



GOVERNMENT OF INDIA  
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP  
DIRECTORATE GENERAL OF TRAINING

**COMPETENCY BASED CURRICULUM**

# **DOMESTIC PAINTER**

(Duration: One Year)

**CRAFTSMEN TRAINING SCHEME (CTS)**

**NSQF LEVEL- 4**



**SECTOR – CHEMICAL**

# DOMESTIC PAINTER

(Engineering Trade)

(Revised in 2018)

**CRAFTSMEN TRAINING SCHEME (CTS)**

**NSQF LEVEL - 4**

**Skill India**  
कौशल भारत - कुशल भारत

Developed By

Ministry of Skill Development and Entrepreneurship

Directorate General of Training

**CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE**

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## 1. COURSE INFORMATION

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During the one-year duration of “Domestic Painter” trade, a candidate is trained on Professional Skill, Professional Knowledge and Employability Skill. In addition to this, a candidate is entrusted to undertake project work, extracurricular activities and on-the-job training to build up confidence. The broad components covered related to the trade are categorized in two semester each of six months duration. The semester wise course coverage is categorized as below: -

**1<sup>st</sup> Semester** – During this semester the trainees will recognize and comply safe working practices with PPE and MSDS. They will also learn hazard and non hazard items, uses of fire fighting equipments. They will also go through the allied training on carpenter, sheet metal work. Preparation of different types of wooden surface and painting on it. Knowledge of various pipe fittings, cutting and threading and also join/ fittings of different materials of different diameters. They will practice on DTP, corfel draw and photo shop with different paint software. Create ornamental designs for stencils, cut it and make a print.

**2<sup>nd</sup> Semester**– During this semester they will practice on building painting using different decorative painting. Paint and decorate exterior articles. Process on pipes & pipe line painting for hospitals & commercial buildings with colour code. Practice on plaster of Paris. (P.O.P.) Create Textures on wall surface. Process for Interior work in commercial places. Practice on Texture material for relief work. Offices and corporate spaces for modern painting work. They will also practice on Estimation & Planning for Home renovation with computer aided designing, 2-D-/3-D design, productive work of screen printing.

### 2.1 GENERAL

The Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers a range of vocational training courses catering to the need of different sectors of economy/ Labour market. The vocational training programmes are delivered under the aegis of National Council of Vocational Training (NCVT). Craftsman Training Scheme (CTS) and Apprenticeship Training Scheme (ATS) are two pioneer programmes of NCVT for propagating vocational training.

Domestic Painter trade under CTS is one of the popular courses delivered nationwide through a network of ITIs. The course is of one-year (02 semester) duration. It mainly consists of Domain area and Core area. In the Domain area (Trade Theory & Practical) impart professional skills and knowledge, while Core area (Workshop Calculation science, Engineering Drawing and Employability Skills) impart requisite core skill & knowledge and life skills. After passing out of the training programme, the trainee is awarded National Trade Certificate (NTC) by NCVT which is recognized worldwide.

#### **Trainee broadly needs to demonstrate that they are able to:**

- Read and interpret technical parameters/ documentation, plan and organize work processes, identify necessary materials and tools.
- Perform tasks with due consideration to safety rules, accident prevention regulations and environmental protection stipulations.
- Apply professional knowledge & employability skills while performing the job and modification & maintenance work.
- Document the technical parameter related to the task undertaken.

### 2.2 CAREER PROGRESSION PATHWAYS

- Can join the apprenticeship program in different types of industries leading to a National Apprenticeship Certificate (NAC).
- Can join Crafts Instructor Training Scheme (CITS) in the trade for becoming an instructor in ITIs.

## 2.3 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of one-year (02 semesters):

S No.	Course Element	Notional Training Hours
1	Professional Skill (Trade Practical)	1050
2	Professional Knowledge (Trade Theory)	252
3	Workshop Calculation & Science	84
4	Engineering Drawing	126
5	Employability Skills	110
6	Library & Extracurricular Activities	58
7	Project Work	160
8	Revision & Examination	240
	<b>Total</b>	<b>2080</b>

## 2.4 ASSESSMENT & CERTIFICATION

The trainee will be tested for his skill, knowledge and attitude during the period of the course and at the end of the training program as notified by the Government of India (GoI) from time to time. The employability skills will be tested in the first two semesters itself.

a) The **Internal Assessment** during the period of training will be done by **Formative Assessment Method** by testing for assessment criteria listed against learning outcomes. The training institute has to maintain an individual trainee portfolio as detailed in assessment guideline. The marks of internal assessment will be as per the template (Annexure – II).

b) The final assessment will be in the form of summative assessment method. The All India Trade Test for awarding NTC will be conducted by NCVT at the end of each semester as per the guideline of Government of India. The pattern and marking structure is being notified by Govt. of India from time to time. **The learning outcome and assessment criteria will be the basis for setting question papers for final assessment. The examiner during final examination will also check** the individual trainee's profile as detailed in assessment guideline before giving marks for practical examination.

### 2.4.1 PASS REGULATION

The minimum pass percentage for practical is 60% & minimum pass percentage of theory subjects is 40%. For the purposes of determining the overall result, 50% weightage is applied to the result of each semester examination.



## 2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking the assessment. Due consideration should be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/waste as per procedure, behavioral attitude, sensitivity to the environment and regularity in training. The sensitivity towards OSHE and self-learning attitude are to be considered while assessing competency.

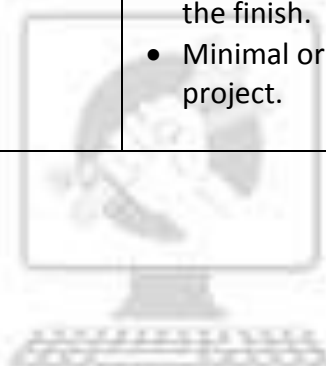
Assessment will be evidence based comprising the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work

Evidences of internal assessments are to be preserved until forthcoming semester examination for audit and verification by examining body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
<b>(a) Weightage in the range of 60%-75% to be allotted during assessment</b>	
For performance in this grade, the candidate should produce work which demonstrates attainment of an acceptable standard of craftsmanship with occasional guidance, and due regard for safety procedures and practices	<ul style="list-style-type: none"> <li>• Demonstration of good skill in the use of hand tools, machine tools and workshop equipment.</li> <li>• Below 70% tolerance dimension achieved while undertaking different work with those demanded by the component/job.</li> <li>• A fairly good level of neatness and consistency in the finish.</li> <li>• Occasional support in completing the project/job.</li> </ul>
<b>(b) Weightage in the range of 75%-90% to be allotted during assessment</b>	
For this grade, a candidate should produce work which demonstrates attainment of a reasonable standard of craftsmanship, with little guidance, and	<ul style="list-style-type: none"> <li>• Good skill levels in the use of hand tools, machine tools and workshop equipment.</li> <li>• 70-80% tolerance dimension achieved while undertaking different work with those</li> </ul>

<p>regard for safety procedures and practices</p>	<p>demand by the component/job.</p> <ul style="list-style-type: none"> <li>• A good level of neatness and consistency in the finish.</li> <li>• Little support in completing the project/job.</li> </ul>
<p>(c) Weightage in the range of more than 90% to be allotted during assessment</p>	
<p>For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship.</p>	<ul style="list-style-type: none"> <li>• High skill levels in the use of hand tools, machine tools and workshop equipment.</li> <li>• Above 80% tolerance dimension achieved while undertaking different work with those demanded by the component/job.</li> <li>• A high level of neatness and consistency in the finish.</li> <li>• Minimal or no support in completing the project.</li> </ul>



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#### **Brief description of job roles:**

**Painter, Building;** Painter, House applies coats of paint, varnish and other similar material to protect or decorate exterior and interior surface of buildings using spray gun, hand brush, etc. Selects paint materials. Mixes paints and matches colours by stirring together proper proportions of pigment, oil, thinner etc. and drying substances. Erects working scaffolding with bamboo poles and wooden planks or positions ladders at required height or places to be painted. Cleans surface packs, cracks and holes with mud fillers or mortar to prepare it for painting. Applies prime coat and allows it to dry. Brushes or sprays one or more coats of paint on surface to required finish. May finish and decorate surfaces with marble or brick and tile effects or by building silvering, stenciling etc.

