CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of ELECTRONICS

Semester 1st to 3rd (Multi-Disciplinary Course)

Course Title: Working & Applications of Electronic Devices

Course Code: UGELT22D101 **Max. Marks: 75**
Credits: 3 **External: 55; Min Marks: 22**
Contact Hrs: 45 **Internal (Continuous Assessment): 20 Marks, Min Marks: 08**

Objectives:

- Knowledge of identifying basic passive electronic component and their working.
- Knowledge of identifying basic active electronic component and their working.
- Knowledge of identifying basic power devices and photo devices.

Learning Outcomes:

By the end of this course, students will be able to:

- Identify different electronic components from their schematic, pictorial and real-life representation.
- Identify sub-circuits from their schematic representation.
- Classify components into categories.
- Predict the value of components by using basic laws of electricity.
- Describe the behavior of individual components.
- Extract information from a given schematic diagram.
- Discuss the function of a component in relation to its use in a sub circuit.
- Describe the procedures when using testing equipment in particular scenarios.
- Students will demonstrate an ability to identify and model the problems of the field of Electronics and Telecommunication and solve it.
- Understand the working diode and transistor.
- Study basic circuits using diodes and transistors.
- Analyze the Circuits in time and frequency domain.

Unit 1 **15 Hrs**

Introduction to basic passive components and their identification: Resistors, inductors, capacitances, applications of passive components in electronic circuit design. Transformer and its applications, types of transformers, Power supply design including regulation and rectification.

Unit 2 **15 Hrs**

Basic electronic components: diode, types of diode and their applications, Bipolar Junction Transistor (BJT) and its applications, Unipolar Junction Transistor (UJT), Field Effect transistors: FET, MOSFET and their applications. Identification of related special purpose integrated circuits and their applications.

Unit 3 **15 Hrs**

Introduction and application of Special purpose devices: Light Emitting Diode, Photovoltaic cell, Light Dependent Resistor. Introduction to power semiconductor devices and their applications: Silicon controlled rectifier, DIAC and TRIAC.

Recommended Books:

- Practical electronics handbook, Ian R. Sinclair and John Dunton, 6th Edition, Elsevier.
- Electronic circuits: fundamentals and applications, Mike Tooley, 5th Edition, Taylor & Francis.
- Basic electronics, D. Chattopadhyay and P. C. Rakshit, New age international (P) limited.
- Electric Circuits, Theodore F. Bogart, 2nd Edition, McGraw Hill Education.