MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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

Department of Electronics Engineering

Multiple Mode Teaching Learning Pattern

Name of Course with Code Project Management & Financing (1000005)	**Class** B. Tech. II Year (IV Semester)	**Session** July-Dec 2024

S. No.	Unit	Content to be Covered	Teaching Session	Mode
1.	Unit 1	**Introduction to Project Management**	1	Offline & Open discussions
2.		Difference between Project and Production, Attributes of a Project Time, Cost, Quality and Safety	2	Offline & Open discussions
3.		Stakeholders of a Project	3	Offline & Open discussions
4.		Project life cycle,	4	Offline & Open discussions
5.		Project Planning, Types of Project Plans and feasibility.	5	Online & Open discussions
6.		Review of Unit-I	6	Online
7.	Unit 2	**Project Network logic**, Project Networking & work flows	7	Offline & problem solving based learning
8.		Activity duration and methods of Estimating activity duration.	8	Offline & problem solving based learning
9.		One time estimate three time estimates, Duration estimation procedure.	9	Offline & problem solving based learning
10.		Use of Bar Charts, Mile stone charts and networks	10	Offline & problem solving based learning,
11.		Network representation schemes	11	Offline & problem solving based learning, Group based Learning
12.		Arrow and Activity on Node Networks (A-o-A & A-o-N),	12	Offline & problem solving based learning, Group based Learning
13.		Logic behind developing project network and simple network calculations	13	Offline & problem solving based learning, Group based Learning
14.		Critical paths and floats.	14	Offline & problem solving based learning, Group based Learning
15.		Review of Unit-II	15	Online
16.	Unit 3	**Decision making through networks: CPM, PERT & PDM**	16	Offline & Open Discussion
17.		Use of network in Decision Making	17	Offline & Open Discussion
18.		Importance of critical path, Monitoring the progress and updating project plan	18	Offline & Open Discussion
19.		Use of floats in Resource smoothening	19	Offline & & Open Discussion
20.		Introduction to Precedence Diagramming Method (PDM).	20	Offline & Open discussions, Group based Learning
21.		Different lag and lead relations in terms of SS (Start to Start).	21	Offline & Open discussions, Group based Learning
22.		SF(Start to Finish), Finish to Start(FS), and	22	Offline & Open discussions

		Finish to Finish(FF) and composite relations		
23.		**Project Cost Control**	23	Offline & Open discussions
24.		Breakeven analysis in planning stage.	24	Offline & Open discussion
25.		Direct and indirect cost, slope of direct cost curve	25	Offline & Open discussions
26.		Total project cost and optimum duration	26	Offline & Open discussions
27.	**Unit 4**	Contracting the network for cost Optimization.	27	Offline & Open discussions
28.		Escalation & Variation in prices.	28	Online & Open discussions
29.		Review of Unit-IV	29	Online
30.		**Projects Financing,** Role of governments in financing projects.	30	Online & Open discussions
31.		Funder and Concessionaire: Economic multiplier effects of Projects.	31	Offline & Open discussions
32.		Means of financing-public finance and Private finance, Granting authority.	32	Online & Open discussions
33.		**World Bank** Group, **IMF, ADB,** Micro and Small Enterprises Funding Scheme (**MSME**)	33	Offline & Open discussions
34.	**Unit 5**	Elementary understanding of Procurement of infrastructure projects through Public Private Partnership (**PPP**) route.	34	Offline & Open discussions
35.		Build Operate Transfer (**BOT**), Build Operate Own & Transfer (**BOOT**).	35	Offline & Open discussions
36.		Perspectives, Lifecycle of PPP projects	36	Offline & Open discussions
37.		Micro & Macroeconomics concepts and its application in Project Financing.	37	Offline & Open discussions
38.		Review of Unit-V	38	Online

Online	Offline						
	Black Board Teaching	Group based Learning	Learning through projects	Learning through demonstration	Learning through experimentation	Activity based Learning	Onsite/field based learning
13.15%	87%	7%	-	-	-	6%	-

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DEPARTMENT OF ELECTRONICS ENGINEERING

Multiple Mode Teaching Learning Pattern

Name of Course with Code: Linear Control Theory (140413)	**Class:** B. Tech. II Year (EC-B)	**Session:** Jan-June 2024

