

MAHAMAYA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCE, NUAPADA

BRANCH: ELECTRICAL ENGINEERING

LESSON PLAN

SEMESTER: 4TH

SUBJECT: ELECTRICAL MEASUREMENT & INSTRUMENTATION

ASSIGNED FACULTY: ER. JHASKETAN SAHU

SL.NO.	CHAPTER	SUBJECT	PERIOD	DATE	SIGN	REMARKS
1		MEASURING INSTRUMENTS	7			
	1.1	Define Accuracy, precision, Errors, Resolutions Sensitivity and tolerance.	2			
	1.2	Classification of measuring instruments	2			
	1.3	Explain Deflecting, controlling and damping arrangements in indicating type of instruments.	2			
	1.4	Calibration of instruments.	1			
2		ANALOG AMMETERS AND VOLTMETERS	10			
	2.1	Moving iron type instruments.	2			
	2.2	Permanent Magnet Moving coil type instruments.	2			
	2.3	Dynamometer type instruments	2			
	2.4	Rectifier type instruments	1			
	2.5	Induction type instruments	1			
	2.6	Extend the range of instruments by use of shunts and Multipliers	1			
	2.7	Solve Numerical	1			
3		WATTMETERS AND MEASUREMENT OF POWER	7			
	3.1	Describe Construction, principle of working of Dynamometer type wattmeter.	2			
	3.2	What are the Errors in Dynamometer type wattmeter and methods of their correction	2			
	3.3	Discuss L P F Electro – Dynamometer type wattmeter	1			
	3.4	Discuss Induction type watt meters	1			
	3.5	Measurement of Power in Single Phase and Three Phase Circuit	1			
4		ENERGY METERS AND MEASUREMENT OF ENERGY	6			
	4.1	Introduction	2			
	4.2	Single Phase and poly phase Induction type Energy meters – construction, working principle and their compensation and adjustments.	2			
	4.3	Testing of Energy Meters	2			
5		MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR	5			
	5.1	Tachometers, types and working principles	1			
	5.2	Principle of operation and construction of Mechanical and Electrical resonance Type frequency meters.	1			

		Principle of operation and working of Dynamometer type single phase and three phase power factor meters.	1			
	5.3					
	5.4	Synchrosopes – objectives and working	1			
	5.5	Phase Sequence Indicators and its working	1			
6		INSTRUMENT TRANSFORMER	8			
	6.1	Explain Current Transformer and Potential Transformer	2			
	6.2	Explain Ratio error, Phase Angle error and Burden	2			
	6.3	Clamp – On Ammeters	2			
	6.4	State Use of CT and PT	2			
7		MEASUREMENT OF RESISTANCE	6			
	7.1	Classification of resistance	1			
	7.2	Explain Measurement of low resistance by voltage drop and potentiometer method & its use to Measure resistance.	1			
	7.3	Explain Measurement of medium resistance by wheat Stone bridge method and substitution Method	1			
	7.4	Explain Measurement of high resistance by loss of charge method.	1			
	7.5	Explain construction & principle of operations (meggers) insulation resistance & Earth resistance megger.	1			
	7.6	Explain construction and principles of Multimeter	1			
8		MEASUREMENT OF INDUCTANCE AND CAPACITANCE	6			
		Explain measurement of inductance by :				
	8.1	Maxewell's Bridge method	2			
	8.2	Owen Bridge method	1			
		Explain measurement of capacitance by: :				
	8.3	De Sauty Bridge method	1			
	8.4	Schering Bridge method	1			
	8.5	LCR Bridge method	1			
9		DIGITAL INSTRUMENTS	5			
	9.1	Digital Voltmeters (DVM)	2			
	9.2	Characteristic of Digital Meters	2			
	9.3	Digital Multimeters	1			