

**DETAILED SYLLABUS FOR THE POST OF JUNIOR INSTRUCTOR  
IN ARCHITECTURAL DRAUGHTSMAN- Direct Recruitment IN  
INDUSTRIAL TRAINING DEPARTMENT  
CAT.NO: 651/2023**

**1. ELEMENTS AND PRINCIPLES OF ARCHITECTURE (Weightage of marks 10%)**

Primary elements of design - point, line, plane and volume.

Colour - colour wheel, colour schemes

Texture - rough and smooth texture

Principles of composition - Balance, rhythm, proportion, scale, contrast, unity and character.

**2. ARCHITECTURAL SPACE AND DESIGN METHODOLOGY (Weightage of marks 10%)**

Steps involved in architectural design process - Program analysis, preliminary studies, intermediate studies and presentation drawings.

Elements and factors of climate, Comfort factors.

Positioning of Doors and windows with respect to lighting and Ventilation.

Rules and regulations - NBC, KMBR and CRZ

**3. BASICS OF DRAFTING (Weightage of marks 10%)**

Drafting instruments and media of presentations

Orthographic projection

Conventional symbols and scales

Dimensioning and specification

Three dimensional views, rendering

Preparation of sanction Drawing.

CAD system components - application of CAD in 2D and 3D drawings, Basics of 3D modelling.

**4. SURVEYING (Weightage of marks 10%)**

Surveying instruments, Chain survey - operations involved in chain survey to make site plan,

Plane table survey - advantages and disadvantages, Levelling - classification of levelling,

Compute the reduced levels of stations from field book, Theodolite Surveying - horizontal angle measurement by repetition and reiteration method. Steps involved in setting out angles using a theodolite. Conduct traverse survey in the field using the theodolite. Compute the co-ordinates and Total Station

**5. CONSTRUCTION MATERIALS (Weightage of marks 10%)**

Stone, clay, lime, cement, aggregates, concrete, wood and metals

Plastics, Rubber, Aluminium, Glass, Paints, Varnishes

Masonry, DPC, Plastering and Pointing

**6. CONSTRUCTION TECHNOLOGY (Weightage of marks 10%)**

Components of a building - Footing, basement, Super Structure

Lintels and arches. types of roofs and ceiling.

Sunshades, canopy and sun breakers.

Staircase, lift, escalators and ramp.

Structural systems - Load bearing and framed structures, singly reinforced beams, lintels, doubly reinforced beams & flanged beams, one way slab & two-way slab

Cost effective Technologies and Methods in Construction

**7. SUSTAINABLE PLANNING & DESIGN (Weightage of marks 10%)**

Global environment and effects of climate change, principles of sustainability, Principles to improve the energy efficiency, Concept of Green Building – green building rating systems

**8. THEORY OF STRUCTURES (Weightage of marks 10%)**

Forces and moments – Centre of Gravity, Moment of inertia  
Mechanical properties of materials - Temperature stresses, Strain energy  
Beams and bending - Torsion of circular shafts, Theory of simple Bending

**9. HISTORY OF ARCHITECTURE (Weightage of marks 10%)**

Indian - Ancient Architecture – Indus valley civilisation and vedic culture, Buddhist - stupa, stambha, chaitya halls and viharas - Hindu style - North Indian Temples, central Hindu temples, & south Indian Temples - Indo Islamic Architecture – Imperial and Mughal style, Kerala Architecture – Characteristic features and materials, typical layout of temple, types of traditional houses - Modern Architecture after Independence, Works of Laurie Baker, Charles Correa and B V Dhoshi  
World Architecture – Works of masters in Architecture -Louis Sullivan, Frank Lloyd Wright, Le Corbusier and Mies Van der Rohe, Works of modern architects – Frank Gehry, Zaha Hadid

**10. CONSTRUCTION MANAGEMENT (Weightage of marks 10%)**

Planning and scheduling of construction projects – Application of project management tools, Purpose of preparing feasibility report and project report.  
Organizational structure of construction firms.  
Aspects of project execution – Types of Tenders and Contract  
Methods of tendering, Agreement.  
Estimation - Types of estimates, Importance of specification.  
Quality control – Importance of supervision, material testing, measurements, various quality management systems.  
Basic principles of safety at construction site.

*NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper*