

SARDAR VALLABHBHAI PATEL INSTITUTE OF TECHNOLOGY, VASAD

ELEMENTS OF MECHANICAL ENGINEERING (2110006)

MID-SEMESTER- EXAMINATION SYLLABUS

(Branch : Aero, Mech, Civil, EC, Comp, IT, IC, Elect)

1. **Introduction:** Prime movers and its types, Concept of Force, Pressure, Energy, Work, Power, System, Heat, Temperature, Specific heat capacity, Change of state, Path, Process, Cycle, Internal energy, Enthalpy, Statements of Zeroth Law and First law.
2. **Energy:** Introduction and applications of Energy sources like Fossil fuels, nuclear fuels, Hydel, Solar, wind, and bio-fuels, Environmental issues like Global warming and Ozone depletion.
3. **Properties of gases:** Gas laws, Boyle's law, Charle's law, Combined gas law, Gas constant, Relation between C_p and C_v , Various non-flow processes like constant volume process, constant pressure process, Isothermal process, Adiabatic process, Poly-tropic process.
4. **Steam Boilers:** Introduction, Classification, Cochran, Lancashire and Babcock and Wilcox boiler, functioning of different mountings and accessories.
5. **Internal Combustion Engines:** Introduction, Classification, Engine details, four-stroke/ two-stroke cycle Petrol/Diesel engines, Indicated power, Brake Power, Efficiencies.

Course Co-ordinator

P S Parmar / C H Solanki