

TAMIL NADU PUBLIC SERVICE COMMISSION

SYLLABUS
CIVIL ENGINEERING
DIPLOMA STANDARD

MODULE 1: ENGINEERING MECHANICS:-

Direct stresses and strains (Tensile & compressive) due to Axial forces - shear stress distribution in rectangular and circular sections due to transverse shear - shear stress distribution in circular shafts due to torque - Bending stresses in rectangular sections due to bending moment - shear force and Bending moment diagrams for statically determinate beams - Geometrical properties of sections - pin jointed perfect frames with vertical loads on nodal points.

MODULE 2: MECHANICS OF STRUCTURE:-

Deflection of cantilever and simply supported beams - shear force and Bending moment diagrams for statically indeterminate structures (Propped cantilever, Fixed Beams, continuous beams, Non-sway Portal frames) using Mohr's theorems and moment distribution method.

Euler's and Rankin's formula for columns - Stresses due to eccentric loads - combined stresses due to direct loads and bending moments in rectangular sections.

MODULE 3: CONSTRUCTION MATERIALS & CONSTRUCTION PRACTICE:-

Bricks, Tiles, Cement, Timber, Steel, Plastics, P.V.C. Paints, Mortars, concretes - Different types, qualities, requirements, standard specifications.

Different types of Foundations, Masonry, Floors, Roofs, Doors and Windows. Weathering Course, Damp proof course, plastering painting, colour washing - specifications for different works.

MODULE 4: TRANSPORTATION ENGINEERING:-

Roads - Different types - methods of formation of water bound macadam, bituminous and concrete roads - Hill roads - Requirements - camber, gradient, super elevation, carriage way, pavements, drainage system, sight distance etc., - Traffic Engineering BRIDGES - Classification of bridges - site selection and alignment - Foundation, substructure and super - structure.

SOIL MECHANICS - Classification of soils - Properties of different soils - Bearing capacity, liquid limit, plastic limit, shrinkage limit,, void ratio, porosity - particle size distribution - Grading of Soils.

MODULE 5: FLUID MECHANICS AND IRRIGATION:-

Measurement of pressure in liquids - pressure distribution and total pressure on immersed surfaces

- Types of flow (Laminar, turbulent, steady, unsteady, uniform, non-uniform) - Flow through pipes - Losses - Hydraulic gradient and total energy lines. Bernoulli's theorem - use of Orifice, Mouthpiece, Orifice meter and venturimeters - Flow through chels - Bazin's and manning's formula - Economical sections for open channels - Types of Irrigation - Rainfall - Runoff - Ground water - Types of well - Test for yield of wells - River weirs and Anaicuts - Tank sluices - surplus weirs and flush escape.

MODULE 6: SURVEYING:-

Types of Surveys - Chain surveying - Compass surveying, plane table surveying - Levelling - contouring - Theodolite traversing - Trigonometrical levelling - Tacheometry - Field work - simple problems.

MODULE 7: WATER SUPPLY AND SANITARY ENGINEERING:-

Sources of water - Conveyance of water - Treatment of water - Quality of water - Tests on water - Distribution systems - plumbing system in buildings. Sewers - collection and disposal of sewage - Treatment of sewage - Sanitary lines and fittings in buildings.

MODULE 8: ESTIMATING AND COSTING:-

Systems of taking out quantities - material requirement for different items of works - Preparation of data for works - Report writing - valuation of buildings and properties - Fixation of rents - Approximate estimates - Detailed estimate and Abstract estimate for buildings, well, sump, septic tanks, compound wall etc.

MODULE 9: STRUCTURAL ENGINEERING:-

Reinforced cement concrete structure - Analysis and design of singly and Doubly reinforced rectangular and T-beam sections - cantilever, simply supported, continuous beams - oneway and two way slabs - lintels and sunshades - staircases - Rectangular and circular short columns - Isolated column footings. (All designs by Limit state method only) Steel structures - simple beams - plated beams - Tension and compression members - simple columns - Roof truss members and their connections.

MODULE 10: CONSTRUCTION MANAGEMENT:-

Planning of a project - Factors to be considered - project reports - Organisation structure in construction departments - construction planning - CPM and PERT networks - contracts - Tenders and Tender documents - Bill - Supervision and Quality control - Safety measures in construction sites - Banking practice - cash flow diagrams.