Course Code	Course Name	Credits
26PH111	ELECTRICAL APPLIANCES	04

Course Objectives

- To understand basic electrical concepts and measuring instruments
- To learn working and types of transformers and electrical appliances
- To study AC/DC systems and house wiring
- To understand electrical safety and protection devices

Learning Outcomes

Upon successful completion of this course it is intended that a student will be able to:

- Explain basic electrical quantities and measuring instruments
- Understand operation of transformers and electrical appliances
- Apply concepts of AC/DC circuits and house wiring
- Identify electrical faults and protection methods
- Understand usage of modern electrical devices like UPS and inverters

Unit 1 - (12 Hrs.)

Resistance - capacitance - inductance and its units - Electrical charge - current -potential - units and measuring meters - Ohm's law - Galvanometer, ammeter, voltmeter and multimeter. Electrical energy - power - watt - kWh - consumption of electrical power.

Unit 2 – (12 Hrs.)

Transformer - principle and working - classification of transformers - testing of transformers - Core, Shell and Berry types, auto transformer - construction and uses. Cooling of transformers - Losses in transformer.

Unit 3 - (12 Hrs.)

Electrical bulbs– Fluorescent lamps - Street Lighting - Electrical Fans - Wet Grinder - Mixer - Water Heater - Storage and Instant types, electric iron box, microwave oven -Washing Machine - Stabilizer, fridge and Air conditioner.

Unit 4 – (12 Hrs.)

Current AC and DC- Single phase and three phase connections - RMS and peak values, House wiring - Star and delta connection - overloading - earthing - short circuiting – colour code for insulation wires

Unit 5 - (12 Hrs.)

Electrical protection - Relays - Fuses - Electrical switches - Circuit breakers, ELCB -overload devices - ground fault protection - Inverter - UPS - generator and motor

Reference Books:

1. A text book in Electrical Technology - B L Theraja - S Chand & Co.
2. A text book of Electrical Technology - A K Theraja
3. Semi conductor physics and opto electronics by P K Palanichamy
4. Basic Electronics - B L Theraja - S Chand & Co.

Websites and eLearning Sources:

1. https://nptel.ac.in/courses/108105155
2. https://youtu.be/UchitHGF4n8?si=JlbWSCkLNW-tNPmN
3. https://youtu.be/-HpU_s7ASJw?si=5oblBUWWrzWL-_0Q

COs and Bloom's Taxonomy Mapping – 26PH111		
Course Outcomes	**On successful completion of this course, students will be able to**	**BTL**
CO1	Recall and describe key physics concepts and laws related to electrical circuits, including Ohm's law, principles of transformers, and electrical safety devices.	K1
CO2	Explain the principles of electrical components, such as capacitors, inductors, and transformers, and their applications in everyday devices.	K2
CO3	Apply Ohm's law and circuit principles to solve real-world problems, such as calculating current, voltage, and resistance in electrical circuits.	K3
CO4	Analyze experimental data from electrical circuits to identify patterns and correlations, such as the effects of resistance and voltage on current flow.	K4
CO5	Evaluate the efficiency and safety of various electrical devices and propose improvements based on design principles and ethical considerations in engineering.	K5, K6

BTL (Bloom's Taxonomy Level) - K1 – Remembering, K2 – Understanding, K3- Applying, K4 – Analyse, K5- Evaluate and K6 - Create

Relationship Matrix – 26PH111													
Course Outcomes	**Programme Outcomes (POs)**						**Programme Specific Outcomes (PSOs)**						**Mean Score of Cos**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**	
CO1	3	2	1	1	1	1	3	2	1	1	1	1	1.50
CO2	2	2	2	1	1	1	2	3	2	1	1	1	1.58
CO3	2	2	3	2	1	1	2	2	3	2	2	1	1.92
CO4	2	2	2	3	2	1	1	2	2	3	3	1	2.00
CO5	2	3	2	3	3	3	1	2	2	2	3	3	2.33
												Total	1.87

Mean Score: 3- High, 2- Medium/Moderate, 1-Low

FULLY HUMAN
Fully
Alive