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# Syllabus of Mechanical Engineering (Diploma)

**(1) Fluid Mechanics:**

Properties and classification of fluids, Manometer, Center of pressure, Buoyancy. Elements of stability of floating bodies. Kinematics and Dynamics. Pressure field and forces on immersed bodies. Bernoulli's equation. Measurements of flow rate and Pressure. Elements of boundary layer theory, Laminar and turbulent flows.

**(2) Fluid Machinery**

Performance, Operation and control of hydraulic Pump and impulse and reaction turbines, Specific speed, Classification. Energy transfer, Coupling, Power transmission,Velocity diagrams. Partial admission. Reciprocating, Centrifugal and axial flow Pumps and Compressors.

**(3) Theory of Machines:**

Kinematic and dynamic analysis of planer mechanisms. Cams. Gears and gear trains. Flywheels. Governors. Balancing of rigid rotors and field balancing. Balancing of single and multi-cylinder engines. Linear vibration analysis of mechanical systems. Critical speeds and whirling of shafts Automatic controls.

**(4) Strength of Materials:**

Stress and strain in two dimensions. Principal stresses and strains, Mohr's construction, linear elastic materials, stress-strain relations, uniaxial loading; thermal stresses. Torsion of shafts, helical springs. Combined stresses, thick- and thin-walled pressure vessels.

**(5) Engineering Materials:**

Basic concepts on structure of solids. Crystalline materials. Defects in crystalline materials. Alloys and binary phase diagrams. Structure and properties of common engineering materials. Heat treatment of steels. Plastics, Ceramics and composite materials. Common applications of various materials.

**(6) Pumping System:**

Pumping Stations, general arrangement of an Pumping Stations and its operation, Pumping mains, water hammer and surge tanks, turbines, gates, prime movers, model testing, peak load plants, Pumps.

ಸಿಬ್ಬಂದಿ ನಿರ್ವಹಣಾಧಿಕಾರಿ
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