning through Demonstration
	Binary Search,	Learning through Experimentation
	Merge Sort	Learning through Experimentation
	Quick Sort	Learning through Experimentation
	Strassen's Matrix Multiplication	Black Board Teaching
	Additional real-world problems on divide and conquer	Black Board Teaching
Unit-3	Introduction Greedy Method	Black Board Teaching
	Characteristics of Greedy Method	Black Board Teaching
	Dijkstra's single source shortest path algorithm	Black Board Teaching
	Minimum Cost Spanning Trees: Prims's Algorithm	Learning through Demonstration
	Kruskal's Algorithm	Learning through Demonstration
	Knapsack Problem	Learning through Projects
	Optimal Storage on Tapes	Black Board Teaching

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Department of Information Technology

Modes of Teaching

SUBJECT: DESIGN & ANALYSIS OF ALGORITHMS (2160322)

UNIT	CONTENT	MODES
Unit-4	Introduction of Dynamic Programming	Black Board Teaching
	The Principle of Optimality	Black Board Teaching
	0/1 Knapsack	Learning through Experimentation
	Traveling salesman problem	Black Board Teaching
	Floyd's All Pairs Shortest Path	Black Board Teaching
	Longest Common Subsequence	Black Board Teaching
	Reliability Design	Black Board Teaching
	Matrix chain multiplication	Black Board Teaching
Unit-5	Backtracking: Concept and its Examples	Learning through Demonstration
	4-Queen's Problem	Activity based Learning
	Knapsack problem	Learning through Demonstration
	Hamiltonian Circuit Problem	Black Board Teaching
	Graph Coloring Problem	Black Board Teaching
	Branch & Bound: Introduction and its Examples	Black Board Teaching
	Traveling Salesperson Problem	Group based Learning
	Introduction of Class P, NP, NP-Hard and NP-Complete Problems	Black Board Teaching
	Polynomial Reduction	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
-	58.53%	2.44%	2.44%	21.95%	14.63%	2.-44%	-

Akanchha Tiwari
Assistant Professor
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DEPARTMENT OF INFORMATION TECHNOLOGY

LECTURE PLAN

SUBJECT: DESIGN & ANALYSIS OF ALGORITHMS (2160322)

Teaching Session	Content To Be Covered	COs	Blooms Level (BL)	% Coverage (To be calculated based on the total syllabus)
1.	Introduction to Computational Model: Algorithms and its Importance	1	BL 1	2%
2.	Recurrences and Asymptotic Notations	2, 3	BL 2, 3	3%
3.	Mathematical Analysis of Non-Recursive and Recursive Algorithm	2, 3	BL 2, 4	5%
4.	Review of Sorting & Searching Algorithms	4	BL 1	4%
5.	B-Trees and Traversal Techniques	4	BL 1	4%
6.	Topological sort	1	BL 2, 3	2%
7.	Divide and Conquer Method: Introduction and its Examples	1, 5	BL 1, 2	4%
8.	Finding the Maximum and Minimum	5	BL 2, 3	4%
9.	Binary Search,	4, 5	BL 1	2%
10.	Merge Sort	4, 5	BL 1	3%
11.	Quick Sort	4, 5	BL 1	3%
12.	Strassen's Matrix Multiplication	5	BL 1, 2	3%
13.	Additional real-world problems on divide and conquer	5	BL 2, 3	2%
14.	Introduction & Characteristics of Greedy Method	5	BL 1	3%
15.	Dijkstra's single source shortest path algorithm	1, 5	BL 2, 3, 4	4%
16.	Minimum Cost Spanning Trees: Prims's and Kruskal's Algorithm	1, 5	BL 2, 3, 4	5%
17.	Knapsack Problem	2, 5	BL 2, 3	5%
18.	Optimal Storage on Tapes	2, 5	BL 2, 3, 4	3%
19.	Introduction of Dynamic Programming	5	BL 1	2%

