

CENTRE OF EXCELLENCE IN WATER MANAGEMENT, MANIT, BHOPAL

Syllabus for Institute Test for Admission into M.Tech Water Resources Engineering and management (Self-Financed)

Fluid Mechanics: Properties of fluids, fluid statics; Continuity, momentum and energy equations and their applications; Potential flow, Laminar and turbulent flow; Flow in pipes Flow measurement in channels and pipes; Open Channel Flow; Dimensional analysis and hydraulic similitude. Classification of pumps; pump characteristics; pump selection and installation.

Hydrology: Hydrologic cycle, precipitation, evaporation, evapo-transpiration, watershed, infiltration, unit hydrographs, hydrograph analysis, reservoir capacity, flood estimation and routing, surface run-off models, ground water hydrology - steady state well hydraulics and aquifers; Application of Darcy's Law.

Soil Mechanics: Engineering properties of soils; fundamental definitions and relationships; index properties of soils; permeability and seepage analysis; shear strength, Mohr's circle of stress, active and passive earth pressures; stability of slopes, Soil Erosion

Irrigation: Types of irrigation systems and methods; Crop water requirements - Duty, delta, evapo-transpiration; Dams and Spillways, Water application methods (surface, sprinkler and micro irrigation methods)