



C. U. SHAH UNIVERSITY **Wadhwan City**

FACULTY OF: -Diploma Engineering
DEPARTMENT OF: -Electrical Engineering
SEMESTER: - I
CODE: -2TE01BEE2
NAME – Basic Electrical Engineering

W.E.F from May 2016

Teaching & Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme				Credits	Evaluation Scheme								
		Th	Tu	Pr	Total		Theory				Practical (Marks)			Total	
							Sessional Exam		University Exam		Total	Pr/Viva	TW		Total
							Marks	Hours	Marks	Hours					
2TE01BEE2	Basic Electrical Engineering (BEE)	4	0	2	6	5	30	1.5	70	3.0	100	30	20	50	150

Objectives:-

- To developed the basic knowledge of principles & concept of electrical parameters
- Solve electrical circuit using circuit laws & network theorems
- Understanding of working principle, construction & application of electrical machine
- To developed the basic of protective equipments & safety norms

Prerequisites: -

- Basic knowledge of physics & mathematics & Importance of Electricity

Course Outlines:-

Sr. No.	Course Contents	Hours
1	Fundamental of electrical circuit:- Current, voltage, E.M.F., potential difference, Conductor, semiconductor, insulator, Resistance, Laws of resistance, Factor affecting on resistance, Specific resistance, Conductance, Conductivity, Ohm's law and affecting parameters, work, power energy, Three states of electrical Circuit(Open Circuit, Short Circuit, Close Circuit),	08
2	Electrostatic & Electromagnetic :- Capacitor, Electrical Field strength & electrical field density, Relative Permeability, Energy store in capacitor, Capacitor in series & parallel, Types of capacitor, Charging & Discharging of capacitor, Terminology, Laws of Electromagnetic induction, Self inductance, Mutual inductance & Co-efficient of coupling, Magnetic Hysteresis & eddy current, B-H curve	08
3	D.C. Circuit Terminology, Energy source & conversion, KVL & KCL, Duality, Voltage Divider Rule, Superposition Theorem, Thevenin's Theorem, Maximum Power transfer Theorem, Star-	08

	Delta transformation or Vice Versa	
4	A.C. Fundamental & Circuit:- Generation of Alternating current & voltage & its equation, Waveform & vector representation of Alternating quantity, Terminology, RMS value, Average value, A.C. through Resistor, A.C. through Inductor, A.C. through Capacitor, Power, Power factor, Impedance & Q factor, RL Series circuit, RC Series circuit, LC Series circuit, RLC series circuit, RLC parallel circuit.	08
5	Poly Phase System:- Generation of poly phase voltage, Phase sequence, Numbering phase & Interconnection of three phase, Star connection, Delta connection.	06
6	Fundamental Of Electrical Machine:- Basic of D.C. Generator, types & application, Basic of D.C. Motor, types & application, Needs of starter & its types, Basic of Transformer, Basic of Induction motor, Basic of Alternator, Basic of Single phase motor	08
7	Protection Of Electrical Power Circuit Breaker, Relay, Isolator, Earth Switch, Domestic-Fuse, MCB, ELCB, Electrical Safety & Earthing, Necessity, Types, Electrical accident & its effect	08

List of Experiments:-

- Identify & draw symbol used in electrical engineering.
- To verify Ohm's Law.
- Perform Kirchoff's Law.
- Perform Superposition Theorem.
- Perform Thevenin's Theorem.
- Perform series & parallel connection of Resistor.
- Perform series & parallel connection of Capacitor.
- To measure current, voltage & power in single phase circuit.
- To measure power & power factor in RL circuit.
- To measure power & power factor in RLC circuit.
- Current, voltage & power measurement in star & delta poly phase circuit.
- To study about different electrical machine.
- To study about protective device & safety rules for electricity.

Learning Outcomes:-

- Application & importance of electrical power..
- Definition & identification of various electrical parameters.
- Calculation of different electrical parameters by different laws.
- Knowledge of different electrical machine.
- Knowledge of protective equipments & safety norms.

Books Recommended:-

1. Elements of electrical engineering, **J.B.Gupta**, S.k.katariya & sons
2. A text book of electrical technology, **B.L.Theraja & A.K.Theraja**, S.Chand & Company ltd.
3. A Hand Book Of Electrical Engineering, **S.L.Bhatiya**, Khanna Publication