Name of Department: - **Electronics and Communication Engineering**

1.	Subject Code:	**TEE 101/201**	se Title:	**Basic Electrical Engineering**					
2.	Contact Hours:	**L:**	**4**	**0**		**0**			
3.	Examination Duration (Hrs):	**Theory**	**3**	**tical**		**0**			
4.	Relative Weight: **CWA**	**25**	**0**	**25**	**50**	**0**			
5.	Credits:	**3**							
6.	Semester:	**Autumn/Spring**							
7.	Subject Area:	**Core Course**							
8.	Pre-requisite:	**Basic Physics**							

9. **Course Outcomes:**	1. Understand & apply laws /theorems of electrical engineering for analyzing basic electric circuits. 2. Understand & solve complex AC circuits. 3. Understand the operation of transformer and realize its requirement in transmission and distribution of electric power. 4. Realize the importance of various protection devices installed in electrical circuits. 5. Understand working and use of various AC/ DC machines.

10. **Details of the Course:**

Unit No.	Contents	Contact Hours
1	DC Circuits: Electrical circuit elements (R, L and C), Ohms Law, voltage and current sources, Kirchoff current and voltage laws, Mesh and Node analysis with DC source. Superposition, Thevenin and Norton Theorems.	8
2	AC Circuits: Representation of sinusoidal waveforms, peak and rms values, phasor representation, real power, reactive power, apparent power, power factor, Analysis of single-phase ac circuits consisting of R, L, C, RL, RC, RLC combinations (series and parallel), resonance. Three-phase balanced circuits, voltage and current relations in star and delta connections	8
3	Transformers : Magnetic circuit, BH characteristics, ideal and practical transformer, equivalent circuit, losses and efficiency of transformers, auto-transformer.	8
4	Electrical Machines: Working principle and e.m.f equation of dc machine, torque speed characteristic of	9

	separately excited dc motor, working principle of three phase induction motor	
5	Electrical Installations : Components of LT Switchgear: Switch Fuse Unit (SFU), MCB, ELCB, RCD, MCCB, Types of Wires and Cables, Earthing. Types of Batteries, Important Characteristics for Batteries. Elementary calculations for energy consumption, power factor improvement.	9
	Total Hours	**42**

11**. Suggested Books:**

Sl. No.	Name of Authors/Books/Publishers	Year of Publication/Reprint
	Text Books	
1.	D.P. Kothari and I. J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill.	2010
2.	D.C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill.	2009
3	V. N Mittle and Arvind Mittle, "Basic Electrical Engineering" Tata McGraw-Hill Education Pvt. Ltd.	2005
4	V.D. Toro, "Electrical Engineering Fundamentals", Prentice Hall India.	1989
	Reference Books	
1.	E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.	2004
2.	L.S. Bobrow, "Fundamentals of Electrical Engineering", Oxford University Press, 2011	2010

12.	**Mode of Evaluation**	Test / Quiz / Assignment / Mid Term Exam / End Term Exam / Lab Exam