

Lesson Plan

Name of Faculty : Deepak Garg

Discipline : ECE

Semester : 2nd sem

Subject : EDC1

Lesson Plan Duration : 14 weeks(from 6 March 2023 to june 2023)

Work Load (lecture/practical)per week (in hours) : Theory-03, Practical-04

| Week | Theory | | Practical | |
|------|-------------|--|---------------|---|
| | Lecture Day | Topic | Practical Day | Topic |
| 1 | 1 | UNIT-1 Review of basic atomic structure and energy levels, concept of insulators | 1 | Plotting of V-I characteristics of a PN junction diode |
| | 2 | conductors and semiconductors, atomic structure of Germanium (Ge) and Silicon (Si), covalent bonds | 2 | Viva-Voice |
| | 3 | Concept of intrinsic and extrinsic semiconductor, process of doping. | | |
| 2 | 4 | Energy level diagram of conductors, insulators and semiconductors | 3 | Plotting of V-I characteristics of a Zener diode |
| | 5 | minority and majority charge carriers | 4 | Viva-Voice |
| | 6 | P and N type semiconductors and their conductivity, effect of temperature on conductivity of intrinsic semiconductors | | |
| 3 | 7 | UNIT II PN junction diode, mechanism of current flow in PN junction, forward and reverse biased PN junction, | 5 | To observe input and output of series clipping circuits. |
| | 8 | potential barrier, drift and diffusion currents, depletion layer, concept of junction capacitance in forward and reverse biased condition | 6 | Viva-Voice |
| | 9 | V-I characteristics, static and dynamic resistance and their value calculation from the characteristics | | |
| 4 | 10 | Assignment -1 | 7 | To observe input and output of shunt clipping circuits. |
| | 11 | Revision of 1st sessional exam | 8 | Viva-Voice |
| | 12 | Sessional exam -1 | | |
| 5 | 13 | Application of diode as half-wave, full wave and bridge rectifiers. Peak Inverse Voltage, rectification efficiencies and ripple factor calculations | 9 | To observe input and output of positive clamping circuit. |
| | 14 | shunt capacitor filter, series inductor filter, LC and π filters | 10 | Viva-Voice |
| | 15 | Types of diodes, characteristics and applications of Zener diodes | | |
| 6 | 16 | Zener and avalanche breakdown | 11 | To observe input and output of negative clamping circuit |
| | 17 | Introduction to Clipping and Clamping Circuits | 12 | Viva-Voice |
| | 18 | UNIT III Concept of a bipolar transistor, its structure, PNP and NPN transistors their symbols and mechanism of current flow; Current relations in a transistor; concept of leakage current; | | |

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|----|----|--|----|--|
| 7 | 19 | CB, CE, CC configurations of a transistor; Input and output characteristics in CB and CE configurations; input and output dynamic resistance in CB and CE configurations | 13 | Fabrication of Half-wave rectifier circuit on breadboard and observe the output |
| | 20 | Current amplification factors, relation between α , β and γ . Comparison of CB, CE and CC Configurations | 14 | Viva-Voice |
| | 21 | Transistor as an amplifier in CE Configuration, concept of DC load line and calculation of current gain and voltage gain using DC load line. | | |
| 8 | 22 | Assignment -2 | 15 | Fabrication of Full-wave rectifier circuit on breadboard and observe the output |
| | 23 | Revision of 2nd sessional exam | 16 | Viva-Voice |
| | 24 | Sessional exam -2 | | |
| 9 | 25 | UNIT IV Concept of transistor biasing and selection of operating point | 17 | Plotting of the wave shape of full wave rectifier with a) Shunt capacitor filter b) Series inductor filter |
| | 26 | Need for stabilization of operating point. | 18 | Viva-Voice |
| | 27 | Different types of biasing circuits. Single stage transistor amplifier circuit | | |
| 10 | 28 | concept of dc and ac load line and its use | 19 | Plotting of input and output characteristics and calculation of parameters of transistors in CE configuration |
| | 29 | Explanation of phase reversal of output voltage with respect to input voltage. | 20 | Viva-Voice |
| | 30 | UNIT V Construction, operation and characteristics of FETs and their applications | | |
| 11 | 31 | Construction, operation and characteristics of a MOSFET in depletion and enhancement modes and its applications. | 21 | Plotting of input and output characteristics and calculation of parameters of transistors in CB configuration. |
| | 32 | Comparison of JFET, MOSFET and BJT | 22 | Viva-Voice |
| | 33 | Revision of Chapter-5 | | |
| 12 | 34 | Assignment -3 | 23 | Measurement of voltage gain, input and output impedance in a single stage CE amplifier circuit |
| | 35 | Revision of 3rd sessional exam | 24 | Viva-Voice |
| | 36 | Sessional exam -3 | | |
| 13 | 37 | Revision of chapter 1,2,3 | 25 | Plotting of V-I characteristics of FET. |
| | 38 | Revision of chapter 4,5 | 26 | Viva-Voice |
| | 39 | Revision of very short answer questions | | |
| 14 | 40 | Revision of short answer questions | 27 | Viva-Voice |
| | 41 | Revision of long answer questions | 28 | Viva-Voice |
| | 42 | Revision | | |