**Reference NCO-2015:** 7131.0100



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## 4. GENERAL INFORMATION

<b>Name of the Trade</b>	<b>DOMESTIC PAINTER</b>
<b>NCO - 2015</b>	7131.0100
<b>NSQF Level</b>	Level-4
<b>Duration of Craftsmen Training</b>	One year (Two semesters each of six months duration)
<b>Entry Qualification</b>	Passed 10 <sup>th</sup> class examination under 10+2 System of education with science and mathematics or equivalent.
<b>Unit Strength (No. Of Student)</b>	20 (Max. supernumeraries seats: 6)
<b>Space Norms</b>	80 Sq. m
<b>Power Norms</b>	2.5 KW
<b>Instructors Qualification for</b>	
<b>1. Domestic Painter Trade</b>	<p>Degree in Paint Technology/ Bachelor of fine arts from recognized Engineering college/ university with one year experience in the relevant field.</p> <p style="text-align: center;"><b>OR</b></p> <p>Diploma in Paint technology/Painting from recognized board of technical education with two years experience in the relevant field.</p> <p style="text-align: center;"><b>OR</b></p> <p>NTC/NAC passed in the trade with 3 years post qualification experience in the relevant field.</p> <p><b><i>Desirable:</i></b> Preference will be given to a candidate with CITS (Craft Instructor Training Scheme) in relevant Trade.</p> <p><b><i>Preference will be given to a Candidate With Craft Instructor Certificate</i></b></p>
<b>2. Workshop Calculation &amp; Science</b>	<p>Degree in Engineering with one year experience.</p> <p style="text-align: center;"><b>OR</b></p> <p>Diploma in Engineering with two-year experience.</p> <p><b><i>Desirable:</i></b> Craft Instructor Certificate in RoD&amp;A course under NCVT.</p>
<b>3. Engineering Drawing</b>	<p>Degree in Engineering with one year experience.</p> <p style="text-align: center;"><b>OR</b></p>

	Diploma in Engineering with two-year experience. <b>OR</b> NTC/ NAC in the Draughtsman (Mechanical / Civil) with three-year experience.					
<b>4. Employability Skill</b>	MBA OR BBA with two-year experience OR Graduate in Sociology/ Social Welfare/ Economics with two-year experience OR Graduate/ Diploma with two-year experience and trained in Employability Skills from DGT institutes. <b>AND</b> Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above. <b>OR</b> <b>Existing Social Studies Instructors duly trained in Employability Skills from DGT institutes.</b>					
<b>List of Tools and Equipment</b>	As per Annexure – I					
<b>Distribution of training on Hourly basis: (Indicative only)</b>						
<b>Total Hours/Week</b>	<b>Trade Practical</b>	<b>Trade Theory</b>	<b>Workshop Cal. &amp;Sc.</b>	<b>Engg. Drawing</b>	<b>Employability Skills</b>	<b>Extra-curricular Activity</b>
40 Hours	25 Hours	6 Hours	2 Hours	3 Hours	2 Hours	2 Hours

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## 5. NSQF LEVEL COMPLIANCE

NSQF level for **Domestic Painter** trade under CTS: **Level 4**

As per notification issued by Govt. of India dated- 27.12.2013 on National Skill Qualification Framework total 10 (Ten) Levels are defined.

Each level of the NSQF is associated with a set of descriptors made up of five outcome statements, which describe in general terms, the minimum knowledge, skills and attributes that a learner needs to acquire in order to be certified for that level.

Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are:

- a. Process
- b. Professional Knowledge
- c. Professional Skill
- d. Core Skill
- e. Responsibility



The Broad Learning outcome of the **Domestic Painter** trade under CTS mostly matches with the Level descriptor at Level- 4.

The NSQF level-4 descriptor is given below:

Level	Process Required	Professional Knowledge	Professional Skill	Core Skill	Responsibility
Level 4	Job that requires well developed skill, with clear choice of procedures in familiar context.	Knowledge of facts, principles, processes and general concepts, in a field of work or study.	A range of cognitive and practical skills required to accomplish tasks and solve problem by selecting and applying basic methods, tools, materials and information.	Desired mathematical skill, understanding of social, political and some skill of collecting and organizing information, communication.	Responsibility for own work and learning and some responsibility for other's works and learning.

## 6. LEARNING/ ASSESSABLE OUTCOME

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***Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.***

### 6.1. GENERIC LEARNING OUTCOME

1. Recognize & comply with safe working practices, environment regulation and housekeeping.
2. Understand and explain different mathematical calculation & science in the field of study including basic electrical. *[Different mathematical calculation & science-Work]*
3. Interpret specifications, different engineering drawing and apply for different application in the field of work. *[Different engineering drawing-Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, Different Projections, Assembly drawing, Sectional views, Estimation of material]*
4. Select and measure dimension of components and record data.
5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day-to-day work to improve productivity & quality.
6. Explain energy conservation, global warming and pollution and contribute in day-to-day work by optimally using available resources.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day-to-day work for personal & societal growth.
8. Plan and execute the work related to the occupation.

### 6.2. SPECIFIC LEARNING OUTCOME

#### Semester – I

9. Marking, sawing, planning, Chiseling, Drilling.
10. Making a type of joints for different frames (like- Screen frame, sign board, & hanging Paintings frame).
11. Manufacture simple sheet metal items as per drawing and join them.
12. Manufacture simple sheet metal items as per drawing and join them by riveting.
13. Knowledge of various pipe fittings.
14. Working on Operating System, Practice on DTP, Corel Draw, Photo shop etc.
15. Produce stencils involving different shapes in ornamental design, text, symbols, etc. operations for different medium like papers, cards, tin, foam board, observing procedure and check for accuracy.

16. Produce Sign board, Name plate. prepare back ground painting, Observe finishing, lettering proportion & evenness.
17. Preparation of wooden surface used various techniques, decorate & make an attractive wooden article.
18. Prepare different types of wooden surface & paint it Like Plywood, MDF & low-quality wood.

### **Semester – II**

19. Develop Building painting using different decorative process.
20. Paint and decorate exterior articles.
21. Process on pipes & pipe line painting with colour code.
22. Use of plaster of Paris. (P.O.P.) Create Textures on wall surface. Process for Interior work in commercial places. Use of Texture material for relief work. Offices and corporate spaces for modern painting work.
23. Estimation & Planning for Home renovation with computer aided designing, 2-D-/3-D design. Texture and light effects for school Building. Use of mural and landscapes in interior work.
24. Develop a craft work knowledge about radium & vinyl cutting manually as well as plotter, pasting, etc.
25. Produced productive work of screen printing.



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## 7. LEARNING OUTCOME WITH ASSESSMENT CRITERIA

GENERIC LEARNING/ ASSESSABLE OUTCOME	
LEARNING/ ASSESSABLE OUTCOME	ASSESSMENT CRITERIA
1. Recognize & comply with safe working practices, environment regulation and housekeeping.	1.1 Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements.
	1.2 Recognize and report all unsafe situations according to site policy.
	1.3 Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
	1.4 Identify, handle and store/ dispose of dangerous/unsalvageable goods and substances according to site policy and procedures following safety regulations and requirements.
	1.5 Identify and observe site policies and procedures with regard to illness or accident.
	1.6 Identify safety alarms accurately.
	1.7 Report supervisor/ Competent of authority in the event of accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.
	1.8 Identify and observe site evacuation procedures according to site policy.
	1.9 Identify Personal Protective Equipment (PPE) and use the same as per related working environment.
	1.10 Identify basic first aid and use them under different circumstances.
	1.11 Identify different fire extinguisher and use the same as per requirement.
	1.12 Identify environmental pollution & contribute to avoidance of same.
	1.13 Take opportunities to use energy and materials in an environmentally friendly manner.
	1.14 Avoid waste and dispose waste as per procedure.
	1.15 Recognize different components of 5S and apply the same in the working environment.
2. Understand and explain different mathematical calculation & science in	2.1 Explain concept of basic science related to the field such as Material science, Mass, weight, density, heat & temperature, heat treatment.

the field of study including basic electrical. <i>[Different mathematical calculation &amp; science – Work]</i>	2.2 Measure dimensions as per drawing
	2.3 Use scale/ tapes to measure for fitting to specification.
	2.4 Comply with given tolerance.
	2.5 Prepare list of appropriate materials by interpreting detail drawings and determine quantities of such materials.
	2.6 Ensure dimensional accuracy of assembly by using different instruments/gauges.
	2.7 Explain basic electricity, insulation and earthing.
3. Interpret specifications, different engineering drawing and apply for different application in the field of work. <i>[Different engineering drawing-Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, Different Projections, Assembly drawing, Sectional views, Estimation of material]</i>	3.1 Read and interpret the information on drawings and apply in executing practical work.
	3.2 Read & analyse the specification to ascertain the material requirement, tools, and assembly/maintenance parameters.
	3.3 Encounter drawings with missing/unspecified key information and make own calculations to fill in missing dimension/ parameters to carry out the work.
4. Select and measure dimension of components and record data.	4.1 Select appropriate measuring scale/tape/gauges.
	4.2 Measure dimension of the components/assembly & compare with given drawing/measurement.
5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day-to-day work to improve productivity & quality.	5.1 Explain the concept of productivity and quality tools and apply during execution of job.
	5.2 Understand the basic concept of labour welfare legislation and adhere to responsibilities and remain sensitive towards such laws.
	5.3 Knows benefits guaranteed under various acts.
6. Explain energy conservation, global	6.1 Explain the concept of energy conservation, global warming, pollution and utilize the available recourses optimally & remain

warming and pollution and contribute in day-to-day work by optimally using available resources.	sensitive to avoid environment pollution.
	6.2 Dispose waste following standard procedure.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day-to-day work for personal & societal growth.	7.1 Explain personnel finance and entrepreneurship.
	7.2 Explain role of various schemes and institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non-financing support agencies to familiarize with the Policies/Programmes & procedure & the available scheme.
	7.3 Prepare Project report to become an entrepreneur for submission to financial institutions.
8. Plan and execute the work related to the occupation.	8.1 Use documents, drawings and recognize hazards in the work site.
	8.2 Plan workplace/ assembly location with due consideration to operational stipulation.
	8.3 Communicate effectively with others and plan project tasks.
	8.4 Execute the task effectively.

