



**VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**



LESSON PLAN

SUBJECT CODE & NAME : U15EE253/Transmission & Distribution Of Electrical Energy
YEAR / SEMESTER : III EEE A&B / V

| Session No. | Topics to be Covered | Duration in minutes | Teaching Aid | Ref.Book |
|---|---|---------------------|--------------|------------|
| UNIT-I STRUCTURE OF POWER SYSTEM | | | | |
| 1 | Structure of electric power system | 45 | BB | R-01, R-02 |
| 2 | Generation | 45 | BB | R-01, R-02 |
| 3 | Transmission | 45 | BB | R-01, R-02 |
| 4 | Distribution | 45 | BB | R-01, R-02 |
| 5 | Transmission line parameters | 45 | BB | R-01, R-02 |
| 6 | Resistance calculations | 45 | BB | R-01, R-02 |
| 7 | Inductance calculations | 45 | BB | R-01, R-02 |
| 8 | Capacitance calculations | 45 | BB | R-02 |
| 9 | Single phase and Three phase lines | 45 | BB | R-02 |
| 10 | Double circuit lines | 45 | BB | R-02 |
| 11 | Effect of earth on transmission line capacitance | 45 | BB | R-02 |
| 12 | Revision | 45 | BB | |
| UNIT-II TRANSMISSION LINE PERFORMANCE AND LOSSES | | | | |
| 1 | Performance of transmission lines | | BB | R-03 |
| 2 | Regulation and efficiency | 45 | BB | R-03 |
| 3 | Tuned power lines | 45 | BB | R-03 |
| 4 | Tutorial I | 45 | BB | R-03 |
| 5 | Power flow through a transmission line | 45 | BB | R-03 |
| 6 | Power circle diagrams | 45 | BB | R-03 |
| 7 | Power circle diagrams-problems | 45 | BB | R-03 |
| 8 | Introduction to Transmission loss | 45 | BB | R-03 |
| 9 | Formation of corona | 45 | BB | R-03 |
| 10 | Critical voltages | 45 | BB | R-03 |
| 11 | Effect on line performance | 45 | BB | R-03 |
| 12 | Tutorial II | 45 | BB | R-03 |
| UNIT – III INSULTORS | | | | |
| 1 | Mechanical design of overhead lines | 45 | BB | R-02 |
| 2 | Mechanical design of overhead lines-cotn.. | 45 | BB | R-02 |
| 3 | Line supports | 45 | BB | R-02 |
| 4 | Insulators, Voltage distribution in suspension insulators | 45 | BB | R-02 |
| 5 | Testing of insulators | 45 | BB | R-02 |
| 6 | Testing of insulators-cotn.. | 45 | BB | R-02 |

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|--|---|----|----|------------|
| 7 | String efficiency | 45 | BB | R-02 |
| 8 | Stress and Sag calculation | 45 | BB | R-02 |
| 9 | Tutorial I | 45 | BB | R-02 |
| 10 | Effects of wind and ice loading | 45 | BB | R-02 |
| 11 | Tutorial II | 45 | BB | R-02 |
| 12 | Revision | 45 | BB | |
| UNIT – IV CABLES | | | | |
| 1 | Underground cables | 45 | BB | R-02 |
| 2 | Underground cables-cotn.. | 45 | BB | R-02 |
| 3 | Comparison with overhead line | 45 | BB | R-02 |
| 4 | Types of cables | 45 | BB | R-02 |
| 5 | Types of cables-cotn.. | 45 | BB | R-02 |
| 6 | Insulation resistance | 45 | BB | R-02 |
| 7 | Potential gradient capacitance of single core | 45 | BB | R-02 |
| 8 | Potential gradient capacitance of single core-cotn.. | 45 | BB | R-02 |
| 9 | Tutorial I | 45 | BB | R-02 |
| 10 | Potential gradient capacitance of three core cables | 45 | BB | R-02 |
| 11 | Tutorial II | 45 | BB | R-02 |
| 12 | Revision | 45 | BB | |
| UNIT – V DISTRIBUTION SYSTEMS | | | | |
| 1 | Distribution systems | 45 | BB | R-02, R-03 |
| 2 | General aspects | 45 | BB | R-02, R-03 |
| 3 | General aspects -cotn.. | 45 | BB | R-02, R-03 |
| 4 | Kelvin's Law | 45 | BB | R-02, R-03 |
| 5 | A.C distribution | 45 | BB | R-02, R-03 |
| 6 | Single phase Techniques of voltage control | 45 | BB | R-02, R-03 |
| 7 | Three phase Techniques of voltage control | 45 | BB | R-02, R-03 |
| 8 | Tutorial I | 45 | BB | R-02, R-03 |
| 9 | Power factor improvement | 45 | BB | R-02, R-03 |
| 10 | Introduction to Distribution loss | 45 | BB | R-02, R-03 |
| 11 | Recent trends in transmission and distribution systems | 45 | BB | R-02, R-03 |
| 12 | Revision | 45 | BB | R-02, R-03 |

REFERENCES:

1. D. P. Kothari and IJ Nagrath, 'Power System Engineering', Tata Mcgraw – Hill, 2nd Edition, 2008.
2. Gupta B.R., 'Power system Analysis & Design', S. Chand and Company Ltd., 5th Edition, 2001.
3. Singh S N, 'Electric Power Generation Transmission and distribution', PHI India, 2nd Edition, 2008