



STANLEY

COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN
(Approved by AICTE , New Delhi | Affiliated to Osmania University ,Hyderabad)
Address : Chapel Road, Abids ,Hyderabad

EE 461

ELECTRICAL POWER DISTRIBUTION ENGINEERING

(Elective-II)

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	75 Marks
Sessional	25 Marks

UNIT-I

Introduction, load characteristics, Diversified demand, Non-coincident demand, Coincidence factor, Contribution factor problems, Rate structure, Customer billing, Application of Distribution transformers, Types of Distribution transformers, single-phase transformer connections, Three-phase transformer connections, Auto-transformer, Booster transformer, phasor diagrams.

UNIT-II

Design of sub-transmission lines and distribution substations, Sub-station bus schemes, Rating of distribution substation, Service area with multiple feeders, Sub-station application curves, Percent voltage drop calculations.

UNIT-III

Design considerations of primary systems, Radial type, Loop type primary feeder, primary feeder loading, Uniformly distributed load application to a long line, Design consideration of secondary systems, secondary Banking, Secondary networks, Network transformers, General Total Annual cost(TAC), equation with and without constraints, Unbalanced loads and voltages.

UNIT-IV

Voltage drop and power loss calculations, 3-phase, Non 3-phase primary lines, Single phase two-wire laterals with ungrounded neutral, Single phase two wire ungrounded laterals. Application of capacitors to distribution systems, Effect of series and shunt capacitors, power factor correction, Economic justification for capacitors, Best capacitor location

UNIT-V

Distributed Automation: Project planning, Communication, SCADA, Consumer Information Service (CIS), Automatic Meter Reading (AMR)

Suggested Reading:

1. Turan Gonen, "Electric Power Distribution Engineering", McGraw Hill Book Co., International Student Edition, 1986.
2. A.S.Pabla, "Electric Power Distribution", Tata McGraw Hill Publishing Ltd., 1997.
3. Kamalesh Das, "Electrical power Systems for Industrial Plants", Jaico Publishing House, 2007.