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SPECIFIC LEARNING/ ASSESSABLE OUTCOME	
LEARNING/ ASSESSABLE OUTCOME	ASSESSMENT CRITERIA
<b>SEMESTER-I</b>	
9. Marking, sawing, planning, Chiseling, Drilling.	9.1 Marking Practice on wood.
	9.2 Apply holding & sawing practice on different size of wood.
	9.3 Work on teeth setting & sharpening of different saw.
	9.4 Apply tenoning Half cut on wooden border.
	9.5 Make setting of planers & sharpening on plane blade.
	9.6 Do plane on different wooden surfaces.
	9.7 Do chiseling slots on thick wood.
	9.8 Drilling on wood with different drilling tools (Gimlet, Hand Drill, Portable elect. drilling machine.
10. Making a type of joints for different frames (like- Screen frame, sign board, & hanging Paintings frame	10.1 Make a simple lap joint.
	10.2 Make a simple mitred half lap joint.
	10.3 Make a simple Dovetail joint.
	10.4 Apply Joint fitting with nails, screw, glue etc.
11. Manufacture simple sheet metal items as per drawing and join them.	11.1 Marking practice of straight lines, circles, profiles and various geometrical shapes.
	11.2 Cutting practice of straight lines, circles, profiles and various geometrical shapes on sheets with snips.
	11.3 Marking out of simple development.
	11.4 Marking out for fold for joints.
12. Manufacture simple sheet metal items as per drawing and join them by riveting.	12.1 Make the joint of hemming, form locked.
	12.2 Make the joint of grooved and knocked up single hem
	12.3 Make the joint of straight and curved edges form double hemming.
	12.4 Make cylindrical objects with joints.
13. Knowledge of various pipe fittings	13.1 Identify & check different types of pipe.
	13.2 Do pipe cutting & threading
	13.3 Apply different types of pipe joint/ fitting of different materials & different diameter. (Use PVC pipe)
	13.4 Make joint/ fitting for rain water (Use PVC pipe)
	13.5 Make joint/ fitting for water pipe line (Use GI pipe)
	13.6 Make joint/ fitting for water pipe line (Use PVC pipe)
14. Working on Operating System, Practice on DTP,	14.1 Operate & familiarize with computer operating system.
	14.2 Operate paint software & draw freehand sketch & practice

Corel Draw, Photo shop etc.	on color bucket, eraser, pencil & all tools.
	14.3 Draw scenery like realistic in paint software
	14.4 Tool handling in photo shop familiarise with all hand tools.
	14.5 Make a different layer & create background, artistic text, design, images.
	14.6 Apply import photo image from file & scanner, edit photo images.
	14.7 Edit Image adjustment effects. & layer style effects.
	14.8 Edit special effect on different layer, colours, textures, filter effects.
	14.9 Edit & Save image in PSD, JPEG & other format.
	14.10 Create a colour advertise design for festival offer
	14.11 Develop export Design, image, photograph from Photoshop to other different format for different software's & make a print & print file for different printers.
	14.12 Tool handling in Corel draw familiarise with all hand tools Apply select /move /copy /objects, retire skew, size Objects.
	14.13 Apply Combine, Shape, weld, trim, Align, Group / Ungroup objects.
	14.14 Practice on add text & Format text create different heading & Sub-heading.
	14.15 Draw dimensionally objects. Creating special effects for backgrounds & related objects.
14.16 Do graphical effects to tex. Creating symbols, logo, special effects.	
14.17 Make a flex design for marketing offers. Convert & Save to CD/ DVD/ PD for final printing.	
15. Produce stencils involving different shapes in ornamental design, text, symbols, etc. operations for different medium like papers, cards, tin, foam board, observing procedure and check for accuracy.	15.1 Create ornamental designs for stencils.
	15.2 Cut the stencils & make a print.
	15.3 Draw simple sentence in different lettering stencil.
	15.4 Cutting & stencilling the letters.
16. Produce Sign board, Name plate. prepare back ground painting, Observe finishing, lettering proportion & evenness	16.1 Make sign board
	16.2 Paint the background of sign board.
	16.3 Make Figure Enlargement for sign board.
	16.4 Draw and painting letters & design or logo on Sign Board.
	16.5 Practice the Painting of name plate on different material

17. Preparation of wooden surface used various technics, decorate & make an attractive wooden article.	17.1 Apply Cleaning, sanding, knotting, stooping, staining preparation on wooden surface properly for polish.
	17.2 Make & apply putty for varnishing & polishing.
	17.3 Apply polish on prepared wooden surface with cotton rags.
	17.4 Apply Cleaning, sanding, knotting, stooping, staining preparation wooden surface properly for varnish.
	17.5 Apply varnish on prepared wooden surface with brush.
	17.6 Prepare wooden article & apply varnish with spray.
	17.7 Prepare wooden article & apply melamine or PU wooden finish with spray.
	17.8 Make a wooden top with thick layer of melamine polish.
18. Prepare different types of wooden surface & paint it. Like Plywood, MDF & low-quality wood.	18.1 Prepare wooden surface properly for painting.
	18.2 Practice of applying wood primer by brush.
	18.3 Make a putty for wood finishing.
	18.4 Apply putty & prepare wooden surface properly.
	18.5 Do paint wooden surface properly with brush
	18.6 Prepare & spray painting on different furniture take the all precautions.
<b>Semester-II</b>	
19. Develop Building painting using different decorative pr31.1.ss.	19.1 Prepare ceiling & Wall surface for lime wash. (Sanding & Cleaning)
	19.2 Apply POP on wall.
	19.3 Make & mixing of lime & Steiner.
	19.4 Apply Lime on ceiling & wall with brush properly.
	19.5 Prepare ceiling & wall for distemper painting.
	19.6 Make wall putty for distempering.
	19.7 Apply wall putty with finish & prepare wall surface.
	19.8 Mixing & apply a distemper properly for wall.
	19.9 Prepare ceiling & wall surface with putty & Apply interior emulsion paint. Use roller & brush.
	19.10 Prepare interior wall surface with putty, Apply enamel or luster paint.
	19.11 Making process of scaffolding for exterior wall painting.
	19.12 Clean exterior wall area with cleaning process & water pressure process.
	19.13 Prepare exterior wall with white cement for painting.
	19.14 Paint the prepared wall by brush with cement paint.

	19.15	Prepare exterior wall with exterior priming for painting.
	19.16	Paint the prepared wall by brush with emulsion paint.
	19.17	Decorate the projection with dark shade apply special shades of emulsion colour.
	19.18	Prepare wall & design wall paper pasting on wall.
	19.19	Find the defects on wall before painting and remove it.
	19.20	Find the defects on wall after painting and remove it.
20. Paint and decorate exterior articles.	20.1	Cleaning, Sanding, or wire brushing & paint by brush windows, grill, doors, safety doors, gate etc.
	20.2	Prepare Paint & painting on ceiling and wall. use dip-feed roller / pad or airless spray.
21. Process on pipes & pipe line painting with colour code.	21.1	Paint the GI pipe by brush.
	21.2	Paint the sanitary pipe of building. Take & care self precaution & safety.
	21.3	Paint the MS square & round pipe, take all precautions & safety while painting.
	21.4	Do Paint deferent pipe line with colour code as per ISI.
22. Use of plaster of Paris. (P.O.P.) Create Textures on wall surface. Process for Interior work in commercial places. Use of Texture material for relief work. Offices and corporate spaces for modern painting work	22.1	Prepare Wall surface for POP work Use damping material.
	22.2	Prepare equal level for filling POP
	22.3	Procedure the Filling POP & make a equal level the selected area.
	22.4	Prepare a suitable border by Pop work (05 hrs.)
	22.5	Make a Simple 3D shapes of flowers, leafs, ornamental by POP
	22.6	Prepare & Compose the 3D parts, different texture material and assemble in frame & make a Finished 3D wall poster
	22.7	Do suitable colours & paint the 3D poster by spray.
23. Estimation & Planning for Home renovation with computer aided designing, 2-D-/3-D design. Texture and light effects for school Building. Use of mural and landscapes in interior work.	23.1	Make an estimate Different material use in different civil work. With Drawing a lay out
	23.2	Draw & create textures effects On different presentation material.
	23.3	Make a 3D Models of simple geometrical shapes.
	23.4	Make a 3D Models of simple ornamental shapes. & compose it.
24. Develop a craft work knowledge about radium & vinyl cutting manually as	24.1	Use manually ornamental design on radium or vinyl.
	24.2	Create symbol or image design by computer graphics.
	24.3	Procedure of image design Cutting with plotter.

