

**MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION,  
MUMBAI -51**

1	Name of Syllabus	C. C. IN CENTRER – CUM – CONCRETE WORKER. (304103)																																								
2	Max.Nos of Student	25 students.																																								
3	Duration	6 Months																																								
4	Type	Part Time																																								
5	Nos Of Days / Week	6 Days																																								
6	Nos Of Hours /Days	4 Hrs																																								
7	Space Required	Workshop = 300 Sq feet <u>Class Room = 200 Sq feet</u> TOTAL = 500 Sq feet																																								
8	Entry Qualification	VII standard passed																																								
9	Objective Of Syllabus/ introduction	To acquire maximum skills in the field of centering and concreting																																								
10	Employment Opportunity	Petty Contractor Centering Contractor Bar bender Fitter Vibrator Operator																																								
11	Teacher’s Qualification	ITI Building Construction / HSC Vocational in Building Maintenance/ C C In mixer/vibrator operator cum mechanic with 1 year exam.																																								
12	Training System	<table><tr><th colspan="3">Training System Per Week</th></tr><tr><td>Theory</td><td>Practical</td><td>Total</td></tr><tr><td>6 Hours</td><td>18 Hours</td><td>24 Hours</td></tr></table>						Training System Per Week			Theory	Practical	Total	6 Hours	18 Hours	24 Hours																										
Training System Per Week																																										
Theory	Practical	Total																																								
6 Hours	18 Hours	24 Hours																																								
13	Exam. System	<table><tr><th>Sr. No.</th><th>Paper Code</th><th>Name of Subject</th><th>TH/PR</th><th>Hours</th><th>Max. Marks</th><th>Min. Marks</th></tr><tr><td>1</td><td>30410311</td><td>Building Elements</td><td>TH-I</td><td>3 hrs</td><td>100</td><td>35</td></tr><tr><td>2</td><td>30410321</td><td>Concrete work</td><td>PR-I</td><td>6 hrs</td><td>200</td><td>100</td></tr><tr><td>3</td><td>30410322</td><td>Basic Tools and Related Work</td><td>PR-II</td><td>3 hrs</td><td>100</td><td>50</td></tr><tr><td></td><td></td><td>Total</td><td></td><td></td><td>400</td><td>185</td></tr></table>						Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks	1	30410311	Building Elements	TH-I	3 hrs	100	35	2	30410321	Concrete work	PR-I	6 hrs	200	100	3	30410322	Basic Tools and Related Work	PR-II	3 hrs	100	50			Total			400	185
Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks																																				
1	30410311	Building Elements	TH-I	3 hrs	100	35																																				
2	30410321	Concrete work	PR-I	6 hrs	200	100																																				
3	30410322	Basic Tools and Related Work	PR-II	3 hrs	100	50																																				
		Total			400	185																																				

## **THEORY :- PAPER - I - Building Elements**

**Introduction to building elements** :- such as Foundation, Plinth, Walls, offsets, doors and windows, Floors, Roofs, Stair and Staircases.

**Mortar** :- Meaning, Types, Ingredients of mortar Different proportions and their uses in different situations. Tools required for preparation of different types of mortar. Method of preparation of different types of mortar. Factor affecting strength of mortar.

**CONCRETE** : Meanings, Glossary of terms pertaining to concrete mixing & (20) placing. Types of concrete. Ingredients of concrete, General properties of ingredients. Properties of good concrete i.e. strength. Durability, water tightness, compactness. Grades of concrete and proportioning. Workability of concrete. Factors affecting workability. Water cement ratio. Compressive strength of concrete factors affecting the strength of concrete tools required for preparation of concrete their care & maintenance preparation of concrete, lime concrete surkhi concrete, reinforced brick lime concrete. Glossary of terms related to stair & stair cases.

Points to be noted while preparing laying conveying & compaction Repair of cracks in R. C. Roofs (Methods, tools and material required).

**MACHINES & EQUIPMENTS** :- Mixers, types, operation Important points to be observed while using mixers, placing of concrete, compaction of concrete vibrators, use, situations where different types of vibrators are used. Care & maintenance of Mixer & Vibrators.

**INTRODUCTION** :- R. C. C. Pre stressed concrete & precast cement concrete.

**SYSTEMS OF MEASUREMENT AND UNITS** :- Method of taking measurement simple problems of calculating area, Volume, Conversion of units. Introduction to carpentry : carpentry tools their uses their care and, maintenance. Joints in wood work. Glossary of terms related to form work.

**FORM WORK** :- Object, Materials required to Prepare form work. Types i.e. (20) Timber Plywood and steel sizes of Members for Timber form work. Advantages of Wooden, steel and plywood formwork.

**Construction**:- Tools required for construction of form work. Methods of constructing form work A Provision of camber, cleaning and surface treatment. Different structural members and their specifications for different situations. Point to be checked while constructing form work. Methods of checking levels use of Water level, Providing slopes.

Detailed Procedure of construction of form work for

1. R. C. C. Beam and slab.
2. Timber form work for square and octagonal column.
3. Timber form work for a stair.
4. Timber form work for a R. C. C. Arch.

Order and method of Removing form work. Period for removal of form work with respect to different structural members.

**SHORING & SCAFFOLDINGS** :- Glossary of terms related to shoring, meaning, object of shoring. Types of shoring & their constructional details. Construction procedure of raking flying and dead shoring.

**SCAFFOLDERING** :- Glossary of terms related to scaffolding meaning object of scaffoldings. Types of scaffoldings. Types of scaffolding, construction procedure of single, Double, Needle, Suspended & Steel scaffoldings. Different types of rope knots. Tools required for scaffolding their care and maintenance. Point to be noted while erecting scaffolding.

### **PRACTICAL – I – CONCRETE WORK**

Preparation of concrete for bed concreting in Foundation.

1. Preparation of Concrete for Footing in foundation.
2. Preparation of Concrete for R. C. C. slab (Hand Mixing) & Preparation of concrete in Mixer for R. C. C. Work.
3. Laying of concrete for Bed concreting. & Laying of concrete in column footing.
4. Laying of concrete for stair cases.
5. Laying of concrete for floors including finishing.
6. Laying concrete for R. C. C. Arches lintels and beams.
7. Laying concrete for Architectural Mouldings.
8. Use of Vibrators.
9. Measure the Quantity of concreting work for.-
  - Bed concreting.
  - Concreting for lintels and sunshades.
  - For column Beam and footings.
  - For stair cases and Arches.

### **PRACTICAL – III - BASIC TOOLS AND RELATED WORKS**

1. Use of carpentry Tools.
2. Preparation of simple Joints lap and Butt.
3. prepare shuttering for Arches and lintels.
4. Prepare shuttering for columns and beams.
5. Prepare centering for R. C. C. slab.
6. Prepare form work for Architectural mouldings.
7. Prepare form work for frame structure.
8. Care and maintenance of Tools Required for form work .
9. Erection of Scaffolding by using various materials available.

\*\*\*\*\*