

Syllabus for the subject

of

**TRADE THEORY-I  
&  
TRADE PRACTICAL-I**

Under

**CRAFT INSTRUCTOR TRAINING SCHEME (CITS)**

**Trade: Draughtsman (Mechanical)**

Re-Designed in

- 2014 -

By

**Government of India  
Ministry of Labour & Employment  
Directorate General of Employment & Training**

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## A. RATIONALE

Success & Sustainability of any Training System depends upon, given other things, availability of good quality instructors. An Instructor should possess good trade skills to impart skill training.

Ability to understand and interpret the course content is imperative to ensure proper delivery. It is the domain Skills and Knowledge which enable comprehending the prescribed contents and subsequent lesson/demonstration planning for effective delivery. Thus it is imperative for any trade instructor to have adequate domain skills so that same can be transferred.

To deliver effectively, both knowledge and skills, in depth know how are very much needed. At the same time the main objective of Instructor training programme is enabling instructors to demonstrate higher productivity and higher accuracy in performing a task/job.

Recognizing this importance more emphasis has been given to the Trade Practical & Trade Theory in all Engineering Trades in Craft Instructors Training Scheme (CITS) under NCVT.

## **B. GENERAL INFORMATION**

- 1. Name of the Course** : Craft Instructor Training
- 2. Duration of Instructor Training** : 1 Year (Two semesters each of six months duration).
- 3. Subjects covered in the Semesters** : Detailed in Section - C
- 4. Name of the Subject** : **TRADE THEORY –I & TRADE PRACTICAL-I**
- 5. Applicability** : **Draughtsman (Mechanical)**
- 6. Examination** : AITT to be held at the end of each semester.
- 7. Space Norms** :  
(a) One class room of minimum 30 sq.m. area having Minimum width of 5 m. and with 6000 lumen  
(b) Drawing Hall: 100 sq. meter having minimum width of 8 m. and with 25000 lumen  
**The electrical equipments of Class room should conform to minimum 3 star Building energy rating as per Bureau of Energy Efficiency (B.E.E.)**
- 8. Power Norms** :  
(a) 1 KW for Class room  
(b) Drawing Hall: 5.5 kw
- 9. Unit strength(Batch Size)** : 20 trainees
- 10. Entry qualification** : Diploma/Degree in Mechanical/Production Engineering from AICTE recognized Board / University.  

OR

National Trade Certificate in the Draughtsman (Mechanical) trade OR  
National Apprenticeship Certificate in the Draughtsman (Mechanical) trade
- 11. Trainers' Qualification** : Diploma or Degree in Mechanical / Production Engineering from AICTE recognized Board / University with five / two years experience respectively.
- 12. Desirable** : Passed National Craft Instructor Training course Draughtsman (Mechanical) trade.  
  
In case of two units, one trainer must be Degree in Engineering.

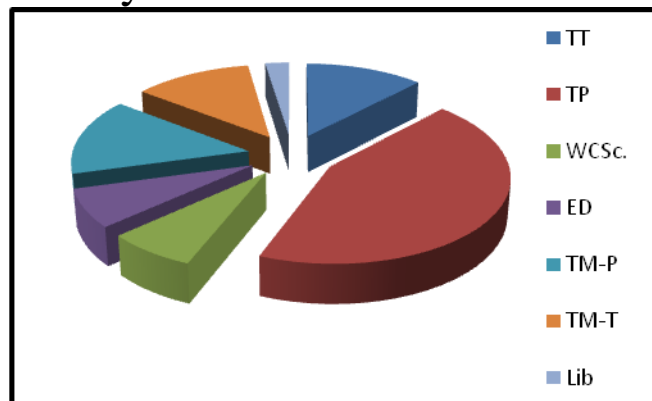
**Note: Degree/Diploma candidate may directly appear for Semester-I exam without attending classes for lateral entry in semester-II.**