well as plotter, pasting, etc.	24.4 Do "Instruction board" on acrylic sheet with help of multy layer radium or vinyl.
	24.5 Make a lettering/ image/ symbol design for "Instruction board" by computer graphics, with help of radium or vinyl & cutting it with plotter, pasting on glass/ acrylic/ sun mica or different sheets.
	24.6 Create a design for wall decoration by computer in graphics & cut it on multy colour vinyl, paste on wall.
25. Produced productive work of screen printing.	25.1 Make a wooden frame with bolting cloth.
	25.2 Create Art work on tracing for screen exposing.
	25.3 Coating solution & expose screen with ready art work,
	25.4 Develop exposed screen with cold water, touch up pin holes and nonprinting area, taping around inside.
	25.5 Apply cromoline film & expose work, develop screen for ready to printing.
	25.6 Prepare & registration Pining work on printing table.
	25.7 Do colour printing on selected cards/sheets.
	25.8 Apply screen de-coating process.

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<b>SYLLABUS FOR DOMESTIC PAINTER TRADE</b>			
<b>FIRST SEMESTER - 6 MONTHS</b>			
<b>Week No.</b>	<b>Ref. Learning Outcome</b>	<b>Professional Skills (Trade Practical) With Indicative Hours</b>	<b>Professional Knowledge (Trade Theory)</b>
1-2	Recognize & Comply Safe working practices environment, Regulation, Familiarization and Housekeeping.	<ol style="list-style-type: none"> <li>1. Introduction of trade skills and work application. (02 hrs)</li> <li>2. Safety attitude development of the trainee by educating them to use personal protective equipment (PPE) and Material safety data sheet (MSDS). (05 hrs)</li> <li>3. First-aid method and basic training. (02 hrs)</li> <li>4. Safe disposal of waste materials like- cotton waste, waste paint and waste paint material etc. (02 hrs)</li> <li>5. Hazard and non hazard identification and avoidance. (02 hrs)</li> <li>6. Use of fire fighting equipment, like- extinguishers, sand bucket, water etc. (10 hrs)</li> <li>7. Identification of safety signs, like- Danger, warning, caution and personnel safety. (1 hr)</li> <li>8. Importance of trade training. (02 hrs)</li> <li>9. Understand precautions to be followed while working in the painting jobs. (02 hrs)</li> <li>10. Motivational talk by experts. (05 hrs)</li> </ol>	<p>Introduction of the Institution; rules and management (work) Process of an Institution. Knowledge about the facilities; leaves and rules and subjects an syllabus. Introduction of vocational trade, The importance of trade in the industrial Development of the nation Care in Vocational trade</p>

		<p>11. 5S training. (02 hrs)</p> <p>12. Draw different sketches and hand writing practice. (15 hrs)</p>	
3-4	Marking, sawing, planning, Chiseling, Drilling.	<p><b>CARPENTER WORK:</b></p> <p>13. Marking Practice on wood. (07 hrs)</p> <p>14. Holding &amp; Sawing Practice different size of wood. (10 hrs)</p> <p>15. Teeth setting &amp; sharpening of different saw. (05 hrs)</p> <p>16. Tennening Half cut on wooden border. (05 hrs)</p> <p>17. setting of planers &amp; sharpening on plane blade (05 hrs)</p> <p>18. Plane on different wooden surfaces. (06 hrs)</p> <p>19. Chiseling slots on thick wood. (06 hrs)</p> <p>20. Drilling on wood with different drilling tools (Gimlet, Hand Drill, Portable elct. drilling machine. (06 hrs)</p>	Carpenter - safety precaution description, Use hand tools, carpenter tools, types of wood their description & use common defects in timber & their effects..
5	Making a types of joints for different frames (like- Screen frame, sign board, & hanging Paintings frames.	<p>21. Make a simple lap joint. (05 hrs)</p> <p>22. Make a simple mitred half lap joint. (05 hrs)</p> <p>23. Make a simple Dovetail joint. (05 hrs)</p> <p>24. Joint fitting with nails, screw, glue etc. (10 hrs)</p>	Equipments for joint, Joints - Types and uses of different types of joints.
6	Manufacture simple sheet metal items as per drawing and join them.	<p><b>SHEET METAL WORK:</b></p> <p>26. Marking of straight lines, circles, profiles and various geometrical shapes and cutting the sheets with snips. (15 hrs)</p> <p>27. Marking out of simple development. (05 hrs)</p> <p>28. Marking out for flaps for joints.</p>	Safety precautions to be observed in a sheet metal workshop, sheet and sizes, Shearing machine- description, parts and uses.

		(05 hrs)	
7	-Do-	<p>29. Make various joints: hemming, form locked, grooved and knocked up single hem straight and curved edges form double hemming. (15 hrs.)</p> <p>30. Make cylindrical objects with joints. (10 hrs)</p>	<p>Marking and measuring tools, wing compass, Prick punch, square tools, snips, types and uses. hammers and mallets type-sheet metal tools, Soldering iron, Trammel, Stakes</p>
8	Manufacture simple sheet metal items as per drawing and join them by soldering, brazing and riveting.	<p>31. Make simple Square table tray with folding edge and fix handle with riveting. (17 hrs)</p> <p>32. Make simple triangular tray with folding edge and fix handle with riveting. (08 hrs)</p>	<p>Marking and measuring tools, wing compass, Prick punch, square tools, snips, types and uses. hammers and mallets type-sheet metal tools, Soldering iron, Trammel, Stakes</p>
9-10	Knowledge of various pipe fittings.	<p>33. Identify &amp; check different types of pipe. (05 hrs)</p> <p>34. Do pipe cutting &amp; threading (10 hrs)</p> <p>35. Apply different types of pipe joint/ fitting of different materials &amp; different diameter (Use PVC pipe). (10 hrs)</p> <p>36. Make joint/ fitting for rain water (Use PVC pipe) (10 hrs)</p> <p>37. Make joint/ fitting for water pipe line (Use GI pipe) (10 hrs)</p> <p>38. Make joint/ fitting for water pipe line (Use PVC pipe) (05 hrs)</p>	<p>Plumber: Instruction to the trade safety precautions and elementary first aid. Plumber hand tools description on rain water &amp; pipe system including installation of water supply fitting. Description of different types of pipes &amp; their use such as galvanized pipes, PVC pipes. Pipe line leakage &amp; Maintenance.</p>
11-12	Working on Operating System, Practice on DTP, Corel Draw, Photo shop etc.	<p>39. Operate &amp; familiarise with computer operating system. (05 hrs)</p> <p>40. Operate paint software &amp; draw freehand sketch &amp; use like as colour bucket, eraser, pencil &amp; all tools. (05 hrs)</p> <p>41. Draw scenery like realistic in paint software (05 hrs)</p>	<p>Standard pipe threads, nominal diameter, wall thickness, schedule number, die &amp; diestock, tubing.</p>

		<p>42. Photoshop: tool handling in photo shop familiarise with all hand. (10 hrs)</p> <p>43. Make a deferent layer &amp; create background, artistic text, design, images, (05 hrs)</p> <p>44. Import photo image from file &amp; scaner, edit photo image. (05 hrs)</p> <p>45. Edit Image adgment effects. &amp; layer style effects. (05 hrs)</p> <p>46. Edit special effect on differant layer, colours, textures, filter effects. (05 hrs)</p> <p>47. Edit &amp; Save image in PSD, JPEG &amp; other formate. (05 hrs)</p>	
13	-Do-	<p>48. Creat a colour advertise design for festival offer. (15 hrs)</p> <p>49. Export Design, image, photograph from Photoshop to other different format for different software's. &amp; make a print &amp; print file for different printers. (10 hrs)</p>	Drawing instruments- Drawing board; T- square; steel and wooden scale; set square; compass; Colour dish.
14	-Do-	<p>Corel Draw :</p> <p>50. Apply select /move /copy /objects, retire skew, size Objects. (05 hrs)</p> <p>51. Apply Combine, Shape, weld, trim, Align, Group / Ungroup objects. (05 hrs)</p> <p>52. Add text &amp; Format text create different heading &amp; Sub-heading (05 hrs)</p> <p>53. Draw dimensionally objects, Creating special effects for backgrounds &amp; related objects. (10 hrs)</p>	Drawing simple geometric objects using Croel Draw Transforming objects, Oraganizing objects, Working with text, Dimensioning objects Creating special effects

