

Govt. Polytechnic for Women, Faridabad
Computer Engineering Department
Lesson Plan

Session: 2024-25
Subject: Analog Electronics

Semester : 2nd
Load: Lectures-02, Practical-04

Week	Theory		Practical	
	Lectures	Topic	Practical	Topic
1	1	Semiconductors and Diodes: Conductors, Insulators, and Semiconductors. Electrons- free and valence. Energy band diagrams.	1	Basic electronic components
	2	Properties of semiconductors. Meaning of Hole current, electron-hole pairs	2	Basic electronic components
2	1	Recombination, doping, acceptor and donor impurities. Intrinsic and Extrinsic	1	Familiarity with CRO
	2	N and P type semiconductors. Diode- formation, depletion region	2	Familiarity with Multimeter, Function generator
3	1	Diode VI Characteristics, ratings, types and applications.	1	Familiarity with Regulated power supply, Active passive components, Bread Board
	2	Zener diode- reverse bias characteristics	2	Study of V-I Characteristics of a Diode
4	1	voltage regulation, shunt voltage regulator, and applications. Varistor and Thermistor working and applications.	1	Study of V-I Characteristics of a Diode
	2	Transistors and MOSFETs: Transistors- definition, terminals, types, symbols. Formation of NPN, PNP	2	Study zener diode characteristics
5	1	Transistor biasing- definition, importance	1	Study zener diode as voltage regulator
	2	List types, stabilisation, thermal runaway, heat sink.	2	Study the input characteristics of transistor in Common Base configuration
6	1	cut off, saturation, and active Regions. Transistor as a switch	1	Study the output characteristics of transistor in Common Base configuration
	2	List configurations and applications. CE input and output characteristics	2	Plot and study the input characteristics of BJT
7	1	Alpha and Beta- definitions, relation. Voltage divider method	1	Plot and study the output characteristics of BJT
	2	FET- definition, types. MOSFET- definition, types, symbols.	2	Revision
8	1	N type enhancement mode- construction, working, characteristics, switch. List applications and ratings.	1	Study and draw the characteristics of FET in common source configuration
	2	Differentiate BJT and MOSFET.	2	Study and draw the characteristics of FET in common source conf
9	1	Revision Test	1	Study and draw the characteristics of FET in common drain conf
	2	Rectifiers, filters, and regulators: Regulated power supply- block diagram and applications. Rectifiers- definition,	2	Study and draw the characteristics of FET in common drain conf
10	1	half wave, centre tapped and bridge full wave rectifier,	1	Study and draw the characteristics of half wave rectifiers
	2	efficiency, ripple factor, PIV, ratings.	2	Study and draw the characteristics of half wave rectifiers
11	1	Filters- definition, necessity, C and PI filters.	1	Study and draw the characteristics of rectifier filter circuit
	2	Regulator-definition, working of 7805, operating voltages- 7809, 7812, 7905, 7912.	2	Study and draw the characteristics of rectifier filter circuit
12	1	Amplifiers and Oscillators: Amplifier- definition, faithful amplification, classification based on configuration, power, and frequency.	1	Revision
	2	Transistor CE amplifier with biasing. Working of class A, B, C, and Push-pull amplifier.	2	Study the Series and Shunt Voltage Regulator
13	1	Two-stage RC coupled amplifier working, gain in dB, frequency response.	1	Study the Series and Shunt Voltage Regulator
	2	Feed back- definition, types, advantages and disadvantages, applications.	2	Study of Clipping & Clamping circuit
14	1	Oscillators-definition, classification, LC tank circuit, criteria.	1	Study of Clipping & Clamping circuit
	2	RC phase shift and crystal oscillator- working, applications.	2	Numerical Practice
15	1	CRT- construction, working, and applications.	1	Study of frequency response of active filters HP, LP & BP
	2	OP-AMP and Timers: OPAMP– definition, block diagram, operation, characteristics, applications, μ A 741 pin diagram.	2	Study of frequency response of active filters HP, LP & BP
16	1	Definitions of virtual ground, CMRR and Slew rate.	1	Numerical Practice
	2	OPAMP applications– inverting, integrator, differentiator, summer, voltage follower, and comparator.	2	Numerical Practice
17	1	Filters- definition, Working- low pass, high pass passive and active filters,application	1	Revision
	2	Timers– block diagram, pin diagram of 555, duty cycle, time constant, applications. Multi-vibrators Astable and monostable using 555.	2	Revision

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