

Detailed Syllabus for the post of Junior Instructor - Interior Design & Decoration in Industrial Training Department – Cat No:644/2023

MODULE – 01

(MARKS - 10)

ENGINEERING GRAPHICS

Drawing Instruments and materials: - Method to use them with applications. Convention of lines and their applications. **Dimensioning:** - Elements of dimensioning, Dimensioning techniques as per BIS. **Dimensioning methods:** - Chain, parallel and coordinate dimensioning. **Geometrical shapes and constructions:** - geometrical shapes and construction of regular polygon. **Conic sections:** -Basic concepts-construction of ellipse (Eccentricity, concentric circle rectangular methods), Parabola (Eccentricity, tangent methods) **Miscellaneous Curves:** -Construction of helix and involute. **Scales:** - types of scales – Plain scale, Diagonal scale, and Vernier scale. **Projection of points and lines:** - Projection of points in different quadrants, Projection of straight lines. **Projections:** - Orthographic, isometric, and oblique. Introduction to orthographic projection, First angle and Third angle method, their symbols. **Isometric projections:** - Isometric scale, Isometric view, and Isometric projection. **Perspective projection:** - definition - types.

MODULE – 02

(MARKS - 10)

ARCHITECTUREAL APPRECIATION

Elements of design: - point, line, plane and volume, Form, Colour, Colour scheme, colour wheel, Texture etc. **Principles of design:** - Balance, Proportion, Scale, Rhythm, Contrast, Harmony, and Character. **Creative principles of design:** - Function, Strength and Aesthetics. **Space:** - interior and exterior spaces - Quantity and Quality-Spatial organizations - architectural design process. **Design concept and architectural features of the famous structures like:** - Eiffel Tower - Falling Water - Villa Savoye - Farnsworth House - Casa Batllo - Sydney Opera House - Louvre pyramid - HSB Turning torso - Heydar Aliyev Center etc. **Design concept and features of the famous architects like:** - Edwin Lutyens - Louis I Kahn - Charles Correa - B.V Doshi - Hafees Contractor - Achyut P Kanvinde - Laurie Baker - Raj Rewal etc **Furniture design:** - Furniture styles - Types of furniture.

MODULE – 03

(MARKS - 05)

TOWN PLANNING

Origin and evolution of human settlements from pre – history: - Human settlements as an expression of civilization - Town planning in ancient - Mesopotamia, Greece, Rome. Contribution of Ebenezer Howard, Clarence Stein and Patrick Geddes town planning. - Impact of urbanization on cities, urban environmental problems - Models of urban structure, CBD, nodes, peri-urban areas, ribbon development, Transit oriented development. **Urban roads:** - objects - Planning principles - classification of urban roads - through and bye-pass Roads - outer and inner roads - expressways - freeways - types of street systems -precinct-traffic Management - objects - traffic congestion - traffic control - road junctions - planning principles - classification of junctions - parking - types of parking.

MODULE – 04

(MARKS - 10)

CLIMATOLOGY, GREEN BUILDING AND ENERGY CONSERVATION

Climate and weather: - definitions. Principal climatic elements - Classification of tropical climates - Site climate - Urban climate - Ventilation and air movement - Passive design - - thermal insulation – Shelter for hot - dry climate, warm humid climates, composite climates, tropical upland climate traditional shelter. **Green Building:** - Site selection, Site selection strategies, Landscaping, building form, orientation, building envelope and fenestration, material and construction techniques, roofs, walls, fenestration and shaded finishes, advanced passive heating, and cooling techniques. **Principles and planning of green building:** - Features, Environmental design - green building materials and products - green roofing. **Energy conservation:** - Energy efficiency, Water efficiency, Material Efficiency, Indoor Air Quality. Energy Audit. Renewable Energy Resources - Non-renewable Energy Resources. **Rating systems for assessment of green building:** - LEED India Rating System and Energy Efficiency - Indian Green Building council (IGBC) Green rating - Heating Ventilation Air Conditioning (HVAC) unit in green Building - Bureau of Energy efficiency (BEE).

MODULE – 05

(MARKS - 10)

ENGINEERING MECHANICS AND THEORY OF STRUCTURE

Basics of mechanics, force system: - Applied mechanics, Statics, Dynamics. Space, time, mass, particle, flexible body, and rigid body. Scalar and vector quantity, **Units of measurement:** - Fundamental units and derived units. **Lami's Theorem:** – statement and explanation. **Types of beams, supports and simple truss:** - Types of beams, supports and loads acting on beam. Point load, uniformly distributed load, combination of Point load and uniformly distributed load. **Friction:** -Types and laws of friction, limiting equilibrium, limiting friction, co-efficient of friction, angle of friction, angle of repose, relation between co-efficient of friction and angle of friction. **Simple stresses and strains:** - Definition of rigid, elastic, and plastic bodies, deformation of elastic body under various forces, Definition of stress, strain, elasticity, Hook's law, Elastic limit, Modulus of elasticity- simple problems. **Type of Stresses:** -Direct, Bending, Shear and Torsion - nature of stresses. Yield stress, Proof stress, Ultimate stress, Strain at various critical points, Percentage elongation. **Mechanical properties of materials:** - Elasticity, stiffness, plasticity, toughness, brittleness, ductility, Malleability, and hardness. Longitudinal and lateral strain, Modulus of Rigidity, Poisson's ratio, volumetric strain, change in volume, Bulk modulus. Relation between modulus of elasticity, modulus of rigidity and bulk modulus. **Shear Force and Bending Moment:** - Types of supports, beams and loads. Concept and definition of shear force and bending moment, Relation between load, shear force and bending moment. distributed loads. Bending and Shear Stresses in beams.