S. No.	Unit	Content to be Covered	Teaching Session	Mode
1.	Unit 1	Basic control system terminology, Open loop and Closed loop system	1	Offline & Open discussions
2.		Feedback control,Different modeling of physical systems	2-3	Offline & problem solving based learning
3.		Linear approximation of physical systems. Transfer function of linear systems	4-5	Offline & problem solving based learning
4.		Block diagram algebra	6-7	Offline & problem solving based learning
5.		Signal flow graphs, Effects of negative feedback	8-9	Offline & problem solving based learning
6.	Unit 2	Test input signals, First order systems	10	Offline & demonstration based learning
7.		Second order systems	11-12	Offline & problem solving based learning
8.		Effects of addition of poles and zeros to open and closed loop transfer functions, Steady state error	13-14	Offline & problem solving based learning
9.		Constant and error coefficients for type 0, 1, and 2 systems	15	Offline & demonstration based learning
10.	Unit 3	Concept of stability of linear systems, Relation between closed loop poles & stability	16	Offline & demonstration based learning
11.		Relative stability, Absolute stability	17	Offline & demonstration based learning
12.		Routh Hurwitz criteria and its applications	18-19	Offline & problem solving based learning
13.		Root locus plot	20-24	Offline & problem solving based learning
14.	Unit 4	Performance specifications in frequency domain, Co-relation between frequency domain and time domain	25	Offline & demonstration based learning
15.		Polar plots	26	Offline & problem solving based learning
16.		Bode plots of transfer function	27-29	Offline & problem solving based learning

17.		Nyquist stability criterion, Assessment of relative stability	30-31	Offline & demonstration based learning
18.	**Unit 5**	Introduction to Proportional, Integral, and Derivative controller	32	Offline & Open discussions
19.		PD controller, PI controller, PID controller	33	Offline & problem solving based learning
20.		Design of various controllers and their limitations	34-35	Offline & problem solving 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
14.28%	85.71%	37.21%	13.95	27.90%	48.84.%	13.95%	-%

D. K. Parsediya

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DEPARTMENT OF ELECTRONICS ENGINEERING

Multiple Modes Teaching Learning Pattern

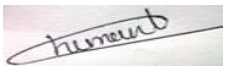
Name of Course with Code: Project Management & Financing (1000005)	**Class:** B. Tech. II Year	**Session:** Jan-June 2024

S. No.	Unit	Content to be Covered	Teaching Session	Mode
1.	Unit 1	Introduction to Project Management	1	Offline & Open discussions
2.		Difference between Project and Production	2	Offline & activity based learning
3.		Attributes of a Project	3	Offline & Open discussions
4.		Time, Cost, Quality and Safety	4-5	Offline & Experiment with problem solving in group based learning
5.		Stakeholders of a Project.	6	Online & demonstration based learning
6.		Project life cycle	7	Offline & Open discussions
7.		Project Planning:	8	Offline & Experiment with problem solving in group based learning
8.		Types of Project Plans and feasibility.	9	Offline & problem solving based learning
9.	Unit 2	**Project Network logic**	10	Offline & problem solving based learning
10.		Project Networking and work flows	11	Offline & problem solving based learning
11.		Activity duration and methods of estimating activity duration.	12	Offline & problem solving based learning
12.		One time estimate three time estimates.	13	Offline & problem solving based learning
13.		Duration estimation procedure.	11	Offline & problem solving based learning
14.		Use of Bar Charts, Mile stone charts and networks	12	
15.		Network representation schemes	13	
16.		Arrow and Activity on Node Networks (**A-o-A** & **A-o-N**),	14	
17.		Logic behind developing project network and simple network calculations	15	

