

L_All_Vocatinal_Ed_Construction

Sector: Construction

Sr. No	Specialisation	Page No
1	Construction and Building Technology	02

VOCATIONAL EDUCATIONAL QUALIFICATION FRAMEWORK
(Sector - Construction and Building Technology)

S.No.	Certificate Level	Vocational Hours
1.	Level-I	500 hrs
2.	Level-II	800 hrs
3.	Level-III	600 hrs
4.	Level-IV	700 hrs
5.	Level-V	800 hrs

Certificate Level I

1. Infrastructure

- Infrastructure - components
- *Rural Infrastructure* and Urban Infrastructure
- Infrastructure in India
- Infrastructure Development - an overview
- Infra structure development in India
- Infrastructure Management

2. Masonry

- Technical terms
- Tools& Uses
- Construction materials
- Building components
- Mortar and concrete
- curing
- Safety measures
- Setting and marking
- Transfer of levels
- Brick masonry and types
- Quantity estimation of different components of single room buildings
- curing and curing methods
- Safety measures

3. Barbending-I

- Technical terms
- Tools& uses
- Types of steels
- Ties and bending methods
- Slab reinforcement - one way slab and Two way slab
- Slab reinforcement -revision
- Lintel and sunshade reinforcement
- Column and footing reinforcement

- Reinforcement for beams
4. **Plumbing & Sanitation-I**
 - Technical terms , necessity
 - Advantages and Disadvantages
 - Basic materials for Plumbing and Sanitation
 - Basic materials for Plumbing and Sanitation
 - GI Pipe marking, cutting threading, jointing
 - PVC -Pipe marking, cutting threading, jointing
 5. **Painting**
 - Technical terms , necessity
 - Basics of White washing, Colour washing and painting
- Welding**
- Fundamentals
 - fundamentals , safety measures
6. **Roads**
 - fundamental/classification of roads, cross drainage works

Certificate Level II

1. **Infrastructure-II**
 - Infrastructure investment, Economic growth, Poverty alleviation
 - Infrastructure sector wise growths
 - Deficiency of infra sector in India
 - Urbanisation and Economic growth in India
 - Basics of financing infrastructure
2. **Masonry-II**
 - Stone masonry
 - Fixing of doors and windows
 - Plastering and pointing
 - Quantity estimation of Two bed room house
 - Safety measures
3. **Bar bending-II**
 - Reinforcements for Columns & footings, one way slabs and two slabs & beams - revision
 - Reinforcement for Staircase
4. **Plumbing and Sanitation-II**
 - Building Services, sump, principal of overhead tank, types of valves and uses
 - Water meter connection
 - Water closets, urinals, flush tank
 - Septic tank and soak pits
 - Solid Waste and Liquid Waste - Recycling and Reuse

5. **Painting**
 - Types of paints
 - Preparation of surface
 - Wall lapum ,Wall painting
 - Wood surface polishing , varnishing

6. **Roads-II**
 - Types of Roads

7. **Welding-II**
 - types ,safety measures

8. **Form work**
 - formwork- material
 - importance of form formwork

9. **Electrical House wiring**
 - Electrical Graphical symbols and signs
 - Do & Don'ts in electric field
 - Types of wires used in wiring
 - systems of wiring
 - ISI rules for house wiring
 - fixing of sockets and switches
 - types of Electric circuits and connections(Lights and Fans)
 - Electrical measuring equipments
 - Safety Measures
 - AC Single phase motor
 - AC Three phase motor
 - Connection of single phase motor with suitable motors
 - Connection of three phase motors with DOL starter
 - Submersible pumps
 - Transformers -types and working principles
 - Visit to substation s- 11KV and 33 KV
 - safety measures

10. **Assistant works supervisor**
 - Measurement length, Width, depth in MKS, FPS system
 - Menstruation - area, Volumes of different shapes
 - Drawing - conventional symbols
 - Drawing by Manual or AutoCAD
 - Reading of drawing - Plan, Elevation, cross section, different elements
 - Surveying - Leveling
 - Roads -Types
 - Bridges - Components

- Stores- Receipts and issues
 - Site visit
 - safety measures
11. **Green Building Technology**
 - Renewable energy, non-Renewable energy and Green building technologies
 12. **Renewable energy**
 - Solar energy and wind energy
 13. **Basics of Interiors**

