CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of PHYSICS

Semester 1st Skill Enhancement Course (SEC)

Course Title: Testing, Installation & Repairing Skills in Electrical and Electronic Consumer Products

Course Code: UGPHY22S101
Credits: 4 (Theory: 1, Practical: 3)
Contact Hrs: 105 (Theory: 15, Practical: 90)

Max. Marks 100
Theory External: 15; Min Marks: 06
Theory Internal (Continuous Assessment): 10 Marks, Min Marks: 04
Practical Experimental Basis= 45 Marks, Min. Marks: 18
Practical Internal (Continuous Assessment): 30 Marks, Min. Marks: 12

Objectives:
The object of the course is to provide adequate training in market-relevant skills to the primary stakeholders in order to equip them with competencies required to perform a job in special reference to electrical and electronic consumer products.

Course Outcomes: Students shall be able to
Understand basic working principles of different electrical and electronic home appliances/gadgets
Identify active and passive components with basic understanding of their specifications and their practical use in different circuitries
Understand the use of soldering and insulation techniques while making circuitries and types of PCBs in different consumer products.

THEORY:
UNIT I
Working principle of Multimeter, its types and applications, terminal / continuity testing using Multimeter, Setting up of manual AC Testing unit: active and passive components: identification, types and applications of active and passive elements.

PRACTICALS:
UNIT II
Testing of a) diodes, transistors, integrated chips etc. b) resistors, capacitors and inductors etc. Measurement of resistance using colour coding technique, AC and DC supply voltage and its measurement.

UNIT III
Electrical and Electronic devices: design, input and output analysis; specification and applications of connectors, fuses, relays and switches; different types of soldering techniques: normal and point soldering methods.

UNIT IV
Printed circuit boards (PCBs), single layer and multi-layer PCBs; soldering and de-soldering of metal wires and discrete components (diodes, transistors, integrated chips, etc.); insulation methods (Glue Gun / Hot Air Gun) in electrical and electronic systems.

Suggested Readings:

1. Installations Maintenance and Repair of Electrical Machines and Equipment's, Madhvi Gupta, S. K. Kataria & Sons Publications 2014th Edition / e-copy Kindle Edition.
2. Everything Electrical: How to use all the functions of your Multimeter, Vincent Keller, Independently Published 2018 / e-copy Kindle Edition.
3. Electrical Wiring Industry, Stephen L. Herman, CENGAGE LEARNING India / e-copy Kindle Edition.
4. Residential Construction Academy House Wiring 4Ed (Hb 2016), FLETCHER G Publisher: CENGAG E LEARNING INDIA / e-copy Kindle Edition.