15	-Do-	<p>54. Do graphical effects to text. Creating symbols, logo, special effects. (15 hrs)</p> <p>55. Make a flex design for marketing offers. Convert &amp; Save to CD/DVD/PD for final printing. (10 hrs)</p>	-Do-
16	Produce stencils involving different shapes in ornamental design, text, symbols, etc. operations for different medium like papers, cards, tin, foam board, observing procedure and check for accuracy.	<p>56. Create ornamental designs for stencils, cut it &amp; make a print. (10 hrs)</p> <p>57. Draw simple sentence in different lettering, stencil cutting &amp; stencilling. (15 hrs)</p>	Stencil -Definition and types of stencils. Uses ; Care and cleaning of different types of stencils. Instruments and equipments for stencil.
17-18	Produce Sign board, Name plate. prepare back ground painting, Observe finishing, lettering proportion & evenness	<p>58. Make sign board with background painting. (10 hrs)</p> <p>59. Make Figure Enlargement for sign board. (10 hrs)</p> <p>60. Draw and painting letters &amp; design or logo on Sign Board. (20 hrs)</p> <p>61. Paint a name plate on deferent material (wood/ tin/ acrylic). (10 hrs)</p>	Advertisement-Sign Board, Banner, Posters, Hoardings, Wall painting, Name plate, Logo, Symbol, Monogram, Digital Flex Board. Graph Making & Enlargement, Need of graph for Enlargement
19-20	Preparation of wooden surface used various techniques, decorate & make a attractive wooden articles'.	<p>64. Clean, sanding, knotting, stooping, staining preparation wooden surface properly for polish. (04 hrs)</p> <p>65. Make &amp; apply putty for varnishing &amp; polishing. (05 hrs)</p> <p>66. Apply polish on prepared wooden surface with cotton rags. (05 hrs)</p> <p>67. Clean, sanding, knotting, stooping, staining preparation wooden surface properly for</p>	Polish paper-Types and uses. Putty - Deffination, their material types and uses. Method of mixing & its different system of application. Varnish - Definition; types and characteristics of varnish. Process of making of varnish its importance and contains. Polish- Types and uses. Different application methods

		<p>varnish. (05 hrs)</p> <p>68. Apply varnish on prepared wooden surface with brush. (05 hrs)</p> <p>69. Prepare wooden article &amp; apply varnish with spray. (08 hrs)</p> <p>70. Prepare wooden article &amp; apply melamine or PU wooden finish with spray. (08 hrs)</p> <p>71. Make a wooden top with thick layer of melamine polish. (10 hrs)</p>	
21	Prepare different types of wooden surface & paint it like Plywood, MDF & low quality wood.	<p>72. Prepare wooden surface properly for painting. (02 hrs)</p> <p>73. Apply wood primer by brush. (03 hrs)</p> <p>74. Make a putty for wood finishing. (02 hrs)</p> <p>75. Apply putty &amp; prepare wooden surface properly. (03 hrs)</p> <p>76. Do paint wooden surface properly with brush (05 hrs)</p> <p>77. Prepare &amp; spray painting on different furniture taking all precautions. (10 hrs)</p>	<p>Paint- Definition; classification and use. Pigment, Binders, Solvent, oil, dryers; additives.</p> <p>Painting- Definition and importance of painting.</p> <p>Method of wooden surface painting.</p>
22-23	<p><b>Project Work</b></p> <p><b>Broad areas:</b></p> <p>a) Make Poster on Safety &amp; Environment.</p> <p>b) Make a banners design for Flex Printing (Charts/ Sale promotions / Industrial &amp; Traffic safty).</p>		
24-25	<b>Revision</b>		
26	<b>Examination</b>		

**Note: -**

1. Some of the sample project works (indicative only) are given against each semester.

2. *Instructor may design their own project and also inputs from local industry may be taken for designing such new project.*
3. *The project should broadly cover maximum skills in the particular trade and must involve some problem solving skill. Emphasis should be on Teamwork: Knowing the power of synergy/ collaboration, work to be assigned in a group (Group of at least 4 trainees). The group should demonstrate Planning, Execution, Contribution and Application of Learning. They need to submit Project report.*
4. *If the instructor feels that for execution of specific project more time is required than he may plan accordingly to produce components/ sub-assemblies in appropriate time i.e., may be in the previous semester or during execution of normal trade practical.*



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<b>SYLLABUS FOR DOMESTIC PAINTER TRADE</b>			
<b>SECOND SEMESTER – 06 Months</b>			
<b>Week No.</b>	<b>Ref. Learning Outcome</b>	<b>Professional Skills (Trade Practical) With Indicative Hours</b>	<b>Professional Knowledge (Trade Theory)</b>
27-28	Develop Building painting using different decorative process.	78. Prepare ceiling surface for lime wash. (05 hrs) 79. Prepare wall surface for lime wash. (05 hrs) 80. Apply POP on wall for lime painting. (03 hrs) 81. Make & mixing of lime & stainer. (02 hrs) 82. Apply Lime on ceiling & wall with brush properly. (10 hrs) 83. Prepare ceiling & wall for distemper painting. (05 hrs) 84. Make wall putty for distempering. (02 hrs) 85. Apply wall putty with finish & prepare wall surface. (08 hrs) 86. Mixing & apply a distemper properly for wall. (10 hrs)	Types, uses of building (wall) paints. Wall primer- Water base / Oil base, types of putty for wall. Mixing, Preparation process of Lime and Distemper . Other required Equipments- Below lamp, bucket, plum-bob, putty blender, Paint strainer. Types of Trestle, ladder, scaffolding
29-30	-Do-	87. Prepare ceiling & wall surface with putty & Apply interior emulsion paint. Use roller & brush. (25 hrs) 88. Prepare office & work shop interior wall surface with putty, Apply enamel or luster paint. (25 hrs)	Colour selection for interior wall painting and use of Paints. Effects; Intention; Purpose of colours. Paint mixing and preparation process. Difference between emulsion paint and Oil paint.
31-32	-Do-	79. Make scaffolding for exterior wall painting. (05 hrs) 80. Clean exterior wall area with cleaning process & water pressure process (05 hrs)	Color selection for exterior wall painting and use of Paints. Method of paint mixing and preparation. Paint used for exterior wall painting.



		<p>81. Prepare exterior wall with white cement for painting. (08 hrs)</p> <p>82. Paint the prepared wall by brush with cement paint. (08 hrs)</p> <p>83. Prepare exterior wall with exterior priming for painting. (10 hrs)</p> <p>84. Paint the prepared wall by brush with emulsion paint. (10 hrs)</p> <p>85. Decorate the projection with dark shade apply special shades of emulsion colour. (04 hrs)</p>	
33	-Do-	86. Decorate the wall with design roller/ stamp/ stencil. (25 hrs)	Difference between brush painting and Roller painting. Types of Roller and preparation of texture for wall painting.
34	-Do-	87. Prepare wall & create texture, use different medium, colour & make a different textures. (25 hrs)	do
35	-Do-	<p>88. Prepare wall &amp; design wall paper pasting on wall (10 hrs)</p> <p>89. Find the defect on wall before painting and remove it. (08 hrs)</p> <p>90. Find the defect on wall after painting and remove it. (07 hrs)</p>	Wall defects and defects removal process of wall painting.
36	Paint and decorate exterior articles'	91. Prepare & paint by brush windows, grill, doors, safety doors, gate etc. (25 hrs)	Building Painting estimate & costing.
37	-Do-	92. Paint a ceiling and wall with dip-feed roller / pad or airless spray. (25 hrs)	-Do-

