

**FURTHER DETAILS REGARDING MAIN TOPICS OF
PROGRAMME No. 12/2019 (Item No.20,21)**

**JUNIOR INSTRUCTOR (DRAFTSMAN CIVIL), ENGINEERING
ASSISTANT GRADE II (SR FROM AMONG ST ONLY)**

**INDUSTRIAL TRAINING DEPARTMENT ,KERALA STATE
CONSTRUCTION CORPORATION LIMITED**

(Category No.216/2018,096/2018)

MODULE-1

ENGINEERING GRAPHICS

Drawing Standards – size of drawing sheets, Layout of drawing sheets

Dimensioning – Dimension line, Extension line, Arrow heads and Leader.

Scales – Meaning of drawing to scale, Representative fraction, Reduced scale, Enlarged scale, Full size scale, Plain scale, Diagonal scale.

Projection of Points, Lines and Planes – Projection of points in different quadrant, projection of straight lines, projection of planes.

COMPUTER AIDED DRAFTING – AutoCAD

Drawing using CAD, CAD system components, Computer hardware and software, Elements of Drawing window, Application of CAD, System requirements.

Working with CAD, Setting limits, Drawing lines, simple shapes – Rectangle, Circle, Arc.

Using Grid and Snap, Editing drawings using various MODIFY commands, Adding dimensions and Text.

MODULE-2

BUILDING PLANNING AND DRAWING

Identify the conventional signs of building materials, Understand Planning requirements
Plinth area, Floor area, Carpet area, Floor area ratio, Coverage of building, Height of building,
Building line, Setback line, Head room, Mezzanine floor, Basement floor, Detached
building, Row houses.

Classification of building and requirements of parts of Residential, Institutional and Hospital
buildings as per National Building Code (NBC) and Kerala Municipal Building Rules (KMBR).

MODULE-3

SURVEYING

Principles of surveying, Classification of surveying, Units of measurements, Linear and Angular measurements.

Chain surveying

Compass surveying

Plane Table surveying

Theodolite surveying

Levelling – Classification of Levelling

Principle of Contouring

Total station, Global Positioning System (GPS),

Geographical Information System (GIS).

MODULE-4

CONSTRUCTION MATERIALS AND ENGINEERING

Understand different types of structural building materials ---Stone, Clay products, Lime, Cement, Aggregates, Mortar, Concrete, Timber & wood products, Metal- ferrous metal and non-ferrous metals.

CONSTRUCTION TECHNOLOGY –

Classification of Masonry walls- Load bearing, Non-load bearing, retaining walls.

Stone Masonry

Brick Masonry

Damp Proof Course (DPC)

Plastering and Pointing

Building Components – Different components of building from foundation to roof and their function.

Foundation

Flooring

Door and Windows

Lintels and Sunshades

Vertical Transportation – Stairs and Staircases.

Ceiling

Roof

MODULE-5

THEORY OF STRUCTURES

Forces and Moments, Centre of Gravity, Moment of inertia, Mechanical properties of materials, Temperature stresses, Strain Energy.

Beams and Bending – Calculation of shear force and Bending moment for Cantilever, Simply supported and Overhanging beams.

DESIGN OF RCC STRUCTURES

Know the properties of Ingredients of concrete

Properties of concrete.

Concept of Limit State Design

Limit state design for Beams

DESIGN OF STEEL STRUCTURES

Properties of structural steel.

Advantages and Disadvantages of steel structures over RCC structures.

Bolted and welded connections

Plate Girder – Fundamentals, Parts and Function.

MODULE-6

QUANTITY SURVEYING (Estimating & Costing)

Definition, Units of Measurements,

Different types of Estimate,

Earthwork computation

Estimation of road work

Compute reservoir capacity from contour map using trapezoidal rule and Prismoidal rule.

Different methods of taking out quantities – Centre line method, Long wall and Short wall method

Analysis of rates – Standard Data book, Schedule of rates, Contractors profit.

Conveyance statement for different materials

Preparation of Abstract of Estimate.

MODULE-7

ENVIRONMENTAL ENGINEERING

Water supply engineering, Sources of Water, Conveyance of water, Purification of water, Sampling and

Testing of water- physical, Chemical and Bacteriological tests.

SANITARY ENGINEERING

Definition of terms – Sewage, refuse, garbage, sullage etc.

Drainage and Sanitation in building: - Sanitary fittings – traps, water closets, flushing cisterns, urinals.

MODULE-8

IRRIGATION ENGINEERING

Fundamentals of Irrigation and Hydrology, Basic method of Irrigation, Perennial and

inundation irrigation, Flow and Lift irrigation, Principal crop seasons in India

(Rabi & Kharif), Water requirements for crops, Define Duty, Delta, Base period and

Crop period, Express the relation between Duty, Delta and Base period, Define

Catchment, rainfall, run-off.

Types of rain gauges, Methods of estimating average rainfall over a catchment.

Storage and diversion headworks, Dams- rigid and non-rigid dams, Types of Earth dams.

HIGHWAY ENGINEERING

Identify the role of IRC (Indian Road Congress) & IRC classification of roads, Major SH and NH in Kerala. Traffic Engineering- Traffic Control Devices – Traffic signs, Traffic signals and Road markings, Different types of Traffic signs – Mandatory, Cautionary and Informatory signs.

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
