Shree Ramkrishna Institute of Science & Technology

Lesson Plan

Name: Srinjoy Panja, Debaroti Mondal
Designation: Lecturer, Lecturer,

Dept : Electrical Engg Academic Year :2014-2015

Target Student: 3rd Sem EE

Subject: Electrical Measuring Instrument

SL No	Subject	Period
	Name of the Topic :Fundamentals of Measurement	Total=6
1	Purpose of measurement and significance of measurement.	1
2	Definition & brief explanations of: Range, sensitivity, true & indicated value, Errors (including limiting errors), Resolutions, Accuracy, Precision and instrument efficiency.	1
3	Classification of instruments: Absolute and secondary instruments, Analog (electromechanical and electronic) and digital instruments, secondary Instruments - Indicating, integrating & recording instruments.	2
4	Basic Requirements for measurements: Deflection torque and methods of production. Controlling torque and controlling system (Spring Control & Gravity control system)	1
5	Damping torque & different methods of damping Balancing of moving parts. [No mathematical deductions – only the final expression (if any) to be mentioned]	1
	Name of the Topic: **Measurement of Current and Voltage**	Total=7
6	Construction and principle of PMMC, MI & Dynamometer type Instrument.	2
7	Production of torque :methods.	1
8	Principles of Voltage and Current measurement.	1
9	Different Methods of range extension of Ammeter and Voltmeter & related problems.	2
10	Calibration of Ammeter and Voltmeter.	1

	Name of the Topic: **Measurement of Electrical Power**	Total=9
11	Concept of power in A.C. Circuit	1
12	Principle and Construction of dynamometer type wattmeter.	1
13	Errors and their compensation.	1
14	Multiplying factor of wattmeter.	1
15	Measurements of power in 3 phase circuit for balanced and unbalanced load by one wattmeter method, two wattmeter method - problems	2
16	Effect of power factor variation on wattmeter readings in two wattmeter method -problems	1
17	Measurement of reactive power in three phase balance load by one wattmeter method and two wattmeter method.	1
18	Digital Wattmeter : Construction, Principle of Operation	1
	Name of the Topic : **Measurement of Circuit Parameters**	Total=10
19	Classification of Resistance, Low, Medium and High.	1
20	Methods of Measurements of Low, Medium and High. Resistance by Kelvin Double bridge, Wheatstone bridge and Megger respectively--problems	3
21	Measurement of Earth resistance- Earth tester (Analog & Digital)	2
22	Measurement of Inductance:---Maxwell's inductance bridge -- problems	2
23	Measurement of capacitance: Schering Bridge - Problems	2
	Name of the Topic : Constructional features and working principles of other Instruments/Meters	Total=9
24	Single phase and three phase Power Factor Meter(only dynamometer type).	1
25	Digital Multi meter: Working principle with Block diagram.	1
26	Synchronoscope. Clip-on-ammeter.	1
27	Instrument Transformers: Introduction and utility of using Instrument transformers (in the light of measurement and protection purposes)	2

28	CT CT used in HV installations- Multicore-secondary C.T (ii) Reduction of errors (Mention the various methods briefly). Accuracy class, Burden on CT, Specifications, Precautions in the use of CT	2
29	PT or VT Working principle, Errors (concept only), Accuracy class, Burdens, Specifications, Precautions.	2

Total= 41 class

Signature of The faculty & date

Signature of The Respective HOD & date Reviewed by principal & date