Student Name :KRISHNARAJ PRASHANT THADESAR (1032210888)
Academic Session:2021-2022 Semester Name:TRIMESTER-I Course Year Name:FY - IX

Subject Name : Basics of Mechanical Engineering

Sr No	Unit	Topic Details
1	UNIT-I	Recent trends in Mechanical Engineering.
		Associations of mechanical engineering,
		Introduction: History and broad overview of mechanical engineering,
		Components of Mechanical Engineering- Design, thermal, and manufacturing, Divisions, sub-divisions and applications
		Role of mechanical engineers
2	UNIT-II	Power Transmission Devices: Construction, working principle, and applications of Belt drive, chain drive
		Mechanisms: Four bar mechanism and inversions, slider crank mechanism
		Mechanisms: Kinematic link, pair, chain and mechanism.
		Function, Types, Sketch, Description, and Uses of couplings, Bearings, and Clutch and brakes
		Power Transmission Devices: Construction, working principle, and applications Gear drive
		Function, Types, Sketch, Description, and Uses of: Shafts and axles, Keys
3	UNIT-III	Construction, working principle, and operations of grinding machine.
		Construction, working principle, and operations of drilling machine
		Construction, working principle, and operations of lathe machine
		Manufacturing processes: Casting, Forging, Metal forming (Drawing, Extrusion, etc.)
		Manufacturing processes: advanced manufacturing techniques.
		Manufacturing processes: Sheet metal working,Metal joining processes
4	UNIT-IV	Laws of thermodynamics: Zeroth, First and Second Law of Thermodynamics, limitations of first law of thermodynamics,
		Laws of thermodynamics: Claussius and Kelvin-Planck statement. Perpetual Motion Machines of first andsecond kind
		Heat engine, heat pump
		Refrigerator (simple numerical)
		Modes of heat transfer: conduction, convection and radiation, Fourier’s law
		Modes of heat transfer: Newton’s law of cooling, Stefan Boltzmann’s law. (Simple numerical)

Sr No	Unit	Topic Details
5	UNIT-V	Power plant engineering: Thermal energy, Hydroelectric energy
		Power plant engineering: Biomass Conversion Technologies
		Power plant engineering: Introduction on solar, wind, nuclear energy (Simple Numerical)
		Energy conversion devices: Introduction of compressor, Refrigerators
		Energy conversion devices: Introduction of Fans, pump and blowers
		Energy conversion devices: split and window air-conditioner