ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

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SYLLABUS OF

ELECTRICAL APPLIANCES

AS PART OF SKILL DEVELOPMENT COURSES
UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: THREE-YEAR UG PROGRAMME

A.P. STATE COUNCIL OF HIGHER EDUCATION
B A, B Com & B Sc Programmes

Revised CBCS w.e.f. 2020-21
SKILL DEVELOPMENT COURSES

SCIENCE STREAM

Syllabus of
ELECTRICAL APPLIANCES

Total 30 hrs (02h/wk),   *02 Credits & Max Marks :50*

Learning Outcomes:
By successful completion of the course, students will be able to:
1. *Acquire necessary skills/hand on experience/ working knowledge on multimeters, galvanometers, ammeters, voltmeters, ac/dc generators, motors, transformers, single phase and three phase connections, basics of electrical wiring with electrical protection devices.*
2. *Understand the working principles of different household domestic appliances.*
3. *Check the electrical connections at house-hold but will also learn the skill to repair the electrical appliances for the general troubleshoots and wiring faults.*

SYLLABUS:

UNIT-I   **(6 hrs)**
Voltage, Current, Resistance, Capacitance, Inductance, Electrical conductors and Insulators, Ohm's law, Series and parallel combinations of resistors, Galvanometer, Ammeter, Voltmeter, Multimeter, Transformers, Electrical energy, Power, Kilowatt hour (kWh), consumption of electrical power

UNIT-II   **(10 hrs)**
Direct current and alternating current,RMS and peak values, Power factor, Single phase and three phase connections , Basics of House wiring , Star and delta connection , Electric shock, First aid for electric shock, Overloading , Earthing and its necessity, Short circuiting , Fuses , MCB , ELCB, Insulation, Inverter, UPS

UNIT-III   **(10 hrs)**
Principles of working, parts and servicing of Electric fan, Electric Iron box, Water heater; Induction heater, Microwave oven; Refrigerator, Concept of illumination, Electric bulbs, CFL, LED lights, Energy efficiency in electrical appliances, IS codes & IE codes.

Co-curricular Activities (Hands on Exercises): (04 hrs)
[Any four of the following may be taken up]

1. Studying the electrical performance and power consumption of a given number of bulbs connected in series and parallel circuits.
2. Measuring parameters in combinational DC circuits by applying Ohm's Law for different resistor values and voltage sources

3. Awareness of electrical safety tools and rescue of person in contact with live wire.
4. Checking the specific gravity of lead acid batteries in home UPS and topping-up with distilled water.
5. Identifying Phase, Neutral and Earth on power sockets.
6. Identifying primary and secondary windings and measuring primary and secondary voltages in various types of transformers.
7. Observing the working of transformer under no-load and full load conditions.
8. Observing the response of inductor and capacitor with DC and AC sources.
9. Observing the connections of elements and identify current flow and voltage drops.
10. Studying electrical circuit protection using MCBs, ELCBs
11. Assignments, Model exam etc.

Reference Books:
1. A Text book on Electrical Technology, B.L.Theraja, S.Chand& Co.,
2. A Text book on Electrical Technology, A.K.Theraja.
3. Performance and design of AC machines, M.G.Say, ELBSEdn.,
4. Handbook of Repair & Maintenance of domestic electronics appliances; BPB Publications
5. Consumer Electronics, S.P.Bali, Pearson
6. Domestic Appliances Servicing, K.P.Anwer, Scholar Institute Publications

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MODEL QUESTION PAPER

Max. Marks: 50   *Time: 1½ hrs (90 Minutes)*

SECTION- A   (4x5M=20 Marks)

Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

SECTION B   (3x10M = 30 Marks)

Answer any three questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)

1.	
2.	
3.	
4.	
5.	

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