

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC Semester: 1 Electrical Engineering

Subject Name ELEMENTS OF ELECTRICAL ENGINEERING

Sr.No	Course content
1.	D.C. Circuits:- Effect Of Temperature Upon Resistance, Solutions Of series, parallel in brief, star-delta combination of Resistances, KVL & KCL.
2.	Electrostatics & Capacitance:- Definitions of Electrostatic, types of capacitors, series, parallel combinations & related circuit calculations in brief charging & discharging of capacitor. Energy stored in capacitor.
3.	Electromagnetics:- Magnetic Circuit , Comparison Between Electric And Magnetic Circuits , Series/Parallel Magnetic Circuit Calculations , Magnetic Hysteresis, Hysteresis And Eddy Current Loss, Magnetic Materials, Electromagnetic induction, Statically And Dynamically Induced E.M.F.S in brief, Fleming's Right hand rule-Left hand rule, Coefficients Of Self And Mutual Inductances , Coefficient Of Coupling, Series/Parallel Combinations Of Inductances, Rise And Decay Of Current In Inductive Circuits , Force Experienced By Current Carrying Conductor Placed In Magnetic Field.
4.	Single Phase A.C. Circuits:- Generation Of Alternating Voltages & Currents, Their Equations, Definitions , R.M.S. And Average Values , Vector Representation Of Alternating Quantities , Addition And Subtraction Of Vectors , Complex Algebra., Phasor Relations Between Voltage And Current In Each Of Resistance, Inductance And Capacitance , A.C. Series And Parallel Circuits , Power And Power Factor , Methods Of Circuit Solution (Analytically & Vectorially), Resonance In Series And Parallel Circuits.
5.	Polyphase Circuits:- Generation Of Polyphase Voltages , 3,Phase System , Phase Sequence, Inter Connection Of 3 Phases , Voltage, Current And Power Relationships In Balanced Three Phase Circuits , Power Measurement In Single Phase And 3 Phase Circuits.

Term Work:

Shall Be Based on the above Syllabus

Reference Books:

- I Electrical Technology Vol.1 By B.L.Theraja
- II Basic Electrical Engineering By V.N.Mittal