NIRMA UNIVERSITY
Institute of Technology
B. Tech. in Electrical Engineering
Semester – VI

L	T	P	C
3	0	0	3

Course Code	**2EEDE08**
Course Title	**Electrical Distribution and Automation**

Course Outcomes (COs):

At the end of the course, students will be able to –

1. analyse electrical distribution system installation
2. compute and analyse studies related to electrical distribution system
3. examine the performance and maintenance aspects of electrical installations
4. comprehend the distribution automation systems and the control techniques involved

Syllabus: **Teaching Hours: 45**

Unit 1: Distribution System : Basics and Installation **12**

Basic concepts, necessity, design criteria for different electrical equipment, general rules of electrical installation design, connection to the MV utility and LV utility distribution network, LV distribution, protection against electric shocks and electric fires, sizing and protection of conductors, LV switchgear: functions and selection, overvoltage protection, energy efficiency in electrical distribution, power factor correction, characteristics of particular sources and loads, residential and other special locations

Unit 2: Distribution System Analysis **16**

Modelling of distribution system components, computation of transformer and feeder loading, voltage drop and power loss calculations, distribution of loads and various geometric configuration, distribution load flow analysis, short circuit analysis

Unit 3: Monitoring of Electrical Installations **08**

Offline and online methods, fault diagnosis and diagnostic testing, preventive and predictive maintenance, special tests and aspects of data analysis

Unit 4: Distribution System Automation **09**

Introduction to distribution automation, control system interfaces, control and data requirements, centralized (vs) decentralized control, distribution automation system

Self-Study:

The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents

Suggested Readings:

1. James A. Momoh., Electric Power Distribution, Automation, Protection and Control, CRC Press.
2. Gonen., Electric Power Distribution System Engineering, BSP Books Pvt. Ltd.
3. Anthony J. Pansini, Electrical Distribution Engineering, CRC Press
4. William. Kersting, Distribution Modelling and Analysis, CRC Press
5. James J. Burke, Power Distribution Engineering: Fundamentals and Applications, CRC Press
6. Relevant recent literature, journal articles, standards and codes

L = Lecture, T = Tutorial, P = Practical, C = Credit

w.e.f academic year 2020-21 and onwards