



JSS COLLEGE OF ARTS, COMMERCE AND SCIENCE

(Autonomous)

OOTY ROAD, MYSORE- 570 025

DEPARTMENT OF ELECTRONICS

CAREER ORIENTED COURSE

IN

**ELECTRICAL AND ELECTRONIC EQUIPMENT
MAINTENANCE**

Scheme of Study and Examination for the

Department of Electronics

ELECTRICAL & ELECTRONIC EQUIPMENT MAINTENANCE

SEM	PAPER	TITLE	NO. OF TEACHING HOURS		DURATION OF EXAMINATION		IA MARKS		EXAM MARKS		TOTAL
			THEORY (Hrs)	PRA (Hrs)	THEORY (Hrs)	PRA (Hrs)	THEORY	PRA	THEORY	PRA	
I	I	BASIC ELECTRICITY	02	02	$2\frac{1}{2}$	03	10	05	60	Pract -20 Rec -05 Total - 25	100
II	II	SEMI-CONDUCTOR DIODES & DIGITAL ELECTRONICS	02	02	$2\frac{1}{2}$	03	10	05	60		100

EEA010

BASIC ELECTRCITY

Department of Electronics

Course Outcome:

After Completion of this course students

- CO1: Will gain knowledge regarding the various passive components.
- CO2: will understand the basics of circuit control and protective devices in electrical circuits.
- CO3: Illustrate basics of AC circuits.
- CO4: Classify and compare different types of Electrical wiring.
- CO5: Will be able to solve simple electrical circuits using Network theorems

UNIT - I

Passive components:

Ohm's law, concept of resistance, classification of resistors, fixed – carbon composition, metal film & SMD resistors, Variable – Carbon composition & preset, color code, equivalent resistors in series and parallel combination, Kirchhoff's laws- explanation, numerical as applicable.

Capacitors- classification, types, fixed – Ceramic, polystyrene Electrolytic & SMD capacitors, Variable – ganged & trimmer capacitors, equivalent capacitors in series and parallel combination and its application

Inductors - classification, types, equivalent inductors in series and parallel combination and its application

Circuit control and protective devices:

Switches – types (SPDT, DPDT, band switch, micro switches etc.), fuses, relays and MCBs
(14Hrs)

UNIT -II

AC fundamentals:

Explanation of AC, comparison with DC, generation of AC, sinusoidal nature of AC, RMS Value, average value, form factor, peak value

AC circuits:

Reactance and impedance, series and parallel R-L-C circuits - study of frequency variation, bandwidth, Q-factor (no derivations), numerical as applicable

Electrical wiring:

Types of wires and their specifications, one way and two way control of lamp, earthing- types, necessity of earthing

Network theorems:

Qualitative discussion of Thevenin's and Max.power transfer theorem, simple problems (14Hrs)

BASIC ELECTRICITY

PRACTICAL – I

2 Hours/week
25marks

1. Practice of soldering and desoldering the circuits.
2. Use of DMM in measurement of V, I & R.
3. Study of use of CRO.
4. Series R-L-C circuit.
5. Parallel R-L-C circuit.
6. Verification of Maximum power transfer theorem.
7. Control of single lamp.
8. Control of two lamps in series and parallel.

EEB010

SEMICONDUCTOR DIODES AND DIGITAL ELECTRONICS

II SEMESTER- PAPER II

2 Hours/week

60marks

60marks

Course Outcome:

After Completion of this course students

CO1: Explain operative principle of transformer

CO2: Will understand the characteristics of Various types of diodes,

CO3: Will analyze various circuits viz. Rectifiers, Voltage Regulators

CO4: Will understand and build basic digital circuits.

UNIT –I

SEMICONDUCTOR DIODES AND THEIR APPLICATIONS:

Transformers:

Principle, turns ratio, voltage ratio and current ratio, step up and step down transformers, centre tapping transformer – problems.

Introduction to semiconductor

Semiconductors - types, n type and p type semiconductor, pn Junction Diode, forward and reverse bias characteristics.

Types of diodes:

Zener diode, tunnel diode, Schottky diode, varactor diode, IR emitter diode, photo diode and LED – explanation, symbol and applications.

Rectifiers:

Half wave and full wave rectifiers (centre tapped and Bridge), working, input and output wave forms. Filters.

Design of regulated power supply:

Fixed power supply using IC 78XX and IC 79XX.

(14Hrs)

UNIT II

Boolean Algebra:

Basic Boolean operators, basic laws and theorems of Boolean algebra, De Morgan's theorems and their verification, Boolean identities, simplification of Boolean expression.

Basic logic gates:

NOT, OR and AND gates, logic symbol and truth table. Realization of OR, AND and NOT gates using discrete components.

NAND and NOR gates - logic symbol, truth table. Working of DTL NAND and NOR. Realisation of NOT, OR and AND using only NAND and only NOR gates.

(14Hrs)

SEMICONDUCTOR DIODES AND DIGITAL ELECTRONICS

PRACTICALS –II

2 Hours/week

25marks

1. Construction of switch boards
2. Study of wiring of two way switch
3. Design a fixed regulated power supply using 78XX and 79XX.
4. Design a fixed dual regulated power supply.
5. OR and AND gates using diodes.
6. NAND and NOR gates using diodes and transistor
7. Realization of Boolean expression using basic gates
8. Experiment using LED

Model Question Paper for Career Oriented Course in
ELECTRICAL & ELECTRONIC EQUIPMENT MAINTENANCE

Time: $2\frac{1}{2}$ Hours

Max. Marks: 60

Answer the following

Part A

I. Answer any FOUR questions

12 X 4 = 48

Unit 1:

1. Question and problems (if any)
2. Question and problems (if any)
3. Question and problems (if any)

Unit 2:

4. Question and problems (if any)
5. Question and problems (if any)
6. Question and problems (if any)

Part B

II. Answer any SIX questions

2 X 6 = 12

Unit 1:

7. Question and problems (if any)
8. Question and problems (if any)
9. Question and problems (if any)
10. Question and problems (if any)

Unit 2:

11. Question and problems (if any)
12. Question and problems (if any)
13. Question and problems (if any)
14. Question and problems (if any)