

<b>DISCIPLINE:</b> Electrical & Electronics Engg.	<b>SEMESTER: 3<sup>rd</sup></b> Semester	<b>NAME OF THE TEACHING FACULTY:</b> Majji.Lalitha PTGF IN EEE -II in ECN
<b>SUBJECT:</b> ELECTRIC CIRCUITS & NETWORKS	<b>NO OF DAYS/PER WEEK CLASSES ALLOTTED:3</b>	<b>SEMESTER FROM DATE: 14.07.2025 TO DATE: 15.11.2025</b> <b>NO OF WEEKS:15</b>

Week	Class Day	Topics
		<b>1. Network Theorems in DC Circuits</b>
<b>1<sup>st</sup></b>	1st	Node & Mesh Analysis of Electrical Circuits with simple problem.
	2nd	Thevenin's Theorem, Norton's Theorem, Simple numerical problems.
	3rd	Maximum Power transfer Theorem ,Superposition Theorem, Simple numerical problems.
<b>2<sup>nd</sup></b>	1 <sup>ST</sup>	Millman Theorem, Reciprocity Theorem- Statement, Explanation & applications, Simple numerical problems.
	2 <sup>ND</sup>	<b>ASSIGNMENT</b>
		<b>2. A. C. Fundamentals &amp; Sinusoidal Steady State Analysis:</b>
<b>3rd</b>	3rd	Definitions & explanation of Active & Passive elements.
	1st	Concept of complex impedance, Rectangular & polar form.
	2nd	Simple numerical problems above.
	3rd	<b>CLASS TEST</b>
<b>4th</b>	1st	Idea on Apparent, real, and active power.
	2nd	Sinusoidal response of a series R-L, R-C, R-L-C circuit
	3rd	Sinusoidal response of a parallel R-L, R-C, R-L-C circuit
<b>5th</b>	1st	<b>ASSIGNMENT</b>
		<b>3.Resonance:</b>
	2nd	Introduction to resonance circuits & Resonance tuned circuit, Series &Parallel resonance.
<b>6th</b>	3rd	Expression for series resonance, Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor.
	1st	Power Factor of Resonance, Bandwidth in term of Q. Voltage Magnification, Acceptor Circuit.
	2nd	<b>CLASS TEST</b>
<b>7th</b>	3rd	Parallel Resonance Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor.
	1st	Power Factor of Resonance, Bandwidth of resonant circuit / Tank circuit Current, magnification, Rejector Circuit.
	2nd	Comparisons of Series & Parallel resonance & applications. Simple problems on above Circuits
	3rd	<b>ASSIGNMENT</b>
		<b>4. Passive Filter:</b>
<b>8th</b>	1st	Idea of Passive & Active Filter, Their relative advantages and disadvantages.
	2nd	Idea of Fourier Series & frequency spectrum. ( concept only)

	3rd	Construction, Principle of operation, Characteristics of Low pass, High pass, Band pass & Band stop filter.
9th	1st	Design of Low pass filter & High pass filter.
	2nd	Composite filter (concept only).
	3rd	<b>CLASS TEST</b>
10th	1st	5 Numerical problems on the above
	2nd	<b>ASSIGNMENT</b>
		<b>5.Laplace transform and its applications</b>
	3rd	Definition & properties of Laplace Transform (LT).
11 <sup>th</sup>	1 <sup>st</sup>	LT of unit step, impulse, ramp, exponential, sine, cosine, pulse, impulse, Dirac delta function.
	2 <sup>nd</sup>	Explanation of Laplace Transform theorems like Differential, integral, Time displacement, initial value & final value.
	3 <sup>rd</sup>	<b>CLASS TEST</b>
12 <sup>th</sup>	1st	Inverse Laplace Transformation. Simple problem.
	2nd	Application of Laplace transformation in circuit theory.
	3rd	<b>ASSIGNMENT</b>
		<b>6.Two Port Network:</b>
13 <sup>th</sup>	1st	Idea on Linear & Non linear networks, Unilateral & Bilateral networks.
	2nd	Explanation of Z parameter ( Open Circuit Impedance Parameter).
	3rd	Explanation of Y parameter ( Short Circuit Admittance Parameter).
14 <sup>th</sup>	1st	Explanation of h-parameter ( Hybrid Parameter).
	2nd	<b>CLASS TEST</b>
	3rd	Interrelation of above parameters.
15 <sup>th</sup>	1st	Inter Connection of Two Port Network.
	2nd	Simple problem on above parameters.
	3rd	<b>ASSIGNMENT.</b>

*M. J. ...*  
Signature of Lecturer

*D. ...*  
Signature of HOD