

Syllabus

Module 1: Management

Introduction, development of management and its recent trends, principles of management, function of management, administration management and organization

Module 2: Construction Planning

Need for construction planning, construction resources, stages in construction, Job layout, preparation of construction schedule, preparatory work for project, inspection and quality control.

Module 3: CPM & PERT

Objective of CPM & PERT, elements of network, network rules, constraints, error in network, Critical Path Analysis, Activity time and floats, optimization through CPM techniques, PERT and three estimates, critical path analysis of a PERT network, probability of completion of project, controlling and monitoring.

Module 4: Mass Haul Diagram

Characteristics of mass haul diagram, earth work calculation by mass haul diagram, objective of motion study, objective/uses of time study, motion/time study procedure.

Module 5: Safety in construction

Hazards in construction projects, causes of accidents, costs of an accidents, safety programme for construction, protective equipment, safety measures, construction element of a building.

Module 6: Prefabrication

Need for prefabrication, classification of pre fabrication, scope of prefabrication in India, advantages and disadvantages of prefabrication, design principles of prefabrication system

Hydraulic Structure (CE 8135)

HYDRAULIC STRUCTURE (CE 8135)

1. Reservoir Planning :-

Types of reservoirs, elements of a reservoir mass curve & Demand curve, yield of reservoir, life of reservoir, Types of Dams & suitability.

2. Gravity Dam :- Forces acting on gravity dam, load combination, stability analysis, Elementary profile & practical profile, Foundation treatments, joints & seals, Galleries.

3. Arch & Buttress Dams :- Arch dam definition of Arch dams, types, design of arch dams. Constant radius & constant central angle using thin & thick cylindrical theories, USBR guidelines for designing arch dams.

4. Buttress :- Definition, types of buttress dam, design of flat slab buttress dams, processing of spillway in buttress dam, advantages & disadvantages of buttress dams.

5. Embankment Dams Earth&Rockfill Dam, Types of Embankment Dam, Causes of failure, Design principles, Method of construction, Seepage through dam & foundation, control of seepage, Phreatic line

6. Spillway & Energy Dissipation Device : Types of Spillways, Requirement, Serviceability Design of Straight Drop & Ogee Spillways, Energy Dissipation past Spillways, Types of stilling basin and design of stilling basin

Syllabus

1. Prestressing systems, materials and codes
Basic concepts, systems, materials and their properties, losses of prestress and I.R.C specifications.
2. Design of beams
Analysis and design of section for bending and shear, bending of cables, limit state analysis and design, anchorage zone stresses, design of end block, application to bridges.
3. Beams-columns and ties
Section subjected to bending and thrust, tension members, circular prestressing.
4. Circular prestressing
Equipment and applications
5. Continuous beams and portal frames
Design, concepts, concordancy of cables, secondary design considerations
6. Partial prestressing
Principles and advantages

Syllabus

1. Principles of dynamics and vibrations, single degree and multi degree of freedom system-free and forced vibrations, Dampening and soil spring constants.
2. Introductions to vibration of continuous systems, wave propagation in soil media, laboratory and in situ determination of dynamic soil properties.
3. Introduction to machine foundation and its practical consideration for construction IS code of practice, examples soil liquefaction.

Ground Water Hydrology (CE 8150)

Syllabus: Ground Water Hydrology

Occurrence of Ground Water: Origin of Ground Water, Aquifers, Ground Water basin, Ground Water in Alluvial Deposits.

Ground Water Moment and Hydraulics: Darcy law, Coefficient of Permeability and transmissibility, General equation of flow of ground water, Steady flow in Confined and Unconfined Aquifers, Unsteady radial Flow, Solution of Non Equilibrium equation, pumping Sets.

Water Well: Shallow and Deep Wells, Methods of Construction Well Development Sanitary protection of Wells, Infiltration Galleries

Ground Water Development: Safe yield and Over Draft, factors governing safe Yields data Collection from Ground Water basin investigation conjunctive use of surface and ground Water resources.

Ground Water Exploration: Surface and Sub Surface investigation of ground Water, Ground Water Quality and Ground Models