



JKSSB JE Mechanical Syllabus 2024

Theory of Machines and Machine Design

Four bar linkage and link motion, Flywheels and fluctuation of energy, Power transmission by belts-V-belts, and Flat belts. Gears-Type of gears, gear profile, and gear ratio calculation. Cams. Governors-Principles, and classification. Design of keys, shafts, Riveted joint, couplings

Thermal Engineering and Refrigeration & Air-conditioning

Thermodynamics: Heat, work, and temperature, First and second laws of thermodynamics. Carnot, Rankine, Otto and Diesel Cycles. P-v & P-T diagrams H₂O. Saturated, wet & superheated steam. Definition of dryness fraction of steam, degree of superheat of steam. Rankine cycle of steam: Simple Rankine cycle, plot on P-V, T-S, h-s planes, Rankine cycle efficiency with & without pump work. Concept of COP, Carnot Cycle, Vapour compression cycle. Refrigerants. Psychometry, DBT, WBT, DPT

Engineering Mechanics and Strength of Materials

Laws of forces, Equilibrium of Forces, Moment of Inertia, Laws of motion. Friction. Concept of simple machines, M A, V R, %age. Concepts of stress and strain, Elastic limit, and elastic constants. Bending moments and shear force diagram. Stress in composite bars. Torsion in circular shafts. Columns: Euler's and Rankine's theories. Thin-walled pressure vessels



Fluid Mechanics & Machinery

Properties & Classification of Fluids, Newton's law of viscosity, Fluid Statics, Measurement of Fluid Pressure by Manometers, U-tube, Inclined tube. Fluid Kinematics: Streamline, laminar & turbulent flow, external & internal flow, continuity equation. Dynamics of ideal fluids: Bernoulli's equation, Total head; Velocity head; Pressure head. Measurement of Flow rate, Basic Principles & working of Venturimeter, Pitot tube, Orifice meter. Hydraulic Turbines & Centrifugal Pumps

Material Science & Production Engineering

Structure of metals, Space lattice, Unit cell, BCC, FCC, etc, Iron carbon diagram, Classification of Steels: mild steel & alloy steel. Heat treatment of steel. Welding – Arc Welding, Gas Welding, Resistance Welding, Special Welding Techniques i.e. TIG, MIG. Brazing & Soldering, Welding Defects & Testing. Foundry & Casting methods, defects, different casting processes. Forging, Extrusion, etc. Metal cutting principles, cutting tools. Basic Principles of machining with Lathe, Milling, Drilling, Shaping, Grinding. Machine tools & manufacturing processes

Industrial Management and CAD/CAM

Planning, Organizing, Leading, Controlling. Inventory Control, Inspection & Quality Control. Basic concepts of CAD/CAM. NC, DNC, CNC machines.

Metrology and Automobile Engineering

Tools used in Linear Measurements, Angular Measurement, Surface finish. Limits, fits & Tolerance, Error, Classification of Automobiles. Transmission, Steering, Braking, Suspension system. IC Engine Performance, IC Engine Combustion process, Cooling, and Lubrication system in I.C Engine



JKSSB JE Exam Pattern 2023

Section	Total Marks	Total Time Duration	Questions
Technical Subject (Mechanical Engineering)	120 Marks	120 Minutes	120 Questions

Make It Easy