Certificate Level -III

1. **Engineering Drawing**
2. **Methods of surveying**
3. **Any one from - Building Construction or Road or Culverts / Minor Bridges**
 - **Building Construction**
Soil investigation
Building drawing
Sub structure
Superstructure
Floorings, finishing etc. estimation
Construction materials and tests Equipment
Workmanship
 - **Roads**
Soil investigation, Design of Roads: Highways (Flexible and Rigid) and rural Roads
High embankments and Retaining walls
Construction and maintenance of Roads
Construction materials and tests
Quantity Estimation
Conducting test for material
Equipment, workmanship
 - **Culverts /Minor Bridges**
Selection of site, Hydraulic data
Soil investigation
Sub structure
Superstructure
Construction materials and tests
Quantity Estimation
Construction
Equipment, Workmanship

Certificate Level IV

1. **Surveying**
2. **Building Construction or Roads or Culverts / Minor Bridges**
other than already studied in level 5
3. **Cross Drainage Works**
Cross Drainage Works for Roads
4. **AutoCAD 1**
5. **Building Construction**
Soil investigation
Building drawing
Sub structure
Superstructure
Floorings, finishing etc. estimation
Construction materials and tests Equipment
Workmanship
6. **Roads**
Soil investigation, Design of Roads: Highways (Flexible and Rigid) and rural Roads
High embankments and Retaining walls
Construction and maintenance of Roads
Construction materials and tests
Quantity Estimation
Conducting test for material
Equipment, workmanship
7. **Culverts /Minor Bridges**
Selection of site, Hydraulic data
Soil investigation
Sub structure
Superstructure
Construction materials and tests
Quantity Estimation
Construction
Equipment, Workmanship

Certificate Level V

1. **Surveying**
2. **Auto CAD 2**
Any subject or combination of the following subjects totaling 600 or more hrs
3. **Any one**
Building Construction or Roads or Culverts /Minor Bridges other than already studied in level 5 or level 6
4. **Major bridges**
Including Alignment and Geometry
Soil investigation
Scaffolding and Form work
Sub structure
Superstructure
Construction materials and tests
Quantity Estimation
Study of bearings
Construction, Load test
Equipment, Workmanship
5. **Steel structures**
Fundamentals of design of steel structures : merits and demerits , loads, structural sections
Joints: Bolts, Rivets, Welded joints
Column bases,
Columns
Beams
Trusses – construction
6. **Pre-stressed bridges**
Materials used and their properties-concrete, high strength steel-Specifications I.S. Code provisions-Losses in pre stressing.
Cable profile – Anchorage Zones.
Construction / Methods of pre stressing and observation
Equipment, workmanship
Conducting tests for materials and Load tests
Materials used and their properties-concrete, high strength steel-Specifications I.S. Code provisions-Losses in pre stressing.
7. **Water supply**
Sources of water
Water demand
Quality of water and testing
Water supply system: collection and treatment, conveyance and distribution
Systems of supply

Water sump and Over head tank etc.

8. **Sanitary Engineering**

Sewage

Systems of sewage disposals

Types of Sewers and Appurtenances

Methods of disposal of solid wastes and sanitation, Sewage treatment plants

Construction

Rural sanitation

9. **Irrigation structures**

Earthen Dams: selection of site, ayacut assessment

Types of Earthen Dams, Methods of Construction, Causes of failure, Design Criteria, selecting a suitable

preliminary section for an earthen Dam, Determination of line of seepage or phreatic line in Earthen Dam , stability of u/s and d/s

slopes, seepage control in Earthen Dam, Design of filters, slope protection

Hydraulic structures for canals:

Canal falls – necessity, locations, various types and description of each type, Head regulator, sluices and cross regulator- location, construction

10. **Repairs and Rehabilitation of buildings**

Causes of deterioration

Evaluation Tests

Construction Chemicals

Specification For execution of Repairs

Techniques for repairs of Rehabilitation

11. **Repairs and Rehabilitation of Bridges**

Causes of deterioration

Evaluation Tests

Construction Chemicals

Specification For execution of Repairs

Techniques for repairs of Rehabilitation