20.	The Principle of Optimality	2, 5	BL 1, 2	2%
21.	0/1 Knapsack	2, 5	BL 2, 3	3%
22.	Traveling salesman problem	2, 5	BL 2, 3, 4	3%
23.	Floyd's All Pairs Shortest Path	2, 5	BL 2, 3, 4	3%
24.	Longest Common Subsequence	2, 5	BL 2, 3, 4	3%
25.	Reliability Design	2, 5	BL 2, 3	2%
26.	Matrix chain multiplication	2, 5	BL 2, 3, 4	2%
27.	Backtracking: Concept and its Examples	5	BL 1, 2	2%
28.	4-Queen's Problem	2, 5	BL 2, 3	2%
29.	Knapsack problem	2, 5	BL 2, 3	2%
30.	Hamiltonian Circuit Problem	2, 5	BL 3,5	3%
31.	Graph Coloring Problem	2, 5	BL 2, 3, 4	2%
32.	Branch & Bound: Introduction and its Examples	5	BL 1, 2	2%
33.	Traveling Salesperson Problem	2, 5	BL 2, 3, 4	2%
34.	Introduction of Class P, NP, NP-Hard and NP-Complete Problems	6	BL 2, 4	3%
35.	Polynomial Reduction	6	BL 2, 4, 5	2%

Modes of Teaching

Subject: Indian Constitution & Traditional Knowledge (1000001)

UNIT	CONTENT	MODE
Unit-1	Introduction to Ancient India	Online mode
	Introduction to Basic Structure of Indian Knowledge system Homogeneity of modern science	Online mode
	Indian Knowledge Tradition	Online mode
	Introduction to Ancient India : Polity	Online mode
	Introduction to Ancient India : Literature and Culture	Online mode
Unit-2	Indian Philosophy or Darshanas	Online mode
	Jainism, Buddhism, Yoga, Saiva and Hinduism	Online mode
	Ancient Indian Literature	Online mode
	Indian Linguistic Tradition : Panini's Ashtadhyayi	Learning through projects
	Indian Art: Mauryan, Buddist, Gupta, Muslim and Culture Contemporary Art.	Online mode
Unit-3	Nature and scope of political science	Online mode
	Theories of origin of state	Groups based learning
	Meaning and features of civil society	Online mode
	Indian political thought: Raja Ram Mohan Roy , Swami vivekananda	Online mode
	Indian political thought: Gandhi and Ambedkar	Groups based learning
Unit-4	Government and its characteristics	Online mode
	Types and meaning of legislature: Composition and function and role of the parliament	Groups based learning
	The powers, position and role of the president, prime minister and cabinet	Online mode
	The powers, position and role of the governor and chief minster	Online mode
	Composition and role of supreme court, judicial review and judicial activism	Learning through projects
	Preamble, Conventions , Sovereignty of	Online mode

Unit-5	the constitution and the rule of law	
	Parliamentary Democracy, Federalism, Secularism and Socialism	Online mode
	Fundamentals rights	Online mode
	Directive Principles of state policies and fundamental policies	Online mode
	Election commission and elctrol reforms	Online mode

Online	*Offline*						
	BlackBoard Teaching	*Groupbased Learning*	*Learning through projects*	*Learning through demonstration*	*Learningthrough experimentation*	*Activity based Learning*	*Onsite/field based Learning*
80%	-	12%	8%	-	-	-	-

SURBHI GUPTA
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 Ancient India	1	BL 1	3%
2.	Introduction to Basic Structure of Indian Knowledge system	1	BL 1	2%
3.	Homogeneity of modern science	1	BL 1	2%
4.	Indian Knowledge Tradition	1	BL 1	2%
5.	Introduction to Ancient India : Polity	1	BL 1	2%
6.	Introduction to Ancient India : Literature and Culture	1	BL 1	2%
7.	Indian Philosophy or Darshanas	1	BL 1	2%
8.	Jainism, Buddhism, Yoga, Saiva and Hinduism	1	BL 1	2%
9.	Ancient Indian Literature	1	BL 1	2%
10.	Indian Linguistic Tradition : Panini's Ashtadhyayi	1	BL 1	5%
11.	Indian Art: Mauryan, Buddist, Gupta, Muslim and Culture Contemporary Art.	1	BL 1	5%
12.	Nature and scope of political science	1	BL 1	4%
13.	Theories of origin of state	1	BL 2	5%
14.	Meaning and features of civil society	2	BL 2	2%
15.	Indian political thought: Raja Ram Mohan Roy , Swami vivekananda	2	BL 2	4%
16.	Indian political thought: Gandhi and Ambedkar	2	BL 2	2%
17.	Government and its characteristics	3	BL 2	6%
18.	Types and meaning of legislature: Composition and function and role of the parliament	3	BL 2	8%
19.	The powers, position and role of the president, prime minister and cabinet	4	BL 2	2%
20.	Composition and role of supreme court, judicial review and judicial activism	4	BL 2	4%
21.	Preamble, Conventions	4	BL 2	4%

