Community College of Skill Development

Lesson Plan: ELECTRICAL TECHNOLOGY

Program: B.VOC ELECTRICAL **Semester: Ist** **Course Code:** ELV-101-V
Credits: 3

Course Objectives: This course aims to provide students with a foundational understanding of electrical concepts and circuits, covering both direct current (DC) and alternating current (AC) systems. Students will learn the principles and applications of basic electrical components, circuit analysis techniques, and the characteristics and maintenance of electric cells. Through theoretical knowledge and practical applications, the course will prepare students to analyse and solve electrical circuit problems.

Course Outcomes: After the successful completion of the course, students will be able to:

CO1: Demonstrate the historical development of electrical and the fundamental electrical quantities.
CO2: Demonstrate the ability to analyse various DC circuits.
CO3: Analyse the properties and functions of various types of electric cells and demonstrate proper techniques for their maintenance and care.
CO4: Design circuits involving series and parallel combinations of capacitors and inductors and calculate the energy stored in these components.

Equipment required in Classroom/ Laboratory/ Workshop

i. Whiteboard

Assessment Scheme

S.No.	Criteria	Marks
1	End Term Examination	75
2	Internal Evaluation Scheme	25
2a	Class Tests	15

2a (i)	Class Test-I	7.5
2a (ii)	Class Test-II	7.5
2(b)	Teacher Assessment (Continuous Evaluation)	10
2b (i)	Attendance	5
2b (ii)	Assignment / Presentation	5

Lecture No.	Topic Covered	Pedagogy	Date of Implementation	Course Outcomes Covered	Faculty Sign
1	History and Evolution of Electrical Engineering	Whiteboard	**4-8-25**	CO1	VINOD
2	Concept of Electricity and Electric Charge	Whiteboard	**5-8-25**	CO1	VINOD
3	Current and Voltage	Whiteboard	**5-8-25**	CO1	VINOD
4	Resistance and Ohm's Law	Whiteboard	**12-8-25**	CO1	VINOD
5	Power and Energy	Whiteboard	**12-8-25**	CO1	VINOD
6	Relationship among V, I, R, P, and E	Whiteboard	**18-8-25**	CO1	VINOD
7	DC vs. AC	Whiteboard	**19-8-25**	CO1	VINOD
8	Independent and Dependent Sources	Whiteboard	**19-8-25**	CO1	VINOD
9	Active and Passive Elements	Whiteboard	**25-8-25**	CO1	VINOD
10	Electrical Symbols and Basic Circuit Representation	Whiteboard	**26-8-25**	CO1	VINOD
11	Introduction to D.C. Circuits	Whiteboard	**26-8-25**	CO2	VINOD
12	Series Resistance Circuits	Whiteboard	**1-9-25**	CO2	VINOD
13	Parallel Resistance Circuits	Whiteboard	**2-9-25**	CO2	VINOD
14	Series-Parallel Circuits	Whiteboard	**2-9-25**	CO2	VINOD
15	Equivalent Resistance Calculation	Whiteboard	**8-9-25**	CO2	VINOD
16	Kirchhoff's Current Law (KCL)	Whiteboard	**9-9-25**	CO2	VINOD
17	Kirchhoff's Voltage Law (KVL)	Whiteboard	**9-9-25**	CO2	VINOD
18	Applications of KCL and KVL	Whiteboard	**15-9-25**	CO2	VINOD
19	Star-Delta Transformation	Whiteboard	**16-9-25**	CO2	VINOD
20	Revision and Tutorial on D.C. Circuits	Whiteboard	**16-9-25**	CO2	VINOD

21	Introduction to Electric Cells	Whiteboard	**6-10-25**	CO3	VINOD
22	Primary Cells – Types and Working	Whiteboard	**13-10-25**	CO3	VINOD
23	Secondary Cells – Types and Working	Whiteboard	**14-10-25**	CO3	VINOD
24	Battery Connections (Series/Parallel)	Whiteboard	**14-10-25**	CO3	VINOD
25	Charging and Discharging Process	Whiteboard	**27-10-25**	CO3	VINOD
26	Electrolyte Preparation	Whiteboard	**28-10-25**	CO3	VINOD
27	Maintenance of Batteries	Whiteboard	**28-10-25**	CO3	VINOD
28	Efficiency and Capacity of Battery	Whiteboard	**3-11-25**	CO3	VINOD
29	Recent Advances – Li-ion and Hybrid Batteries	Whiteboard	**4-11-25**	CO3	VINOD
30	Revision and Tutorial on Cells	Whiteboard	**4-11-25**	CO3	VINOD
31	Introduction to AC Circuits	Whiteboard	**10-11-25**	CO4	VINOD
32	Peak, Average, and RMS Values	Whiteboard	**10-11-25**	CO4	VINOD
33	Phasor Representation of AC Quantities	Whiteboard	**11-11-25**	CO4	VINOD
34	Series RLC Circuit	Whiteboard	**11-11-25**	CO4	VINOD
35	Parallel RLC Circuit	Whiteboard	**11-11-25**	CO4	VINOD
36	Real, Reactive, and Apparent Power	Whiteboard	**24-11-25**	CO4	VINOD
37	Capacitors – Definition and Types	Whiteboard	**24-11-25**	CO4	VINOD
38	Series and Parallel Connection of Capacitors	Whiteboard	**25-11-25**	CO4	VINOD
39	Inductors – Definition and Energy Storage	Whiteboard	**25-11-25**	CO4	VINOD
40	Revision and Comprehensive Test			CO4	VINOD

Text Books:

1. L. S. Bobrow, “Fundamentals of Electrical Engineering”, Oxford University Press, 2011.

2 A.K. Theraja and S.G. Tarnekar, “Electrical Technology”, S. Chand, 2000

Reference Books:

D.P. Kothari and I. J. Nagrath,“Basic Electrical Engineering”, Tata Mc Graw Hill, 2010.

E. Hughes, “Electrical and Electronics Technology”, Pearson, 2010.

. S. Bobrow, “Fundamentals of Electrical Engineering”, Oxford University Press, 2011.
A.K. Theraja and S.G. Tarnekar, “Electrical Technology”, S. Chand, 2000.