

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: Electronics Devices (140122)		Class: B. Tech. EC I Year (I Sem)	Session: Jan-June 2023	
S. No.	Unit	Content to be Covered	Teaching Session	Mode
1.	Unit 1	Introduction	1	Offline & Open discussions
2.		Elemental & Compound Semiconductor Materials	1-2	Offline & group based problem solving based learning
3.		Bonding Forces and Energy Bands in Intrinsic and Extrinsic Silicon	3-4	Offline & Open discussions learning through project
4.		Charge Carrier in Semiconductors , Carrier Concentration	5-6	Offline & open discussion
5.		Extrinsic Semiconductor, Hall Effect	7	Online & demonstration based learning
6.		Mechanism of Current Flow, Drift Current, Diffusion Current	8	Offline & Open discussions
7.		Einstein Relation and Continuity Equation	9	Offline & problem solving based learning
8.		Unit 2	P-N Junction properties	10
9.	Diode Characteristics		11	Offline & Learning through experimentation
10.	Equilibrium condition, Biased junction		12	Offline and open discussion, learning through project
11.	Steady state condition		13	Offline & Open discussions
12.	P-N Junction breakdown mechanism		14	Offline & problem solving based learning
13.	Capacitance of junction barrier (Diffusion & transient)		15	Offline & problem solving based learning
14.	Diode circuit parameters		16	Offline & Open discussions
15.	Basic circuits of Rectifier (Half Wave, Full Wave-Center and Bridge)		17-18	Online & demonstration based learning
16.	Clippers and there types		19-22	Offline & Onsite/ field visit based Learning, learning through project
17.	Clampers and there Types		23-24	Offline and Learning through experimentation, Learning, learning through project
18.		Construction and basic operation of BJT	25	Offline & problem solving based learning

19.	Unit 3	current components and equations of BJT, Early effect	26	Online & open discussion
20.		CB, CE and CC configuration of BJT Input and output characteristics of all configurations, Region of operations: active, cut-off and saturation region.	27-29	Online & demonstration based learning, Learning, learning through project
21.		calculation of transistor parameter for CB using h parameters	30-31	Offline & problem solving based learning
22.		calculation of transistor parameter for CE using h parameters	32	Online & demonstration based learning, learning through project
23.		calculation of transistor parameter for CC using h parameters	33	Online & demonstration based learning
24.	Unit 4	Construction and characteristics of JFET	34	Online & demonstration based learning
25.		Working principle of JFET	35	Online & demonstration based learning
26.		MOSFET construction and characteristics	36	Online & demonstration based learning
27.		Enhancement mode of MOSFET	37	Online & demonstration based learning, Learning, learning through project
28.		Depletion mode MOSFET	38	Online & demonstration based learning
29.	Unit 5	Basic principle and working of SCR	39	Offline & Open discussions
30.		IGBT	40	Offline & Open discussions
31.		Uni-junction Transistor (UJT): Principle of operation, characteristics.	41	Offline & Open discussions
32.		Thyristors	42	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
25.4%	64.12%	9.2%	11.0%	21.3%	15.6%	7%	8.44%



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