MODULE – 06

(MARKS - 05)

AUTOCAD SOFTWARE

Personal Computer: - Knowledge of Computer hardware and software. **Elementary commands and menus of AUTOCAD software:** - 2D commands and use of different menus. Uses of Cadd techniques – documentation and presentation – printer/plotter.

HISTORY OF ARCHITECTURE

Buddhist period:- forms of structures - stupa - Sanchi stupa - stambha - Chaithya halls - Viharas - planning pattern of viharas at different periods - rock cut caves at Ajantha **Hindu temples:** - typical layout - different styles- North Indian - central Indian - South Indian temples Architectural features of - Orissan Temples - Lingaraja temple at Bhuvanewar - Sun temple at Konark - Khajuraho group temples - Khandariya Mahadev Temple - Chalukyan Architecture - Ladkhan temple at Aihole - South Indian temples - Pallava style - mandapas and rathas - Shore Temple - Chola style - Brihadeswara Temple - Pandya style - Gopuram - Vijayanajar style - General features - Madurai style - Meenakshi temple **Kerala Architecture:** - Factors influencing development of Architecture - Evolution of temple forms - Layout of temple - Evolution of residences - form of residences. **Islamic Architecture:** - General features - Different periods - Imperial style - Slave dynasty - Qutb Minar - Khilji dynasty - Alai Darwaza - Tughlaque dynasty - Tomb of Tuglaque - Sayyid and Lodhi dynasty - Tomb architecture - Mughal style - Akbar - Architecture at Fathehpur sikri and red fort - Shah Jahan -Taj mahal. **Factors influencing the architectural style of Egyptians:** - Geographical, Geological, Climatic, Historical, Religious and Social conditions. **Factors influencing the architectural style of Greece:** - Geographical, Geological, Climatic, Historical, Religious and Social conditions. **Factors influencing the architectural style of Romans** - Geographical, Geological, Climatic, Historical, Religious and Social conditions. **Gothic:** - Factors influencing the architectural style - general character Structural systems which adopted in gothic style. **Renaissance:** - Factors which influence the development of renaissance architecture St. Peter's Cathedral, Rome.

INTERIOR DESIGN AND LANDSCAPE DESIGN

Interior design methodology: - Space modulation- quantitative and qualitative - quality of interior space - colour and light. **Anthropometry and ergonomics:** - Human dimensions, Living room furniture, bedroom furniture, study table, dining tables, chairs, cupboards, shelves, display furniture. Finishing material for walls. **Curtains:** - function - terminology - materials - blinds - carpets - types – rugs. Design Criteria for physically challenged people for furniture and interior spaces. **Design concepts of residential interiors:** - plan, sectional elevations, and specifications of residential interiors. **False ceiling:** - types – materials. **Flooring:** - Types of floors finishing. **Paints and polishing:** - Types of paints - Painting techniques - Types of varnishes. **Partition wall:** - Property of a good partition wall - Types of partition wall. **Lighting:** – function- Different types of lighting arrangements - outdoor and indoor lighting - Variety of lamps - Electrical accessories.

Landscape architecture: – objectives – elements of landscape architecture – natural and artificial – principles of landscape design- Formal and Informal gardens- Plants- Botanical nomenclature. -Horticultural classification of plants - Classification of trees - - operational classification- Lawn: - methods of installation - maintenance of lawn. **Softscape and Hardscape elements. Paving:** - different types – flexible and rigid- vehicular paving and pedestrian paving. Curbs –types. **Retaining walls:** - types - gravity retaining wall concrete cantilevered retaining wall, crib wall, green retaining wall. **Fences:** – types of fences. **Landscape in interiors:** - plants used in different types of spaces. **Grading:** –definition and

objectives- use of landscape elements in environmental controls - Indoor Garden and terrace garden.

MODULE – 09

(MARKS - 15)

BUILDING CONSTRUCTION AND CONSTRUCTION MANAGEMENT

Building materials: - Natural, Artificial, special, finished and recycled. **Building finishes:** - Types, uses. Classification of Buildings-**Building Constructions:** - Load Bearing wall Structure, Framed Structure, Composite Structure, Steel Structure etc. **Building Components:** - Substructure – Superstructure – types – uses. **Roofs:** - types – Materials. **Building services –** Electrical – Plumbing – Ventilation - Air conditioning– Firefighting- Lifts and escalators- Acoustics – types – uses – materials etc. **Repairs and maintenance of structures:** - Types, repair, retrofitting, re-strengthening, rehabilitation, and restoration. **Construction Management:** -Principles of Management - Elements of Network - Detailed Project Report - CPM networks – Floats- PERT networks - Material Management- Store management - **Tender and procedure:** -EMD, Security Deposit - **Construction contracts:** - Contract documents - Contract Management - Construction safety.

MODULE – 10

(MARKS - 05)

ENTREPRENEURSHIP AND PROFESSIONAL PRACTICE

Entrepreneurship: - Definitions, Traits of an Entrepreneur, Intrapreneur, Entrepreneurs and Managers, Women Entrepreneurship, Rural and Urban Entrepreneurship - Types of Enterprises, Small Scale, Medium Scale and Large-Scale Enterprises. **Professional practice:** - Architects act 1972 – architect’s practice - code of professional conduct – duties, responsibilities, and liabilities of Architect / Interior designer – council of architecture (COA)- IIA -IIID - articles of agreement - Indian arbitration act – Valuation – objective - role, importance, methods etc.

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.