38	Process on pipes & pipe line painting for hospitals & commercial buildings with colour code.	<p>93. Paint the GI pipe, take all precautions while painting. (08 hrs)</p> <p>94. Paint the sanitary pipe, take all precautions while painting. (08 hrs)</p> <p>95. Paint the MS square &amp; round pipe, take all precautions while painting. (09 hrs)</p>	Intention and effects of pipe line painting, Colour Codes of pipe line painting. ISI colour code.
39-40	Use of plaster of Paris. (P.O.P.) Create Textures on wall surface. Process for Interior work in commercial places. Use of Texture material for relief work. Offices and corporate spaces for modern painting work.	<p>96. Prepare Wall surface for POP work Use damping material. (08 hrs)</p> <p>97. Create equal level for filling POP. (04 hrs)</p> <p>98. Fill POP &amp; make a equal level the selected area. (08 hrs)</p> <p>99. Create a suitable border by Pop work. (05 hrs)</p> <p>100. Make a Simple 3D shapes of flowers, leaves, ornamental by POP. (12 hrs)</p> <p>101. Compose the 3D parts, different texture material and assemble in frame &amp; make a finished 3D wall poster. (08 hrs)</p> <p>102. Use suitable colours &amp; paint the 3D poster by spray. (05 hrs.)</p>	<p>Description of various filling materials Its field of application Safety in spray methods.</p> <p>Occupational safety hazards and its precaution. Like furniture paint, epoxy paint metallic paint for decoration work</p> <p>selection of paints for different surface. Using mix material for - 3-D design. Working condition &amp; modern decoration</p>
41-42	Estimation & Planning for Home renovation with computer aided designing, 2-D-/3-D design. Texture and light effects for school Building. Use of mural and landscapes in interior work.	<p>103. Make an estimate Different material use in different civil work With Drawing a lay out. (08 hrs)</p> <p>104. Draw &amp; create textures effects On different presentation material. (08 hrs)</p> <p>105. Make a 3D Models of simple geometrical shapes. (04 hrs)</p> <p>106. Make a 3D Models of simple</p>	<p>Information about wide range of working conditions in floor plans &amp; home renovation. Exterior painting with texture paint.</p> <p>Importance of safe and esthetically pleasing space for building uses. General ideas of relief painting in P.O.P. work.</p>

		ornamental shapes & compose it. (05 hrs)	
43-44	Develop a craft work knowledge about radium & vinyl cutting manually as well as plotter, pasting, etc.	<p>107. Make a manually ornamental design on radium or vinyl (05 hrs)</p> <p>108. Make a symbol or image design by computer in graphics &amp; cut it with plotter (10 hrs)</p> <p>109. Do "Instruction board" on acrylic sheet with help of multy layer radium or vinyl. (15 hrs)</p> <p>110. Make a lettering/ image/ symbol design for "Instruction board" by computer in graphics, with help of radium or vinyl &amp; cutting it with plotter, pasting on glass/ acrylic/ sun mica or different sheets (10 hrs)</p> <p>111. Create a design for wall decoration by computer in graphics &amp; cut it on multy colour vinyl, paste on wall (10 hrs)</p>	Their use & care. different medium paper for plotter cutting. Manual cutting Instruments & their safety/care/precautions, proper pesting procedure, pesting techniques, care & precaution.
45-46	Produced productive work of screen printing.	<p>112. Make a wooden frame with bolting cloth. (10 hrs)</p> <p>113. Create Art work on tracing for screen exposing. (10 hrs)</p> <p>114. Coating solution &amp; expose screen with ready art work, Develop exposed screen with cold water, touch up pin holes and nonprinting area, taping around inside. (15 hrs)</p> <p>115. Use cromoline film &amp; expose screen with ready art work, Develop exposed screen with</p>	Screen Printing - Types, definition and explanation. Origin and development of screen painting. Selection of cloth, instruments, chemicals, cloth fitting, exposing.

		cold water, touch up pin holes and nonprinting area, taping around inside. (15 hrs)	
47	-do-	116. Prepare & registration Pining work on printing table. (05 hrs) 117. Testing of registration with Squeezing ink. (02 hrs) 118. Do single colour printing on selected cards/sheets. (05 hrs) 119. Do multy colour printing on selected cards/sheets. (10 hrs) 120. Decoating used screen with bleach powder or decoating solution, wash & clean.(03 hrs)	Screen developing; printing and de-exposing /washing. Types of ink
48-49	<b>Project Work</b> Broad areas: a) Make a Radium or vinyl cutting designs and pesting them on walls. b) Decorate wall with different texture.		
50-51	<b>Revision</b>		
52	<b>Examination</b>		

**Note: -**

1. Some of the sample project works (indicative only) are given against each semester.
2. Instructor may design their own project and also inputs from local industry may be taken for designing such new project.
3. The project should broadly cover maximum skills in the particular trade and must involve some problem solving skill. Emphasis should be on Teamwork: Knowing the power of synergy/ collaboration, work to be assigned in a group (Group of at least 4 trainees). The group should demonstrate Planning, Execution, Contribution and Application of Learning. They need to submit Project report.
4. If the instructor feels that for execution of specific project more time is required than he may plan accordingly to produce components/ sub-assemblies in appropriate time i.e., may be in the previous semester or during execution of normal trade practical.

## 9. SYLLABUS - CORE SKILLS

### 9.1 WORKSHOP CALCULATION SCIENCE & ENGINEERING DRAWING

S No.	Workshop Calculation and Science	Engineering Drawing
<b>First Semester</b>		
1.	<b>Unit:</b> Systems of unit- FPS, CGS, MKS/SI unit, unit of length, Mass and time, Conversion of units	Engineering Drawing: Introduction and its importance <ul style="list-style-type: none"> <li>- Relationship to other technical drawing types</li> <li>- Conventions</li> <li>- Viewing of engineering drawing sheets.</li> <li>- Method of Folding of printed Drawing Sheet as per BIS SP:46-2003</li> </ul>
2.	<b>Fractions</b> : Fractions, Decimal fraction, L.C.M., H.C.F., Multiplication and Division of Fractions and Decimals, conversion of Fraction to Decimal and vice versa. Simple problems using Scientific Calculator.	Drawing Instruments : their Standard and uses <ul style="list-style-type: none"> <li>- Drawing board, T-Square, Drafter (Drafting M/c), Set Squares, Protractor, Drawing Instrument Box (Compass, Dividers, Scale, Diagonal Scales etc.), Pencils of different Grades, Drawing pins / Clips.</li> </ul>
3.	<b>Square Root</b> : Square and Square Root, method of finding out square roots, Simple problem using calculator.	Lines : <ul style="list-style-type: none"> <li>- Definition, types and applications in Drawing as per BIS SP:46-2003</li> <li>- Classification of lines (Hidden, centre, construction, Extension, Dimension, Section)</li> <li>- Drawing lines of given length (Straight, curved)</li> <li>- Drawing of parallel lines, perpendicular line</li> <li>- Methods of Division of line segment</li> </ul>
4.	<b>Ratio &amp; Proportion</b> : Simple calculation on related problems.	Drawing of Geometrical Figures: Definition, nomenclature and practice of <ul style="list-style-type: none"> <li>- Angle: Measurement and its types, method of bisecting.</li> <li>- Triangle -different types</li> <li>- Rectangle, Square, Rhombus, Parallelogram.</li> </ul>

		<ul style="list-style-type: none"> <li>- Circle and its elements.</li> </ul>
5.	<b>Percentage</b> : Introduction, Simple calculation. Changing percentage to decimal and fraction and vice-versa.	Lettering and Numbering as per BIS SP46-2003: <ul style="list-style-type: none"> <li>- Single Stroke, Double Stroke, inclined, Upper case and Lower case.</li> </ul>
6.	<b>Material Science</b> : properties -Physical & Mechanical, Types –Ferrous & Non-Ferrous, difference between Ferrous and Non-Ferrous metals, introduction of Iron, Cast Iron, Wrought Iron, Steel, difference between Iron and Steel, Alloy steel, carbon steel, stainless steel, Non-Ferrous metals, Non-Ferrous Alloys.	Dimensioning: <ul style="list-style-type: none"> <li>- Definition, types and methods of dimensioning (functional, non-functional and auxiliary)</li> <li>- Types of arrowhead</li> <li>- Leader Line with text</li> </ul>
7.	<b>Mass, Weight and Density</b> : Mass, Unit of Mass, Weight, difference between mass and weight, Density, unit of density, specific gravity of metals.	Free hand drawing of <ul style="list-style-type: none"> <li>- Lines, polygons, ellipse, etc.</li> <li>- geometrical figures and blocks with dimension</li> <li>- Transferring measurement from the given object to the free hand sketches.</li> </ul>
8.	<b>Speed and Velocity</b> : Rest and motion, speed, velocity, difference between speed and velocity, acceleration, retardation, equations of motions, simple related problems.	Sizes and Layout of Drawing Sheets <ul style="list-style-type: none"> <li>- Basic principle of Sheet Size</li> <li>- Designation of sizes</li> <li>- Selection of sizes</li> <li>- Title Block, its position and content</li> <li>- Borders and Frames (Orientation marks and graduations)</li> <li>- Grid Reference</li> <li>- Item Reference on Drawing Sheet (Item List)</li> </ul>
9.	<b>Work, Power and Energy</b> : work, unit of work, power, unit of power, Horse power of engines, mechanical efficiency, energy, use of energy, potential and kinetic energy, examples of potential energy and kinetic energy.	Method of presentation of Engineering Drawing <ul style="list-style-type: none"> <li>- Pictorial View</li> <li>- Orthogonal View</li> <li>- Isometric view</li> </ul>
10.	-----	Symbolic Representation (as per BIS SP:46-2003) of : <ul style="list-style-type: none"> <li>- Fastener (Rivets, Bolts and Nuts)</li> <li>- Bars and profile sections</li> <li>- Weld, brazed and soldered joints.</li> </ul>

