ST. JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM

I SEMESTER **SKILL DEVELOPMENT COURSE** Time: 2Hrs/week

EA 1001 (2) **ELECTRICAL APPLIANCES** Marks: 50

(w.e.f: 2020-2021-‘20AH’) **SYLLABUS**

## 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 protectiondevices.
2. Understand the working principles of different household domesticappliances.
3. Check the electrical connections at house-hold but will also learn the skill to repair the electrical appliances for the general troubleshoots and wiringfaults.

## 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 electricalpower

## UNIT – II: (10hrs)

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: (10hrs)

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 & IEcodes.

**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 parallelcircuits.
2. Measuring parameters in combinational DC circuits by applying Ohm’s Law for different resistor values and voltagesources
3. Awareness of electrical safety tools and rescue of person in contact with livewire.
4. Checking the specific gravity of lead acid batteries in home UPS and topping-up with distilledwater.
5. Identifying Phase, Neutral and Earth on powersockets.
6. Identifying primary and secondary windings and measuring primary and secondary voltages in various types oftransformers.
7. Observing the working of transformer under no-load and full loadconditions.
8. Observing the response of inductor and capacitor with DC and ACsources.
9. Observing the connections of elements and identify current flow and voltagedrops.
10. Studying electrical circuit protection using MCBs,ELCBs
11. Assignments, Model exametc.

**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; BPBPublications
5. Consumer Electronics, S.P.Bali, Pearson
6. Domestic Appliances Servicing, K.P.Anwer, Scholar InstitutePublications

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## MODEL QUESTION PAPER

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

SECTION-A (4x5M=20Marks)

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

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SECTIONB (3x10M = 30Marks)

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

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