18.		Critical paths and floats.	16	
19.		Review of Unit-II	17	Online
20.	**Unit 3**	**Decision making through networks: CPM, PERT & PDM**.	18	Offline & Experiment with problem solving in group based learning
21.		Use of network in Decision Making	19	Offline & Experiment with problem solving in group based learning
22.		Importance of critical path, Monitoring the progress and updating the project plan.	20	Offline & Experiment with problem solving in group based learning
23.		Use of floats in Resource smoothening	21	Offline & Experiment with problem solving in group based learning
24.		Introduction to Precedence Diagramming Method (PDM).	22	Offline & Experiment with problem solving in group based learning
25.		Different lag and lead relations in terms of SS(Start to Start).	23	Offline & Open discussions
26.		SF(Start to Finish), Finish to Start(FS), and Finish to Finish(FF) and composite relations	24	
27.	**Unit 4**	**Project Cost Control.**	25	Offline & Experiment with problem solving in group based learning
28.		Breakeven analysis in planning stage.	26	Offline & Experiment with problem solving in group based learning
29.		Direct and indirect cost, slope of direct cost curve	27	Offline & Experiment with problem solving in group based learning
30.		Total project cost and optimum duration.	28	Offline & Experiment with problem solving in group based learning
31.		Contracting the network for cost optimization.	29	Offline & Learning through projects
32.		Escalation & Variation in prices.	30	Online & demonstration based learning
33.	**Unit 5**	**Projects Financing**	31	Online & demonstration based learning
34.		Role of governments in financing projects.	32	Offline & group based learning
35.		Funder and Concessionaire: Economic multiplier effects of Projects.	33	Online & demonstration based learning
36.		Means of financing-public finance and	34	Offline & Experiment with problem solving in group based learning

		private finance, Granting authority.		
37.		**World Bank** Group, **IMF, ADB,** Micro and Small Enterprises Funding Scheme (**MSME**)	35	Offline & Open discussions
38.		Elementary understanding of Procurement of infrastructure projects through Public Private Partnership (**PPP**) route.	36	Offline & Onsite/ field visit based Learning
39.		Build Operate Transfer (**BOT**), Build Operate Own & Transfer (**BOOT**).	37	Offline & Onsite/ field visit based Learning
40.		Perspectives, Lifecycle of PPP projects	38	Offline & Onsite/ field visit based Learning
41.		Micro & Macro economics concepts and its application in Project Financing.	39	Offline & Open discussions
42.		Review of Unit-V	40	Online & demonstration 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
22.8	11.42	5.71	2.85	2.85	31.42	11.42	11.42



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Department of Electronics Engineering

Name of Course with Code: Cybersecurity (2140415)		**Class: Electronics (EC A & B) & ET IV Sem.**	**Session: January-June 2024**

S. No.	Unit	Content to be Covered	Teaching Session	CO Level	Mode
1.	Unit 1	**Overview of Cyber Security**	1	1	Offline & Open discussions
2.		Introduction to Cyber Security, Cyber-crime	2	1	Online based learning
3.		Types of Cyber Attacks	3	1	Online & demonstration based learning
4.		Cyber Vandalism (Hacking), Cyber Stalking,	4	1	Online based learning
5.		Internet Frauds and Software Piracy	5	1	Online & demonstration based learning
6.	Unit 2	**Basics of Internet and Networking**	6	2	Online based learning
7.		Network Topologies	7	2	Online based learning
8.		Wired and Wireless networks, E-commerce	8	2	Online based learning
9.		OSI Model	9	2	Online & demonstration based learning
10.		Internetworking Devices	10	2	Online based learning
11.		Firewall	11	2	Online based learning
12.	Unit 3	Security Principles and Attacks	12	3	Online based learning
13.		Cryptography	13	3	Online based learning
14.		Symmetric key Cryptography	14-15	3	Online & demonstration based learning
15.		Symmetric key Ciphers	16-17		Online based learning
16.		Public key cryptography	18-19		Online based learning
17.		SSL	20-21		Online based learning
18.	Unit 4	Hacker, Types of Hacker	22	4	Black Board Teaching & Open discussions
19.		Malicious Softwares (Part 1)	23-24	4	Black Board Teaching & problem solving based learning
20.		Malicious Softwares (Part 2)	25-26	4	Black Board Teaching / Slides & Group based Learning
21.	Unit 5	Introduction of Intellectual Property and patent	27	5	Online based learning
22.		More About Patent	28	5	Online based learning
23.		All about Trademark	29	5	Online based learning
24.		Industrial Design	30	5	Online based learning
25.		Geographical Indication	31	5	Online based learning
26.		All about copyright	32	5	Online based learning
27.		IT act 2000	33	5	Online based learning
28.		Digital Crime Investigation	34	5	Online based learning

Online	Offline				
	Black Board Teaching	Group based Learning	Learning through demonstration	Problem based Learning	Open Discussions
82.35%	8.82%	2.94%	11.76%	2.66%	5.88%