22.	Sovereignty of the constitution and the rule of law	5	BL 3	4%
23.	Parliamentary Democracy	4	BL 3	5%
24.	Federalism, Secularism and Socialism	5	BL 3	4%
25.	Fundamentals rights	5	BL 4	5%
26.	Directive Principles of state policies and fundamental policies	5	BL 4	5%
27.	Election commission and elctrol reforms	5	BL 4	5%

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Department of "**Information Technology**"

Modes of Teaching Subject: COMPUTER GRAPHICS & MULTIMEDIA (2160323)

UNIT	CONTENT	MODE
Unit-1	Introduction to Computer Graphics	Online Teaching
	Interactive Computer Graphics, Application of Computer Graphics	Online Teaching
	Random and Raster Scan Displays	Learning through Demonstration
	Storage Tube Graphics Display, Calligraphic Refresh Graphics Display	Offline / Black Board Teaching
	Flat Panel Display	Learning through Demonstration
	Refreshing, Flickering, Interlacing	Learning through experimentation
	Resolution, Bit Depth, Aspect Ratio	Offline / Black Board Teaching
Unit-2	Scan Conversion Technique, Image representation	Offline / Black Board Teaching, Learning through demonstration
	Line drawing: DDA	Learning through experimentation
	Bresenham's Algorithm	Learning through experimentation
	Circle Drawing, Mid-Point	Learning through experimentation
	Bresenham's Circle GenerationAlgorithm	Learning through experimentation
	Ellipse Generation Algorithm	Offline / Black Board Teaching
	Curves	Offline / Black Board Teaching
	Parametric Function	Offline / Black Board Teaching
	Bezier Method	Offline / Black Board Teaching
	B-Spline Method	Offline / Black Board Teaching
Unit-3	2D & 3D Transformations	Learning through Projects
	Translation	Learning through Projects
	Rotation	Learning through Projects
	Scaling	Learning through Projects
	Reflection	Learning through Projects
	Shearing	Learning through Projects
	Inverse Transformation, Composite Transformation	Offline / Black Board Teaching
	World Coordinate System, Viewing Transformation	Offline / Black Board Teaching
	Representation of 3D object on Screen, Parallel and Perspective Projections	Learning through experimental

UNIT	CONTENT	MODE
Unit-4	Clipping, Point Clipping	Learning through Projects
	Line Clipping, Simple Visibility Line Clipping Algorithm	Learning through Projects
	Polygon Clipping	Learning through Projects
	Hidden Surface Elimination	Learning through Projects
	Z- Buffer algorithm and Painter's Algorithm	Offline / Black Board Teaching
	Area Filling	Offline / Black Board Teaching
	Basic Illumination Models	Offline / Black Board Teaching
	Diffuse Reflection, Specular Reflection	Offline / Black Board Teaching
	Phong Shading , Gouraud Shading	Learning through experimentation
	Color Models RGB, YIQ	Learning through demonstration
	CMY , HSV	Learning through demonstration
Unit-5	Multimedia System	Online Teaching
	An Introduction Multimedia hardware and software	Learning through demonstration
	Multimedia System Architecture	Offline / Black Board Teaching
	Multimedia Applications and evolving technologies	Offline / Black Board Teaching
	Multimedia Authoring	Offline / Black Board Teaching
	Data & File Format Standards	Group based Learning
	Sampling ,Compression Standards	Offline / Black Board Teaching
	Compression Through Spatial and Temporal Redundancy	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/fieldbased learning
6.38%	42.58%	2.12%	21.27%	12.76%	14.89%	-	-

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