

**ANDHRA LOYOLA INSTITUTE OF ENGINEERING AND TECHNOLOGY  
VIJAYAWADA-520008**

**Department of Electrical & Electronics Engineering  
Academic Year 2018-19**

**Lesson Plan**

Name of the faculty : **G.Gantaiahswamy**  
 Course Name : **ELECTRICAL MEASUREMENTS** Course Code : **RT31022**  
 Program : **B.Tech**  
 Branch : **EEE** Semester : **Odd**

Sl No.	Topics to be covered	Ref with page No.	Teaching Method	No of hours required
<b>Unit-1- Measuring Instruments</b>				
1	Classification of measuring instruments	T1(223-27)	Chalk & Talk	1
2	Deflecting, control and damping torques	T1(232-36)	Chalk & Talk	1
3	Ammeters and Voltmeters	T1(238-39)	Chalk & Talk	1
4	PMMC, moving iron type	T1(241-42)	Chalk & Talk	1
5	dynamometer and electrostatic instruments	T1(242-42)	Chalk & Talk	1
6	Problem of self starting Expression for the deflecting torque and control torque	T1(233-38)	Chalk & Talk	1
7	Errors and compensations, Extension of range using shunts and series resistance	T1(229-31)	Chalk & Talk	1
8	CT and PT: Ratio and phase angle errors	T1(242-43)	Chalk & Talk	2
9	Design considerations. Electrical and Electronics Engineering	T1(244-45)	Chalk & Talk	1
Total no of hours required				10
<b>Unit-2- Measurement of Power and Energy</b>				
10	Single phase and three phase dynamometer wattmeter	T2(42-45)	Chalk & Talk	1
11	LPF and UPF – Expression for deflecting and control torques	T2(45-47)	Chalk & Talk	1
12	Extension of range of wattmeter using instrument transformers	T1(49-50)	Chalk & Talk	1
13	Measurement of active and reactive powers in balanced and unbalanced systems	T2(51-52)	Chalk & Talk	2
14	Type of P.F. Meters – Single phase and three phase dynamometer and moving iron type	T1(53-54)	Chalk & Talk	1
15	Single phase induction type energy meter – Driving and braking. torques	T1(55-56)	Chalk & Talk	1
16	errors and compensations, Testing by phantom loading using R.S.S. meter	T2(58-59)	Chalk & Talk	2
17	Three phase energy meter – Tri vector meter – Maximum demand meters	T1(61-64)	Chalk & Talk	2

18	Electrical resonance type frequency meter and Weston type synchroscope.	T1(64-65)	Chalk & Talk	1
Total no of hours required				12
<b>Unit-3- Potentiometers</b>				
19	Principle and operation of D.C. Crompton's potentiometer	T2(72-73)	Chalk & Talk	1
20	Standardization, – Applications	T2(74-75)	Chalk & Talk	1
21	Measurement of unknown resistance – Current – Voltage	T2(76-78)	Chalk & Talk	2
22	AC Potentiometers: polar and coordinate types	T2(79-80)	Chalk & Talk	1
23	Standardization – Applications	T2(82-83)	Chalk & Talk	2
Total no of hours required				13
<b>Unit-4- Measurements of Parameters</b>				
24	Method of measuring low, medium and high resistance	T1(277)	Chalk & Talk	1
25	Sensitivity of Wheat stone's bridge, Carey Foster's bridge	T1(277-78)	Chalk & Talk	1
26	Kelvin's double bridge for measuring low resistance	T1(278-279)	Chalk & Talk	1
27	Loss of charge method for measurement of high resistance	T1(279-81)	Chalk & Talk	2
28	Megger– Measurement of earth resistance,	T(282-82)	Chalk & Talk	2
29	Measurement of inductance – Quality Factor, Maxwell's bridge–Hay's bridge – Anderson's bridge, Measurement of capacitance and loss angle	T1(285-86)	Chalk & Talk	2
30	Desautybridge – Schering Bridge–Wagner's earthing device–Wien's bridge	T1(287)	Chalk & Talk	2
Total no of hours required				13
<b>Unit-5- Magnetic Measurements</b>				
31	Ballistic galvanometer – Equation of motion – Flux meter	T3(28-29)	Chalk & Talk	4
32	Constructional details–Determination of B–H Loop methods of reversals six point method	T2(29)	Chalk & Talk	4
33	AC testing – Iron loss of bar samples– Core loss measurements by bridges and potentiometers.	T2(32)	Chalk & Talk	2
Total no of hours required				10
<b>Unit-6- Digital Meters</b>				
34	Digital Voltmeter–Successive approximation	T1(357-58)	Chalk & Talk	2

35	Measurement of phase difference – Frequency – Hysteresis loop using lissajious patterns in CRO	T2(585-90)	Chalk & Talk	1
36	Electrical and Electronics Engineering Ramp and integrating type	T2(1523-25 )	Chalk & Talk	1
37	Digital frequency meter–Digital multimeter–Digital Tachometer	T2(1490-99 )	Chalk & Talk	2
Total no of hours required				07

**TOTAL NUMBER OF HOURS REQUIRED =65**

**Text books:**

- T1. Electrical & Electronic Measurement & Instruments by A.K.Sawhney Dhanpat Rai & Co
- T2. Electrical and Electronic Measurements and instrumentation by R.K.Rajput, S.Chand
- T3. Electrical and Electronic Measurements –by G.K.Banerjee

Faculty

Subject Coordinator

HOD