

TAMIL NADU PUBLIC SERVICE COMMISSION
SYLLABUS
ARCHITECTURAL ASSISTANTSHIP / ARCHITECTURE
(DIPLOMA STANDARD)

CODE: 444

UNIT- I: ENGINEERING MECHANICS

Simple Stresses and Strain – Stress and Strain – Modulus of Elasticity / Elastic constants–Application of stress and strain in engineering field – Behaviour of ductile and brittle material – Loads – Shear Force and Bending Moment – Geometrical properties of sections – Centroid – Moment of Inertia–Stress in Beams and Shafts– Stresses in Beams due to bending – Stress in shafts due to torsion – Pin Jointed Frames - Analytical Method – Graphical Method.

UNIT- II: BUILDING MATERIALS & CONSTRUCTION

Properties, characteristics, strengths, manufacturing, components & applications of materials & methods of construction & detailing for the following:

Stone – Brick & Clay Products – Lime – Cement – Timber – Concrete – Ferrous and Non-Ferrous Metals – Glass – Plastics – Asphalt, Sealants & Adhesives – Protective and Decorative Coatings – Water Proofing and Damps Proofing Materials – Rural Building Materials(Bamboo, Soil, etc.).

UNIT- III: HISTORY & THEORY OF ARCHITECTURE

History of Architecture

Prehistoric - Egyptian Architecture – Greek Architecture–Roman Architecture –Early Christian & Byzantine Architecture – Romanesque and Gothic Architecture – Renaissance Architecture.

Indian Architecture – Indus Valley Civilization, Buddhist Architecture, Hindu Architecture – Islamic Architecture in India.

Modern Architecture, Postmodernism, Contemporary World Architecture-Philosophy and works of Post Modern Indian Architects.

Theory of Architecture

Definition of Architecture–Architecture as satisfying functional, aesthetic & psychological human needs - Anthropometrics.

Elements of Architecture–Form, Space, Light, colour, etc.

Principles of Architecture–Proportion, Balance, Scale, Symmetry, etc.

UNIT–IV: STRUCTURAL ENGINEERING

Slope and Deflection of Beams – Propped Cantilevers – Fixed Beams – Arches – Continuous Beams – Theorem of Three Moments –Moment Distribution Method – Columns and Struts – Combined Bending and Direct Stresses – Earth Pressure and Retaining Walls –Working Stress Method Design of Beams for Flexure by L.S.M – Design of T-Beams and Continuous Beams by L.S.M –Design of Beams for Shear by L.S.M – Design of Oneway Slabs by L.S.M - Design of Twoway Slabs by L.S.M - Design of Staircases by L.S.M - Design of Columns by L.S.M - Types of Foundations and Column Footings – Design of Simple Beams – Types of Welded Connections.

UNIT–V: ENVIRONMENTAL ENGINEERING

Sources of Water – Collections and Conveyance of Water – Quality of Water – Treatment of Water – Distribution System – Appurtenances and Maintenance of Water Lines – Collections and Conveyance of Sewage – Treatments and Disposal – Environmental Pollution and Control – Industrial Waste Water Treatment and Solid Waste Management – Land, Water & Air Pollution – Conservation of Marsh Lands – Reclamation of Water Bodies.

UNIT– VI: BUILDING SERVICES

Water Supply & Sewage Disposal, Mechanical Systems – Pumps & Motors, Electrical Systems – Generation & Distribution, Ventilation & Lighting, Air Conditioning – Principles, systems & applications, Vertical Transportation systems, Fire Hazards, Safety & Design Regulations, Acoustics – Building Management Systems – Renewable Energy – Rain water Harvesting – Strom Water Management.

UNIT-VII: SITE SURVEY & PLANNING

Chain Surveying – Compass Surveying – Plane Table Surveying – Leveling – Theodolite – Contouring – Minor Instruments. Site Drawings – Site marking, Importance & procedures for making site drawings & dimensioning.

UNIT-VIII: SPECIFICATION & ESTIMATION

Stages of Detailed Estimate – Measurements & Material Requirement – Specification & Report Writing – Approximate Estimates – Areas and Volumes – Data – Valuation – Detailed Estimate.

UNIT- IX: TOWN PLANNING AND LANDSCAPE ARCHITECTURE

Town Planning Principles – Master Plan - Road and Street Planning – Parks & Open Spaces etc. – Landscape Architecture – Historic and contemporary Landscape – Soft & Hard Landscaping – Indoor & Outdoor Plants - Housing – Economy, Society, Environment and Transport Policy and Planning – Town Planning Rules, Building Bye-Laws & TNCR – Barrier free Design.

UNIT-X: COMPUTER AIDED DRAFTING & VISUALIZATION

2D Using AutoCAD etc - Setting Limits and creating entities like Line, Arc, and Circle etc. Editing the drawing with edit commands like TRIM, FILLET, COPY, MOVE etc. Creating 2D Building Working Drawings.

3D Visualization – Visualization using SKETCHUP, PHOTOSHOP, etc.

Dated: 23.12.2024