MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.)

A Govt. Added UGC Autonomous and NAAC Accredited Institute, Affiliated to R.G.P.V, Bhopal

DEPARTMENT OF ELECTRONICS ENGINEERING

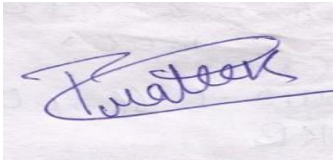
Multiple Mode Teaching Learning Pattern

Name of Course with Code: Digital Communication (3140411/3200411)	**Class:** B. Tech. II Year	**Session:** Jan-June 2025

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

Dr. Karuna Markam

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.)

A Govt. Added UGC Autonomous and NAAC Accredited Institute, Affiliated to R.G.P.V, Bhopal

DEPARTMENT OF ELECTRONICS ENGINEERING

Multiple Mode Teaching Learning Pattern

Name of Course with Code: Linear Control Theory (3140412/ 3200412)	**Class:** B. Tech. II Year (EC)	**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%	-%

Prof. Pooja Sahoo

Dr. Laxmi Shrivastava

माधव प्रौद्योगिकी एवं विज्ञान संस्थान, ग्वालियर
MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
(Deemed to be University)
NAAC Accredited with A++ Grade
Gola Ka Mandir, Gwalior (M.P.)- 474005, INDIA
Ph.:+91-751-2409300, E-mail: director@mitsgwalior.in, Website: www.mitsgwalior.in

Department of Electronics Engineering

Name of Course with Code: Microprocessor & Interfacing (3140413/3200413)		Class: IV Semester	Session: Jan-June 2025

S. No.	Unit	Content to be Covered	Teaching Session	CO Level	Mode
1.	Unit I	Introduction to microprocessors and microcomputers	1	1	Black Board Teaching
2.		Study of 8-bit microprocessor – Architecture & Block Diagram	2-3	1	Black Board Teaching
3.		8085 pin configuration, Internal architecture and operations	4 -5	1	Black Board Teaching
4.		Interrupts	6-7	1	Black Board Teaching
5.		Interrupt service routine.	8	1	Black Board Teaching
6.	Unit II	8085 instruction set	9	2	Online & demonstration based learning
7.		Data transfer operations, arithmetic operations	10-11	2	Black Board Teaching & problem solving based learning
8.		Logic operations, branch operations	12-13	2	Online & demonstration based learning
9.		8085 assembly language programming, debugging the program	14	2	Online & demonstration based learning
10.		Addressing modes of 8085	15-16	2	Online & demonstration based learning
11.	Unit III	Counters and time delays	17	3	Black Board Teaching
12.		Instruction cycle, machine cycle, T-states	18 - 19	3	Black Board Teaching & demonstration basedlearning
13.		Timing diagram for different 8085 arithmetic, logical and branch instructions	20-22	3	Black Board Teaching
14.		Introduction to memory interfacing and I/O interfacing with 8085	23-24	3	Black Board Teaching & problem solving based learning
15.	Unit IV	Memory interfacing and various interfacings chips like - Programmable input/output ports 8155/8255 (PPI)	25 -26	4	Black Board Teaching & Open discussions
16.		Programmable interval timer 8253/8254 (PIT)	27-28	4	Black Board Teaching & problem solving based learning
17.		Programmable interrupt controller 8259 (PIC)	29-30	4	Black Board Teaching / Slides &Group based Learning

18.		DMA controller 8257	31-32	4	Black Board Teaching / Activitybased learning
19.	**Unit V**	8086 Block Diagram and Architecture	33-34	5	Black Board Teaching / Slides
20.		Pin configuration of 8086	35	5	Black Board Teaching / Slides
21.		Execution Unit (EU) and Bus Interface U/nit (BIU)	36	5	Black Board Teaching / Slides
22.		Minimum Mode and Maximum Mode Operation	37	5	Black Board Teaching / Slides
23.		Memory Segmentation	38	5	Online & Learningthrough projects
24.		Instruction set and addressing modes of 8086	39	5	Black Board Teaching & problem solving based learning
25.		Introduction to 8086 assembly language programming	40	5	Black Board Teaching & problem solving based learning

Online	Black Board Teaching	Group based Learning	Learning through projects	Learning through demonstration	Activity /Problem based Learning	Onsite/field based learning/Open Discussion
12.8%	51.3%	2.6%	2.6%	12.8%	15.4%	2.6%

Prof. R. Jenkin Suji **Prof. Madhav Singh**

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.)

A Govt. Added UGC Autonomous and NAAC Accredited Institute, Affiliated to R.G.P.V, Bhopal

DEPARTMENT OF ELECTRONICS ENGINEERING

Multiple Modes Teaching Learning Pattern

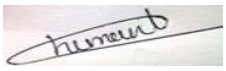
Name of Course with Code: Project Management & Financing (1000005)	**Class:** B. Tech. (EC/ET)-II Year	**Session:** Jan-June 2025

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	Offline & Open discussions
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



Dr. Hemant Choubey

Assistant Professor
Dept. of Electronics Engg
MITS, Gwalior