		<ul style="list-style-type: none"> <li>- Electrical and electronics element</li> <li>- Piping joints and fittings</li> </ul>
<b>Second Semester</b>		
1.	<p><b>Algebra</b> : Addition, Subtraction, Multiplication, Division, Algebraic formula, Linear equations (with two variables).</p>	Construction of Scales and diagonal scale
2.	<p><b>Mensuration</b> : Area and perimeter of square, rectangle, parallelogram, triangle, circle, semi circle,</p> <p>Volume of solids – cube, cuboids, cylinder and Sphere.</p> <p>Surface area of solids – cube, cuboids, cylinder and Sphere.</p>	Practice of Lettering and Title Block
3.	<p><b>Trigonometry</b>: Trigonometrical ratios, measurement of angles.</p> <p>Trigonometric tables</p>	<p>Dimensioning practice:</p> <ul style="list-style-type: none"> <li>- Position of dimensioning (unidirectional, aligned, oblique as per BIS SP:46-2003)</li> <li>- Symbols preceding the value of dimension and dimensional tolerance.</li> <li>- Text of dimension of repeated features, equidistance elements, circumferential objects.</li> </ul>
4.	<p><b>Heat &amp; Temperature</b>: Heat and temperature, their units, difference between heat and temperature, boiling point, melting point, scale of temperature, relation between different scale of temperature, Thermometer, pyrometer, transmission of heat, conduction, convection, radiation.</p>	<p>Construction of Geometrical Drawing Figures:</p> <ul style="list-style-type: none"> <li>- Different Polygons and their values of included angles. Inscribed and Circumscribed polygons.</li> <li>- Conic Sections (Ellipse &amp; Parabola)</li> </ul>
5.	<p><b>Basic Electricity</b>: Introduction, use of electricity, how electricity is produced, Types of current_ AC, DC, their comparison, voltage, resistance, their units. Conductor, insulator, Types of</p>	Drawing of Solid figures (Cube, Cuboids, Cone, Prism, Pyramid, Frustum of Cone and Pyramid.) with dimensions.

	connections – series, parallel, electric power, Horse power, energy, unit of electrical energy.	
6.	<p><b><u>Levers and Simple Machines:</u></b> levers and its types.</p> <p>Simple Machines, Effort and Load, Mechanical Advantage, Velocity Ratio, Efficiency of machine, Relationship between Efficiency, velocity ratio and Mechanical Advantage.</p>	Free Hand sketch of hand tools and measuring tools used in respective trades.
7.	-	<p>Projections:</p> <ul style="list-style-type: none"> <li>- Concept of axes plane and quadrant.</li> <li>- Orthographic projections</li> <li>- Method of first angle and third angle projections (definition and difference)</li> <li>- Symbol of 1<sup>st</sup> angle and 3<sup>rd</sup> angle projection as per IS specification.</li> </ul>
8.	-	Drawing of Orthographic projection from isometric/3D view of blocks
9.	-	Orthographic Drawing of simple fastener (Rivet, Bolts, Nuts & Screw)
10.	-	Drawing details of two simple mating blocks and assembled view.



## 9.2 EMPLOYABILITY SKILLS

CORE SKILL – EMPLOYABILITY SKILL	
First Semester	
<b>1. English Literacy</b>	<b>Duration : 20 hrs</b> <b>Marks : 09</b>
Pronunciation	Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech)
Functional Grammar	Transformation of sentences, Voice change, Change of tense, Spellings.
Reading	Reading and understanding simple sentences about self, work and environment
Writing	Construction of simple sentences Writing simple English
Speaking/ Spoken English	Speaking with preparation on self, on family, on friends/ classmates, on known people, picture reading, gain confidence through role- playing and discussions on current happening, job description, asking about someone's job, habitual actions. Cardinal (fundamental) numbers, ordinal numbers. Taking messages, passing on messages and filling in message forms, Greeting and introductions, office hospitality, Resumes or curriculum vita essential parts, letters of application reference to previous communication.
<b>2. IT Literacy</b>	<b>Duration : 20 hrs</b> <b>Marks : 09</b>
Basics of Computer	Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of the computer.
Computer Operating System	Basics of Operating System, WINDOWS, The user interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc. Use of Common applications.
Word Processing and Worksheet	Basic operating of Word Processing, Creating, Opening and Closing Documents, Use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & Creation of Tables. Printing

	document. Basics of Excel worksheet, understanding basic commands, creating simple worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets.
Computer Networking and Internet	Basic of Computer Networks (using real life examples), Definitions of Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet (Network of Networks), Meaning of World Wide Web (WWW), Web Browser, WebSite, Web page and Search Engines. Accessing the Internet using Web Browser, Downloading and Printing Web Pages, Opening an email account and use of email. Social media sites and its implication. Information Security and antivirus tools, Do's and Don'ts in Information Security, Awareness of IT - ACT, types of cyber crimes.
<b>3. Communication Skills</b>	
	<b>Duration : 15 hrs</b> <b>Marks : 07</b>
Introduction to Communication Skills	Communication and its importance Principles of effective communication Types of communication - verbal, non-verbal, written, email, talking on phone. Non-verbal communication -characteristics, components-Para-language Body language Barriers to communication and dealing with barriers. Handling nervousness/ discomfort.
Listening Skills	Listening-hearing and listening, effective listening, barriers to effective listening, guidelines for effective listening. Triple- A Listening - Attitude, Attention & Adjustment. Active listening skills.
Motivational Training	Characteristics essential to achieving success. The power of positive attitude. Self awareness Importance of commitment Ethics and values Ways to motivate oneself Personal goal setting and employability planning.
Facing Interviews	Manners, etiquettes, dress code for an interview Do's & don'ts for an interview

Behavioral Skills	Problem solving Confidence building Attitude
<b>Second Semester</b>	
<b>4. Entrepreneurship Skills</b>	<b>Duration : 15 hrs Marks : 06</b>
Concept of Entrepreneurship	Entrepreneur - Entrepreneurship - Enterprises: Conceptual issue Entrepreneurship vs. management, Entrepreneurial motivation. Performance & record, Role & function of entrepreneurs in relation to the enterprise & relation to the economy, Source of business ideas, Entrepreneurial opportunities, The process of setting up a business.
Project Preparation & Marketing Analysis	Qualities of a good entrepreneur, SWOT and risk analysis. Concept & Application of PLC, Sales & Distribution management. Difference between small scale & large scale business, Market survey, Method of marketing, Publicity and advertisement, Marketing mix.
Institution's Support	Preparation of project. Role of various schemes and institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non-financing support agencies to familiarize with the policies / programmes, procedure & the available scheme.
Investment Procurement	Project formation, Feasibility, Legal formalities i.e., Shop act, Estimation & costing, Investment procedure - Loan procurement - Banking processes.
<b>5. Productivity</b>	<b>Duration : 10 hrs Marks : 05</b>
Benefits	Personal/ Workman - Incentive, Production linked Bonus, Improvement in living standard.
Affecting Factors	Skills, Working aids, Automation, Environment, Motivation - How it improves or slows down productivity.
Comparison with Developed Countries	Comparative productivity in developed countries (viz. Germany, Japan and Australia) in select industries, e.g. Manufacturing, Steel, Mining, Construction etc. Living standards of those countries, wages.
Personal Finance Management	Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and insurance.
<b>6. Occupational Safety, Health and Environment Education</b>	<b>Duration : 15 hrs Marks : 06</b>

Safety & Health	Introduction to occupational safety and health Importance of safety and health at workplace.
Occupational Hazards	Basic hazards, chemical hazards, vibroacoustic hazards, mechanical hazards, electrical hazards, thermal hazards. occupational health, occupational hygiene, occupational diseases/ disorders & its prevention.
Accident & Safety	Basic principles for protective equipment. Accident prevention techniques - control of accidents and safety measures.
First Aid	Care of injured & sick at the workplaces, First-aid & transportation of sick person.
Basic Provisions	Idea of basic provision legislation of India. Safety, health, welfare under legislative of India.
Ecosystem	Introduction to environment. Relationship between society and environment, ecosystem and factors causing imbalance.
Pollution	Pollution and pollutants including liquid, gaseous, solid and hazardous waste.
Energy Conservation	Conservation of energy, re-use and recycle.
Global Warming	Global warming, climate change and ozone layer depletion.
Ground Water	Hydrological cycle, ground and surface water, Conservation and harvesting of water.
Environment	Right attitude towards environment, Maintenance of in-house environment.
<b>7. Labour Welfare Legislation</b>	
<b>Duration : 05 hrs</b> <b>Marks : 03</b>	
Welfare Acts	Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Payment Wages Act, Employees Provident Fund Act, The Workmen's Compensation Act.
<b>8. Quality Tools</b>	
<b>Duration : 10 hrs</b> <b>Marks : 05</b>	
Quality Consciousness	Meaning of quality, Quality characteristic.
Quality Circles	Definition, Advantage of small group activity, objectives of quality

	circle, Roles and function of quality circles in organization, Operation of quality circle. Approaches to starting quality circles, Steps for continuation quality circles.
Quality Management System	Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.
House Keeping	Purpose of housekeeping, Practice of good housekeeping.
Quality Tools	Basic quality tools with a few examples.



