

PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: -Electronic Devices

Year: - 2nd

Subject Code: - EC-201A

Semester: - 3rd

Lecture No	Unit No	Topic	References
1	1	Energy bands in intrinsic and extrinsic silicon	Semiconductor Physics and Devices
2	1	Carrier transport: diffusion current	Semiconductor Physics and Devices
3	1	Drift current	Semiconductor Physics and Devices
4	1	Mobility and Resistivity	Semiconductor Physics and Devices
5	1	Generation of carriers	Semiconductor Physics and Devices
6	1	Recombination of carriers	Semiconductor Physics and Devices
7	1	Continuity equation	Semiconductor Physics and Devices
8	1	PN Junction: Basic Structure	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
9	1	Small signal equivalent circuit of p-n diode	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
10	1	Intrinsic Carrier Concentration	Boylestad & Nashelsky: Electronic Devices & Circuit Theory

11	1	Fermi Level in Intrinsic, N and P	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
12	1	Derivation of barrier potential and diode current equation	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
13	1	Simple diode circuits: clipping	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
14	1	Clipping Cont...	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
15	1	Clamping	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
16	1	Rectifiers	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
17	1	Rectifiers Cont...	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
18	1	Zener diode and its application as voltage regulator	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
19	2	UNIT -2 Bipolar Junction Transistor: Basic principle of operation	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
20	2	Bipolar Junction Transistor: Basic principle of operation Cont...	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
21	2	Current gains: derivation of α , β , γ	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
22	2	α , β , γ relationship	Boylestad &Nashelsky: Electronic Devices & Circuit

			Theory
23	2	Various modes of operation of BJT,	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
24	2	Various modes of operation of BJT Cont...	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
25	2	Base Width Modulation, Transistor hybrid model	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
26	2	h-parameter equivalent circuit of transistor	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
27	2	h-parameter equivalent circuit of transistor Cont...	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
28	2	Analysis of transistor amplifier using h-parameters	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
29	2	Analysis of transistor amplifier using h-parameters cont...	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
30	2	Calculation of input impedance, output impedance and voltage gain.	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
31	2	Calculation of input impedance, output impedance and voltage gain cont...	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
32	3	UNIT-3 Field Effect Devices: JFET: basic operation	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
33	3	Characteristics, drain and transfer characteristics,	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
34	3	Pinch off voltage,	Boylestad &Nashelsky: Electronic Devices & Circuit

			Theory
35	3	Parameters of JFET: Transconductance (g_m), ac drain resistance (r_d), amplification factor(μ)	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
36	3	Small Signal Model	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
37	3	Small Signal Model, Frequency Limitations	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
38	3	MOSFET: basic operation	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
39	3	Depletion and enhancement type	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
40	3	Pinch-off voltage, Shockley equation	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
41	3	Small Signal Model of MOSFET	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
42	3	MOS Capacitor	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
43	4	UNIT-4 Voltage Regulation, block diagram of DC regulated power supply	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
44	4	Zener diode voltage regulators:	Boylestad &Nashelsky: Electronic Devices & Circuit Theory
45	4	Transistor series voltage regulator	Boylestad &Nashelsky: Electronic Devices & Circuit Theory

46	4	Transistor shunt voltage regulator	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
47	4	Controlled Transistor Voltage Regulator	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
48	4	Op-Amp Series and shunt voltage regulator.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
49	1,2	Revision 1 and 2	
50	3,4	Revision 3 and 4	

Text Books:

1. D. A. Neamen, Dhrubas Biswas Semiconductor Physics and Devices (IRWIN), McGraw Hill Higher Education, 4th Edition
2. B.G. Streetman, Solid State Electronic Devices, Prentice Hall of India, New Delhi, 1995.

Reference Books:

1. E S. Yang, Microelectronic Devices, McGraw Hill, Singapore, 1988.
2. A.S. Sedra and K.C. Smith, Microelectronic Circuits, Saunder's College Publishing, 1991.
3. Millman & Halkias: Integrated Electronics, TMH.
4. Boylestad & Nashelsky: Electronic Devices & Circuit Theory, PHI.