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DEPARTMENT OF ELECTRONICS ENGINEERING

Multiple Mode Teaching Learning Pattern

Name of Course with Code: Digital Communication (2140411)	**Class:** B. Tech. II Year	**Session:** Jan-June 2024

S. No.	Unit	Content to be Covered	Teaching Session	Mode
1.	Unit 1	Introduction to Digital Communication	1	Offline & Open discussions
2.		Sampling theorem for Low pass signal	2	Offline & activity based learning
3.		Ideal sampling, Natural sampling and Flat top sampling	3	Offline & Open discussions
4.		Generation and detection of PAM, PPM and PWM	4-5	Offline & Experiment with problem solving in group based learning
5.		Time division Multiplexing	6	Online & demonstration based learning
6.		Problem Solving Session	7	Offline & Open discussions
7.	Unit 2	Quantization, Quantization noise	8-9	Offline & problem solving based learning
8.		Pulse Code Modulation	10	Offline & problem solving based learning
9.		Companding	11	Offline & problem solving based learning
10.		Delta modulation	12	Online & demonstration based learning
11.		Adaptive delta modulation	13	Offline & problem solving based learning
12.		DPCM	14	Offline & problem solving based learning
13.		Eye pattern	15	Offline & Experiment with problem solving in group based learning
14.		Problem Solving Session	16	Offline & Open discussions
15.	Unit 3	Band Pass Data Transmission, ASK	17	Offline & Onsite/ field visit based Learning
16.		Binary phase shift keying (BPSK)	18	Offline & Onsite/ field visit based Learning
17.		Quadrature phase shift keying (QPSK)	19	Offline & Open discussions
18.		Differential phase shift keying (DPSK)	20	Online & demonstration based learning

19.		Coherent and Non coherent BFSK.	21-22	Offline & Onsite/ field visit based Learning
20.		Problem Solving Session	23	Offline & Open discussions
21.	**Unit 4**	Optimum filter, Matched filter and Correlator detector	24	Online & demonstration based learning
22.		Gram Schmidt orthogonalization procedure	25	Online & demonstration based learning
23.		Concept of signal space for the computation of probability of error, Calculation of error probability for BPSK	26-27	Offline & Open discussions
24.		Calculation of error probability for QPSK	28	Online & demonstration based learning
25.		Calculation of error probability for coherent BFSK, Comparison of different modulation techniques.	29	Online & demonstration based learning
26.	**Unit 5**	Concept of information theory & coding	30	Offline & Open discussions
27.		Entropy, Information rate and Channel capacity	31	Offline & activity based learning
28.		Shannon's theorem & Shannon Hartley theorem	32	Online & demonstration based learning
29.		Coding Efficiency, Huffman coding	33	Offline & Experiment with problem solving in group based learning
30.		Shannon Fano coding	34	Offline & Open discussions
31.		Problem Solving Session	35	Offline & Onsite/ field visit 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
20.93%	69.77%	37.21%	13.95	27.90%	48.84.%	13.95%	08.30%

Dr. Karuna Markam

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DEPARTMENT OF ELECTRONICS ENGINEERING

Multiple Mode Teaching Learning Pattern

Name of Course with Code: Linear Control Theory (140413)	**Class:** B. Tech. II Year (EC-B)	**Session:** Jan-June 2024

S. No.	Unit	Content to be Covered	Teaching Session	Mode
1.	Unit 1	Basic control system terminology, Open loop and Closed loop system	1	Offline & Open discussions
2.		Feedback control, Different modeling of physical systems	2-3	Offline & problem solving based learning
3.		Linear approximation of physical systems. Transfer function of linear systems	4-5	Offline & problem solving based learning
4.		Block diagram algebra	6-8	Offline & problem solving based learning
5.		Signal flow graphs, Effects of negative feedback	9-11	Offline & problem solving based learning
6.	Unit 2	Test input signals, First order systems	12-13	Offline & demonstration based learning
7.		Second order systems	14-15	Offline & problem solving based learning
8.		Effects of addition of poles and zeros to open and closed loop transfer functions, Steady state error	16-17	Offline & problem solving based learning
9.		Constant and error coefficients for type 0, 1, and 2 systems	18-19	Offline & demonstration based learning
10.	Unit 3	Concept of stability of linear systems, Relation between closed loop poles & stability	20	Offline & demonstration based learning
11.		Relative stability, Absolute stability	21	Offline & demonstration based learning
12.		Routh Hurwitz criteria and its applications	22-23	Offline & problem solving based learning
13.		Root locus plot	24-27	Offline & problem solving based learning
14.	Unit 4	Performance specifications in frequency domain, Co-relation between frequency domain and time domain	28	Offline & demonstration based learning
15.		Polar plots	29-30	Offline & problem solving based learning
16.		Bode plots of transfer function	31-33	Offline & problem solving based learning

