DEPATRMENT OF ELECTRICAL ENGINEERING
College of Technology & Engineering
Maharana Pratap University of Agriculture & Technology, Udaipur

Weekly Lecture Schedule

Course Title : Electrical Measurements & Instruments (EE 212)

Class : Second Year B.E. (Electrical Engineering)

Venue : Room No: 211; Electrical Engineering Department

Lecturer : Jai Kumar Maherchandani

Week	No. of Classes	Contents to be Covered
First Week	3	Scope, importance and Introduction of Subject **Measurement of Resistances(Unit –II)** 1. Classification of Resistances 2. Methods of Measurements of Medium Resistances (i) Ammeter Voltmeter Method (ii) Substitution Method (iii) Wheatstone Bridge 3. Problems associated in measurement of Low Resistances 4. Construction of Low Resistances (Four Terminal Type) 5. Method of measurement of Low Resistances (i) Kelvin's Double Bridge 6. Problems Associated in measurement of High Resistances 7. Construction of High Resistances (Three Terminal Type) 8. Methods of measurement of High Resistances (i) Price Guard Wire Method (ii) Loss of Charge Method
Second Week	3	**A.C. Bridges (Unit-III)** 1. Introduction (Four-arm AC Bridges) 2. Sources and Detectors 3. General Equation of Bridge Balance 4. Bridges used for measurement of inductances 5. Bridges used for measurement of capacitance 6. Quality and Dissipation Factor
Third Week	3	7. Measurement of Frequency 8. Sources of Errors in Bridge Circuits 9. Screening & Wagner Earthing Device 10. Numerical Problems on A.c. Bridges 11. Phasor Diagram
Fourth Week	3	**Potentiometers (Unit-II)** 1. Basic Potentiometer Circuit

		2. Working of D.C. Potentiometer 3. Standardization and Applications of D.C. Potentiometer 4. Type of A.C. Potentiometer 5. Working of Polar Type A.C. Potentiometer 6. Working of Co-ordinate Type A.C. Potentiometer 7. Numerical Problems on A.C. Potentiometer
Fifth Week	3	**Instrument Transformers (Unit-III)** 1. Introduction 2. Use of Instrument Transformers 3. Important Definitions 4. Theory of Current Transformer (i) Ratio Error (ii) Phase Angle Error 5. Causes of Errors 6. Methods of Reduction of Errors
Sixth Week	3	7. Theory of Potential Transformer (i) Ratio Error (ii) Phase Angle Error 8. Testing of Current Transformer 9. Testing of Potential Transformer **Magnetic Measurements (Unit-IV)** 1. Introduction 2. Measurement of Flux Density 3. Determination of B-H Curve 4. Determination of Hysteresis Loop 5. Separation of Iron Losses
Seventh Week	3	6. Measurements of Iron Losses 7. Epstein Square 8. Lioyd-Fisher Square **Electronic Instruments (Unit-IV)** 1. Introduction 2. Transistor Voltmeter (TVM) 3. FET input TVM 4. Balanced bridge TVM 5. Introduction of Digital Voltmeter
Eighth Week	3	1. Ramp type DVM 2. Integrating DVM 3. Measurement of time 4. Measurement of phase 5. Measurement of frequency 6. Introduction of Wave analyzers 6. Resonant Wave analyzer 7. Heterodyne Wave analyzer

Ninth Week	3	**Galvanometers** 1. D'Arsonaval Galvanometer 2. Dynamic Equation of Motion and its solution 3. Relative damping
Tenth Week	3	4. Ballistic Galvanometer 5. Logarithmic Decrement 6. Vibration Galvanometer **Measuring Instruments** 1. Introduction of Analog Instruments 2. Classification of Analog Instruments 3. Moving Iron Instruments a. Constructional Detail b. Torque Equation c. Scale Shape d. Errors e. Uses
Eleventh Week	3	4. Electrodynamometer Wattmeter a. Constructional Detail b. Torque Equation c. Scale Shape d. Errors e. Low pf Wattmeter
Twelfth Week	3	5. Induction Type Energy Meter a. Construction b. Theory c. Creep d. Compensation e. Errors
Thirteenth Week	3	**Revision and Remedial Classes**
Fourteenth Week	3	**Revision and Remedial Classes**
Fifteenth Week	3	**University/GATE/IES old papers Practice**
Total	**45**	