Course Number and Name

BEE301 &Circuit Theory

Credits and Contact Hours

4 & 60

Course Coordinator's Name

Mrs.Sherine

Text Books and References

Text Books:

1. Sudhaker A. and Shyam Mohan S.P, "Circuits and Network Analysis and Synthesis" Tata McGrew Hill Co. Ltd., New Delhi, 1994.
2. Hyatt W.H. and Kemmerlay J.E. „Engineering Circuits Analysis", McGrew Hill International Editions, 1993.

References:

1. Edminister J.A. "Theory and Problems of Electric Circuits "Schaum's outline series, McGrew hill Book Company 2nd edition, 1983.
2. http://nptel.ac.in/courses/108102042/

Course Description

To develop problem solving skills and understanding of circuit theory through the application of techniques and principles of electrical circuit analysis to common circuit problems.

Prerequisites	Co-requisites
Basic Electrical and Electronics Engineering	Nil

required, elective, or selected elective (as per Table 5-1)

Required

Course Outcomes (COs)

CO1: To understand the basic circuit elements, fundamental laws applied for circuits.
CO2: To develop the ability to understand the concepts of Sinusoidal steady state response of impedance and admittance and also power measurements for simple circuits.
CO3: To understand the different network theorems.
CO4: To understand the Transient response for dc circuits.
CO5: To understand the concepts of resonance and coupled circuits.

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
CO1	M	H	H	H	L	M	L			H	M	M
CO2	M	H	H	M	M	H	M	M		L	M	M
CO3	H	M		H	H		M			L	L	M

CO4	H	M		H	H	L	M	M		L	M	M
CO5	M	M	M	M	H		M			L	L	M

List of Topics Covered

UNIT I BASIC CIRCUIT CONCEPTS 12

Circuit elements – Kirchhoff's Law – V-I Relationship of R,L and C – Independent Sources – Dependent sources – Simple Resistive circuits – Networks reduction – Voltage division – current source transformation.- Analysis of circuit using mesh current and nodal voltage methods.

UNIT II SINUSOIDAL STEADY STATE ANALYSIS 12

Phasor – Sinusoidal steady state response concepts of impedance and admittance – Analysis of simple circuits – Power and power factors — Solution of three phase balanced circuits and three phase unbalanced circuits –-Power measurement in three phase circuits.9+

UNIT III NETWORK THEOREMS (BOTH AC AND DC CIRCUITS) 12

Superposition theorem – The venin's theorem - Norton's theorem-Reciprocity theorem-Maximum power transfer theorem.

UNIT IV TRANSIENT RESPONSE FOR DC CIRCUITS 12

Transient response of RL, RC and RLC Circuits using Laplace transform for DC input with sinusoidal input.

UNIT V RESONANCE AND COUPLED CIRCUITS 12

Series and parallel resonance – their frequency response – Quality factor and Bandwidth - Self and mutual inductance – Coefficient of coupling – Tuned circuits – Single tuned circuits.