

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

1	Name of Syllabus	<b>C. C. IN TRACERS (304201)</b>																																																
2	Max.Nos of Student	25 Students																																																
3	Duration	1 year																																																
4	Type	Part Time																																																
5	Nos Of Days / Week	6 Days																																																
6	Nos Of Hours /Days	4 hrs.																																																
7	Space Required	1) Workshop = 300 sq feet 2) Class Room = 200 sq feet TOTAL = 500 sq feet																																																
8	Entry Qualification	S.S.C. Pass																																																
9	Objective Of Syllabus/ introduction	To acquire maximum skills in Tracing																																																
10	Employment Opportunity	Can work as tracer / Asst. Tracer to Architect																																																
11	Teacher’s Qualification	B.E. Civil Engg. / Diploma Civil Engg. With professional experience in Tracing																																																
12	Training System	<table><tr><th colspan="7">Training System Per Week</th></tr><tr><td colspan="2">Theory</td><td colspan="2">Practical</td><td colspan="3">Total</td></tr><tr><td colspan="2">6hrs</td><td colspan="2">18hrs</td><td colspan="3">24hrs</td></tr></table>							Training System Per Week							Theory		Practical		Total			6hrs		18hrs		24hrs																							
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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>Mini. Marks</th></tr><tr><td>1</td><td>30420111</td><td>Drawing</td><td>TH-I</td><td>3 hrs.</td><td>100</td><td>35</td></tr><tr><td>2</td><td>30420112</td><td>Tracing</td><td>TH-II</td><td>3 hrs.</td><td>100</td><td>35</td></tr><tr><td>3</td><td>30420121</td><td>Drawing</td><td>PR-I</td><td>6 hrs.</td><td>200</td><td>100</td></tr><tr><td>4</td><td>30420122</td><td>Tracing</td><td>PR-II</td><td>6 hrs.</td><td>200</td><td>100</td></tr><tr><td></td><td></td><td>Total</td><td></td><td></td><td>600</td><td>270</td></tr></table>							Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Mini. Marks	1	30420111	Drawing	TH-I	3 hrs.	100	35	2	30420112	Tracing	TH-II	3 hrs.	100	35	3	30420121	Drawing	PR-I	6 hrs.	200	100	4	30420122	Tracing	PR-II	6 hrs.	200	100			Total			600	270
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## **SYLLABUS**

### **Theory –I - Drawing**

1. Elementary arithmetic involves addition, subtraction, multiplication and division of decimals. Conversion of decimals into vulgar fractions and vice versa, Metric system.
2. Drawing instruments and equipment and equipment used by tracers, their use, maintenance and care. Sharpening of pencils.
3. Common simple geometrical figures and their areas.
4. Solids and their classification. Areas and columns.
5. Representation on plane surface of three dimension objects. 1<sup>st</sup> angle and 3<sup>rd</sup> angle projections.
6. Constructions and reading of plain and diagonal scales.
7. Projection of solids, lines and their meaning, Lettering, single stroke and block, commercial and gthic (Vertical and slant ), dimensioning technique, section and line conventions for metals.
8. Isometric scale and drawing.

### **Theory – II - Tracing**

9. Introduction to common engineering metal, Ferrous and non-ferrous.
10. Engineering fastening, screw threads and locking arrangements.
11. Patterns, types of patterens, use of fillets and pattern allowances.
12. Sketching of simple machine parts.
13. Tracing their use and care.
14. Order of linking of drawings.
15. Colouring of the drawings and tracings.
16. Colour conventions.
17. Printing, preparation of sanitized solution, ferroprussuate and Ferro folic, application of solution and care.
18. Machining marks and symbols.  
Printing and washing the blue prints, storing of sensitized paper and blue prings, and photographic method of copying and preparation of prints

## **PRACTICAL – I**

### **Drawing**

1. Lin work-light medium, heavy
2. Lettering-Single stock and block (Vertical and slant)
3. Conventions for metals (Section and section line)
4. Drawing of simple plane geometrical figures and dimension
5. Isometric drawings of simple solids
6. Projections of regular solids
7. Projections of solids of revolution and pyramids
8. Sketching and drawing of simple machine parts
9. Conventions for screw threads
10. Conventions for section
11. Making detailed and assembled drawings of simple machine parts
12. Enlarging and reducing the drawings
13. Colouring of drawings.

## **PRACTICAL –II**

### **Tracing**

1. Line work
2. Lettering
3. Plane geometrical figures
4. Isometric drawings
5. Projections of simple solids
6. Conventions of sections and screw threads
7. Tracing of irregular curves and the use of french curves
8. Tracing of simple drawing
9. Tracing of detailed and assemble drawings
10. Tracings of charts and visual aids
11. Preparation and application of sensitized solutions ferro prussiate and galic
12. Blue printing.

## List of Tool/ Equipment/ Furniture/ Raw Material

Sr. No.	Name of Items	Quantity
<b>A</b>	<b><i>Practical (Drawing):-</i></b>	25
1	Drawing Board	25
2	Drawing Table	25
3	Drawing Instrument Box	25
4	Pro-circle	25
5	Acrylic Plastic Ruler 60 cms with engraved calibration.	25
6	Scale card board -metric set of eight A to H in a box 30cms	25
7	T Square / Mini Drafter	25
8	Set Square (set)	25
9	Triangular Scale	25
10	Glass board 8' x 4'	01
<b>B</b>	<b><i>Practical (Tracing):-</i></b>	
1	Rapidograph Technical Ink Pens / Staedtler (0.1, 0.3, 0.5, 1.0)	As per requirement
2	Ammonia Paper Roll 10 Sqm	As per requirement
3	Ammonia prints machine with developing chamber	01
4	MS Stand	01
5	Kilburns trimming M/c of 1 meter length	01
6	Table	01

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