Lesson plan (for Even-semester as per revised curriculum and study scheme)

Name of Faculty	Prankit Gupta
Discipline	Electrical Engineering
Semester	2nd (Even- semester)
Subject	ELECTRICAL NETWORKS
Work load (Theory	(03+04)

Week	Day	Topics	No.	Practical
1st	1	Mesh analysis	1	Use voltmeter, ammeter to determine current through the given branch of a electric network by applying mesh analysis.
	2	Nodal analysis using voltage and current sources		
	3	Superposition theorem		
2nd	1	Thevenin theorem	2	Use voltmeter, ammeter to determine current through the given branch of a electric network by applying node analysis.
	2	Norton theorem		
	3	Maximum power transfer theorem		
3rd	1	Active and passive network, Linear and Non Linear network	3	Verification of Superposition Theorem.
	2	Problem solution based on above theorems		
	3	Generation of alternating Voltage and current.		
4th	1	Difference between ac and dc, Equation of alternating quantity.	4	Verification of Thevenin's theorem.
	2	AC Terminology: waveform, cycle, frequency, time period, amplitude		
	3	Instantaneous value, alternation, and their important relations (time period and frequency,		
5th	1	Angular velocity and frequency etc.)	5	Verification of Norton's Theorems.
	2	Values of alternating voltage and current: Instantaneous value, peak value average value,		
	3	R.M.S. value, form factor and peak factor		
6th	1	Vector representation of alternating quantities	6	Verification of Maximum Power transfer Theorem.
	2	Concept of phase, phase difference and phasors		
	3	Representation of electrical quantities through phasors		
7th	1	Addition of two alternating quantities: parallelogram method,	7	Observe the wave shape of an alternating supply on CRO and calculate average, RMS value, frequency and time period.
	2	A.C circuit containing pure Resistance, Inductance, Capacitance with the concept of Component methodpower consumed,		
	3	Phase Angle, inductive and capacitive reactance etc.		
8th	1	AC series circuit: R-L, R-C, R-L-C along with the concept of phasor diagram,	8	Measure input current, power, power factor of R-L series circuit and draw the power triangle.
	2	Phase angle , Impedance, impedance triangle, power, power triangle etc.		
	3	Concept of True power, apparent power and reactive power,		
	1	Significance, disadvantages of low power factor, cause of low power factor,		Measure input current, power, power factor of R-C series circuit and draw the power

9th	2	Power factor and its improvement of power factor.	9	triangle.
	3	Active and reactive components of current		
10th	1	Resonance in RLC series circuit, Quality (Q) factor	10	Measure input current, power, power factor of R-L-C series circuit and draw the power triangle.
	2	Concept of AC parallel circuit		
	3	Methods of solving parallel AC circuit: vector method,		
11th	1	Admittance method, symbolic or J-method	11	Use variable frequency supply to create resonance in given series R-L-C circuit or by using variable inductor or variable capacitor.
	2	Parallel Resonance, Q-factor		
	3	Comparison of series and parallel resonance.		
12th	1	Introduction to transient and Harmonics in A.C. circuits	12	To determine current, p.f., active, reactive and apparent power in R-C parallel A.C. circuit.
	2	5.1 Principle of generation of 3 –ø alternating emf.		
	3	Advantages of Polyphase circuit over single phase circuit, Phase Sequence.		
13th	1	Types of three phase connections-Star connection and delta connection.	13	To determine current, p.f., active, reactive and apparent power for given R-L-C parallel circuit with series connection of resistor and inductor in parallel with capacitor.
	2	Concept of balanced and unbalanced load.		
	3	Relation between phase and line quantities of star and delta connection.		
14th	1	Poly-Phase Systems ,Advantages of 3Ø over 1- Ø	14	Use variable frequency supply create resonance in given parallel R-L-C circuit or by using variable inductor or capacitor.
	2	System Star & delta connections with phase and line voltage and current relations.		
	3	3-phase balanced and unbalanced circuits		
15th	1	Power in 3-phase circuits		
	2	Revision/Review/Test of old HSBTE Papers		
	3	Revision/Review/Test of old HSBTE Papers		