CIVIL ENGINEERING

(DEGREE STANDARD)                    CODE NO: 262

(FOR THE POST OF ASSISTANT DIRECTOR OF TOWN AND COUNTRY PLANNING)

UNIT I: Building Materials and Construction Practices


UNIT II: Engineering survey


UNIT III: Strength of Materials and Analysis of Structures

Simple stress and strain-elastic constants- relationship - stress and strain in two dimensions, compound stresses- principal stresses- thin and thick cylinders - Bending moments and shear forces in statically determinate beams simple bending theory - flexural shear stress - deflection of flexural members – torsion of circular section - Short and long columns.

Analysis of statically determinate trusses arches and frames - analysis of statically indeterminate structures by slope-deflection and moment-distribution methods - influence lines for determinate and indeterminate structures - basic concepts of matrix methods of structural analysis.
UNIT IV : Concrete and Steel Structures

Working stress and limit states design concepts - design of members subjected to flexure, shear, compression and torsion (beams, columns isolated footings) - basic elements of Prestressed concrete: analysis of beam sections at transfer and service loads – Codal Provisions.
Design of tension and compression members, beams and beam-columns, column bases - Design of bolted and welded connections - simple and eccentric - plate girders and trusses

UNIT V : Geotechnical Engineering

Properties of soils - soil classification –Three phase system and inter-relationships - Compaction - permeability and seepage – soil stresses- Compressibility and Consolidation - Shear strength – Laboratory and in - situ tests.


UNIT VI : Hydraulics and Water Resources Engineering

Hydrostatics - applications of Bernoulli equation, Laminar and turbulent flow in pipes, pipe networks - concept of boundary layer and its growth - flow in channels, Rapidly varied flow - tanks and pipes - hydraulic modeling. Applications of Momentum equation, Kinematics of flow

UNIT VII : Water Supply and Environmental Engineering


UNIT VIII : Transportation Engineering
Different modes of transport and their characteristics Highway planning in India - Road classification - Geometric design of highways. – Traffic surveys- Traffic signs, road markings and traffic signals. Design and construction of bituminous and concrete roads - Drainage of roads - Maintenance of roads.


UNIT IX: Town Planning and Urban Engineering
UNIT X : Concrete Technology and Construction Management


Types of estimates - Detailed estimates for different types of buildings- methods of valuation – depreciation – fixation of rent- rate analysis- Quantity estimation