17.		Nyquist stability criterion, Assessment of relative stability	34-36	Offline & demonstration based learning
18.	**Unit 5**	Introduction to Proportional, Integral, and Derivative controller	37	Offline & Open discussions
19.		PD controller, PI controller, PID controller	38	Offline & problem solving based learning
20.		Design of various controllers and their limitations	39-40	Offline & problem solving 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
14.28%	85.71%	37.21%	13.95	27.90%	48.84.%	13.95%	-%

Dr. Laxmi Shrivastava

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DEPARTMENT OF ELECTRONICS ENGINEERING

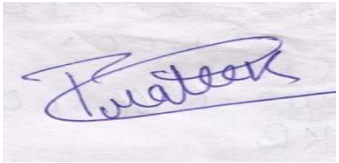
Multiple Mode Teaching Learning Pattern

Name of Course with Code: Digital Communication (2140411)	**Class:** B. Tech. II Year	**Session:** Jan-June 2024

S. No.	Unit	Content to be Covered	Teaching Session	Mode
1.	Unit 1	Introduction to Digital Communication	1	Offline & activity based learning
2.		Sampling theorem for Low pass signal	2	Offline & Open discussions
3.		Ideal sampling, Natural sampling and Flat top sampling	3	Offline & Open discussions
4.		Generation and detection of PAM, PPM and PWM	4-5	Offline & Experiment with problem solving in group based learning
5.		Time division Multiplexing	6	Online & demonstration based learning
6.		Problem Solving Session	7	Offline & Open discussions
7.	Unit 2	Quantization, Quantization noise	8-9	Offline & problem solving based learning
8.		Pulse Code Modulation	10	Offline & problem solving based learning
9.		Companding	11	Online & demonstration based learning
10.		Delta modulation	12	Offline & problem solvingbased learning
11.		Adaptive delta modulation	13	Offline & problem solving based learning
12.		DPCM	14	Offline & problem solving based learning
13.		Eye pattern	15	Offline & Experiment with problem solving in group based learning
14.		Problem Solving Session	16	Offline & Open discussions
15.	Unit 3	Band Pass Data Transmission, ASK	17	Offline & Onsite/ field visit based Learning
16.		Binary phase shift keying (BPSK)	18	Offline & Onsite/ field visit based Learning
17.		Quadrature phase shift keying (QPSK)	19	Offline & Open discussions
18.		Differential phase shift keying (DPSK)	20	Online & demonstration based learning

19.		Coherent and Non coherent BFSK.	21-22	Offline & Onsite/ field visit based Learning
20.		Problem Solving Session	23	Offline & Open discussions
21.	**Unit 4**	Optimum filter, Matched filter and Correlator detector	24	Online & demonstration based learning
22.		Gram Schmidt orthogonalization procedure	25	Online & demonstration based learning
23.		Concept of signal space for the computation of probability of error, Calculation of error probability for BPSK	26-27	Offline & Open discussions
24.		Calculation of error probability for QPSK	28	Online & demonstration based learning
25.		Calculation of error probability for coherent BFSK, Comparison of different modulation techniques.	29	Online & demonstration based learning
26.	**Unit 5**	Concept of information theory & coding	30	Offline & Open discussions
27.		Entropy, Information rate and Channel capacity	31	Offline & activity based learning
28.		Shannon's theorem & Shannon Hartley theorem	32	Online & demonstration based learning
29.		Coding Efficiency, Huffman coding	33	Offline & Experiment with problem solving in group based learning
30.		Shannon Fano coding	34	Offline & Open discussions
31.		Problem Solving Session	35	Offline & Onsite/ field visit 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
20.93%	69.77%	37.21%	13.95	27.90%	48.84.%	13.95%	08.30%



Prof. Prateek Bhadauria