CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of ELECTRONICS

Semester 1st Skill Enhancement Course (SEC)

Course Title: Electronic Product Design-I

Course Code: UGELT22S101 **Max. Marks 100**
Credits: 4 (Theory: 1, Practical: 3) **Theory External: 15; Min Marks: 06**
Contact Hrs: 105 (Theory: 15, Practical: 90) **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:

- Enabling students to specify, design, develop and test electronic product.
- Knowledge of manufacture and maintaining the state of art electronic products.

Learning Outcomes:

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

- Identify approaches to generate new product ideas.
- Identify methods to evaluate new product ideas.
- Explain the process to create and commercialize new products.
- Prioritize new product ideas based on business strategic alignment, return on investments and ability to execute.
- Learn 3d modeling, engineering basics, mechanism and material innovation, usability testing, and creating working prototypes.
- Understand about lifecycle design, and systems thinking.
- Have a standard specification of knowledge, skills and capabilities.
- Know about the process of verification and validation.
- Identify problems and areas of improvement early and make the necessary changes prior to development and build a product that meets users' needs and expectations.
- Understand, communicate, test and improve, and advocate.

Unit 1:

Product development process

Requirement and specifications of an electronic product, planning process, product development, product architecture and product management.

Unit 2:

Industrial design

Aesthetic and Ergonomic aspect in product manufacture, cost consideration, Thermal, EMI and EMC aspects.

Unit 3:

Quality and testing

DFMA, DFT, prototyping, patents and IRP, product development, economics and quality consideration, QFD, ISO 9000, reliability, DFMEA standards, certification, regulatory compliance testing and documentation.

Unit 4:

Product Prototyping

Introduction to Prototyping, Processes of Prototyping, Prototyping Design Tools, Prototyping of Physical Products, Prototyping of Electronic Products.