**Skill India**  
कौशल भारत - कुशल भारत

<b>LIST OF TOOLS &amp; EQUIPMENTS</b>			
<b>Domestic Painter</b>			
<b>S No.</b>	<b>Name of the Tools and Equipment</b>	<b>Specification</b>	<b>Quantity</b>
<b>A. TRAINEES TOOL KIT ( For each additional unit trainees tool kit SI No. 1-10 is required additionally)</b>			
1.	Screw driver set	150,200,250mm	21 nos. each
2.	Measuring tape-	10 meters	21 nos.
3.	Flat brush-	4", 3", 2" and 1"	21 nos. each
4.	Lettering brush-	2,4,6,8,10 no.	21 nos. each
5.	Wooden rule	24"	21 nos.
6.	Glass pencil (any colour)		21 nos.
7.	Lead pencil	HB, 2b, 4b, charcoal	21 nos. each
8.	Putty knife-	2", 4"	21 nos. each
9.	Mask		21 nos.
10.	Apron		21 nos.
<b>B. SHOP TOOLS, INSTRUMENTS – For 2 (1+1) units no additional items are required</b>			
<b>Lists of Tools and Equipments:</b>			
11.	Blow lamp	1/2ltr/1 Ltr	1 no. each
12.	Steel wire brush	50 mmX150 mm	10 Nos.
13.	Scriber		4 Nos.
14.	Putty Knives	2",4",6"	20 nos. each
15.	Marking Gauge		4 Nos.
16.	Plier insulated	150mm	4 nos.
17.	Nose Plier insulated	150mm	4 Nos.
18.	Screw drivers	150mm	4 Nos.
19.	Electrician testing Pencil (Line/Neon tester)		4 Nos.
20.	Rule Steel	300mm	10 Nos.
21.	Punch Centre	150mm X 9mm	4 Nos.
22.	Heavy duty screw driver	200mm	4 Nos.
23.	Hammer Ball Peen	0.50Kg with handle	4 Nos.
24.	Hammer Cross Peen	100 gms. With handle	4 Nos.
25.	Pliers Side Cutting insulated	150mm	4 Nos.
26.	Pincers	150mm	4 Nos.
27.	Single straight ladder	8" wooden	1 No.
28.	Step ladder-	12' aluminium	1 No.
29.	Extension ladder		1 No.

30.	Scrapping knife		10 Nos.
31.	Chisel knife		10 Nos.
32.	Pallet knife		4 Nos.
33.	Chisels		4 Nos.
34.	Face mask		20 Nos.
35.	Hand gloves-solvent		20 Nos.
36.	Safety goggles		6 pairs
37.	Airless pumps (Wagner with complete accessories)		1 No.
38.	Spanner set	6 to 32mm set DE	1 No.
39.	Adjustable spanner	-300 mm	2 Nos.
40.	Bench vice	120mm, 150mm each one	2 Nos. each
41.	Spray gun (painting)		2 nos.
42.	Air filter		2 Nos.
43.	Air hoses pipe-	20 meter	1 no.
44.	Regulators for paints		1 Nos.
45.	Paint filter-conical		20 Nos.
46.	Fume filter mask		20 nos.
47.	Out side spring caliper	150 mm	4 nos.
48.	Inside spring caliper	150 mm	4 nos.
49.	Divider spring	150 mm	4 nos.
50.	Centre punch	100 mm	4 nos.
51.	File flat 2 <sup>nd</sup> cut	250 mm	4 nos.
52.	Ordinary wooden mallet	50 mm	4 nos.
53.	Cross pen hammer	0.25kg with handle	4 nos.
54.	Snip straight	250 mm	4 nos.
55.	Right cut snip	250 mm	4nos.
56.	Steel wire brush		4 nos.
57.	Marking gauge		4 nos.
58.	Tennon saw	300 mm to 375 mm	2 nos.
59.	Jack plane metal		2nos.
60.	Smoothing plane wooden		2 nos.
61.	Carpenter hammer with wooden handle		2 nos.
62.	Chisel farmer	6 mm to 25 mm set	2 nos.
63.	Chisel mortise	9 mm	2 nos.
64.	Trying plane		2 nos.
65.	Paint mixing rack		1 no.
66.	Colour chart's		12 Nos.
67.	Air brush(air master make complete accessories)		1 no.
68.	Hair drier heavy duty		2nos.
69.	File flat smooth		4 nos.

70.	"C" clamp 2"		4 nos.
71.	Squeeze-	2",4",6",8"with aluminum handle	2 nos. each
72.	Palette knife		4 nos.
73.	Viscosity cup no. 4 with stand		1 No.
74.	Air compressor with complete accessories		1 no.
75.	Spray equipments and its accessories		1 no.
76.	Pot gun		2 nos.
77.	Baking oven		1 no.
<b>D. Shop Floor Furniture and Materials - For 2 (1+1) units no additional items are required.</b>			
78.	Stool		16 Nos.
79.	Desk with Locker		16 Nos.
80.	Metal Shelving Rack Open Type	1800 x 900 x 500 mm with 4 Adjustable Shelves	2 Nos.
81.	Steel Locker's with 8 Drawer's	One locker for each trainee	3 Nos.
82.	Green Glass Board	6'X4'	1 No.
83.	Cupboard		4 Nos.
84.	Instructor table and		1 No.
85.	Instructor chair		2 Nos.
<b>E. DESIGNING LAB</b>			
86.	Computer's with Accessories (Table & Chair)		5 set
87.	Anti Virus (Latest Version)		5 Nos.
88.	Scanner High Resolution		1 Nos.
89.	Printer Lager/colour		1 No.
90.	Software Card Draw / Page Make/ Photo Shop / Shree Lippi / ISM / Acee - Dcee Viewer (Latest Version)		1 Each (Multy installer)
91.	UPS	3 KV	1 No.
92.	Camera Digital -	12 pix (Nikon) with Try - Pod	1 No.
93.	Radium Plotter and cutter with stand	complete accessories 48"	1 No.



<b>TOOLS &amp; EQUIPMENTS FOR EMPLOYABILITY SKILLS</b>		
<b>S No.</b>	<b>Name of the Equipment</b>	<b>Quantity</b>
1.	Computer (PC) with latest configurations and Internet connection with standard operating system and standard word processor and worksheet software	10 nos.
2.	UPS - 500Va	10 nos.
3.	Scanner cum Printer	1 no.
4.	Computer Tables	10 nos.
5.	Computer Chairs	20 nos.
6.	LCD Projector	1 no.
7.	White Board 1200mm x 900mm	1 no.

**Note: Above Tools & Equipments not required, if Computer LAB is available in the institute.**



**FORMAT FOR INTERNAL ASSESSMENT**

<b>Name &amp; Address of the Assessor:</b>						<b>Year of Enrollment:</b>								
<b>Name &amp; Address of ITI (Govt./Pvt.):</b>						<b>Date of Assessment:</b>								
<b>Name &amp; Address of the Industry:</b>						<b>Assessment location: Industry / ITI</b>								
<b>Trade Name:</b>			<b>Semester:</b>			<b>Duration of the Trade/course:</b>								
<b>Learning Outcome:</b>														
S No	Maximum Marks (Total 100 Marks)		15	5	10	5	10	10	5	10	15	15	Total Internal Assessment Marks	Result (Y/N)
	Candidate Name	Father's/Mother's Name	Safety Consciousness	Workplace Hygiene	Attendance/Punctuality	Ability to Follow Manuals/ Written Instructions	Application of Knowledge	Skills to Handle tools & Equipment	Economical Use of Materials	Speed in Doing Work	Quality in Workmanship	VIVA		
1														
2														