

<b>Course Number and Name</b>												
BEE101 - BASIC ELECTRICAL AND ELECTRONICS ENGINEERING												
<b>Credits and Contact Hours</b>												
2 & 30												
<b>Course Coordinator's Name</b>												
Ms Sheryl												
<b>Text Books and References</b>												
<b>TEXT BOOKS:</b>												
1. N.Mittle "Basic Electrical Engineering". Tata McGraw Hill Edition, New Delhi, 1990.												
2. A.K. Sawhney, 'A Course in Electrical & Electronic Measurements & Instrumentation', Dhanpat Rai and Co, 2004.												
3. Jacob Millman and Christos C-Halkias, "Electronic Devices and Circuits", Tata McGraw Hill												
<b>REFERENCES:</b>												
1. Edminister J.A. "Theory and problems of Electric Circuits" Schaum's Outline Series. McGraw Hill Book Company, 2nd Edition, 1983.												
2. Hyatt W.H and Kemmerly J.E. "Engineering Circuit Analysis", McGraw Hill International Editions, 1993.												
3. D. P. Kothari and I. J. Nagrath "Electric machines" Tata McGraw-Hill Education, 2004												
4. Millman and Halkias, "Integrated Electronics", Tata McGraw Hill Edition, 2004.												
<b>Course Description</b>												
To understand the laws of electrical engineering.												
<b>Prerequisites</b>						<b>Co-requisites</b>						
+2 Physics, +2 Maths						Engineering physics I						
required, elective, or selected elective (as per Table 5-1)												
Required												
<b>Course Outcomes (COs)</b>												
CO1 :Students will gain knowledge regarding the various laws and principles associated with electrical systems.												
CO2 : Students will gain knowledge regarding electrical machines and apply them for practical problems.												
CO3 :Students will gain knowledge regarding various types' semiconductors.												
CO4 :Student will gain knowledge digital electronics.												
CO5 :Student will gain knowledge on electronic systems.												
CO6 :Students will acquire knowledge in using the concepts in the field of electrical engg. Projects and research.												
<b>Student Outcomes (SOs) from Criterion 3 covered by this Course</b>												
	COs/SOs	a	b	c	d	e	f	g	h	i	j	k
	CO1	M	H	M			L		L	L		
	CO2		H	M			L		L	L		
	CO3		H	M			L		L			
	CO4	M	H	M			L		L	L		
	CO5	M	H	M			L		L			
	CO6		H				L		L	H		

## List of Topics Covered

### **UNIT – I D.C. AND A.C CIRCUITS**

**6**

Ohm's law – Kirchoff's Laws, V – I Relationship of Resistor (R) Inductor (L) and capacitor (C). Series parallel combination of R, L&C – Current and voltage source transformation – mesh current & node voltage method –superposition theorem – Thevenin's and Norton's Theorem - Problems.

### **UNIT – II ELECTRICAL MACHINES**

**6**

Construction, principle of operation, Basic Equations and applications - D.C.Generators and D.C.Motors. -Single phase Induction Motor - Single Phase Transformer.

### **UNIT – III BASIC MEASUREMENT SYSTEMS**

**6**

Introduction to Measurement Systems, Construction and Operating principles of PMMC,Moving Iron, Dynamometer Wattmeter, power measurement by three-watt meter and two watt method – and Energy meter.

### **UNIT IV – SEMICONDUCTOR DEVICES**

**6**

Basic Concepts of semiconductor devices – PN Junction Diode Characteristics and its Application – HWR, FWR – Zener Diode – BJT (CB, CE, CC) configuration & its characteristics.

### **UNIT V – DIGITAL ELECTRONICS**

**6**

Number system – Logic Gates – Boolean Algebra – De-Morgan's Theorem – Half Adder & Full Adder – Flip Flops.