### C. SEMESTER WISE ALLOTMENT OF TIME & MARKS AMONG THE SUBJECTS FOR CITS

	SUBJECTS	Hrs. / Week	% of time allotted	Marks	Sessional	Full Marks	Pass Marks		
							Exam.	Sessional	Total
First semester	Trade Practical – 1	20	50	200	30	230	120	18	138
	Trade Theory - 1	6	15	100	20	120	60	12	72
	Workshop Cal.	6	15	75	-	75	45	-	45
	Workshop Sc.	6	15	75	-	75	45	-	45
	Library	2	5	-	-				
	<b>TOTAL for Sem. - I</b>	<b>40</b>		<b>450</b>	<b>50</b>	<b>500</b>	<b>270</b>	<b>30</b>	<b>300</b>
Second semester	Trade Practical – 2	16	40	200	30	230	120	18	138
	Trade Theory - 2	4	10	100	20	120	60	12	72
	Training Methodology - Practical	12	30	200	30	230	120	18	138
	Training Methodology - Theory + IT	6+2	20	100	20	120	60	12	72
	<b>TOTAL</b>	<b>40</b>		<b>600</b>	<b>100</b>	<b>700</b>	<b>360</b>	<b>60</b>	<b>420</b>
	<b>GRAND TOTAL</b>	<b>80</b>		<b>1050</b>	<b>150</b>	<b>1200</b>	<b>630</b>	<b>90</b>	<b>720</b>

#### Hourly Distribution

TOTAL: 1200 marks for 2 semesters Pass marks: 720



Subject	Time in %	Marks in %
Trade Practical	45	38
Trade Theory	12.5	20
<b>Total for Trade</b>	<b>57.5</b>	<b>58</b>
Training Methodology (Practical)	15	19
Training Methodology (Theory) + IT	12.5	10
<b>Total for Training Methodology &amp; IT</b>	<b>27.5</b>	<b>29</b>
Workshop Cal.	7.5	6.25
Workshop Sc.	7.5	6.25
Library	2.5	-

**D. TOPIC WISE DISTRIBUTION TIME & MARKS**  
**TRADE: DRAUGHTMAN (MECHANICAL)**  
**CRAFT INSTRUCTOR TRAINING SCHEME**  
**SEMESTER-I**

Note: During the discussion of any machine tools, related precautions and safety measures should be discussed.

Trade Theory				Trade Practical		
Sl. No.	Topics	Hours	Marks	Topics	Hours	Marks
1	Safety and PPEs	6	5	Safety and PPEs	20	10
2	BIS and other standards.	6	5	BIS and other standards.	20	10
3	Projections ,Isometric & pictorial	12	25	Different types of Projections ,Isometric & pictorial view .	50	50
4	Limit ,Fit & tolerance	12	10	Use of Limit ,Fit & tolerance	40	10
5	Sectional view, Fasteners, Rivet, Welding.	12	10	Sectional view , Fasteners , Rivet , Welding .	40	30
6	Detailed & assembly drawing , anti frictional & plain bearing .	12	5	Detailed & assembly drawing , anti frictional & plain bearing .	40	35
7	Pipe & pipe fittings	12	5	Drawing of Pipe & pipe fittings	40	5
8	Centrifugal and reciprocating pumps	6	5	Centrifugal and reciprocating pumps	20	5
9	Screw Jack	6	5	Details and assembly drawing of Screw Jack	20	5
10	Jig & fixture.	6	5	Details and assembly drawing of Jig & fixture .	20	5
11	Press Tools	6	5	Details and assembly drawing of Press Tools	20	5
12	Allied in trade MMV, Foundry, Sheet Metal Worker , Welder(G&E)	24	10	Use of tools and equipments of MMV, Foundry, Sheet Metal Worker , Welder(G&E) trades	80	20
13	Different CAD Commands	12	5	Draw with help of CAD.	20	10
	<b>TOTAL</b>	<b>132</b>	<b>100</b>	<b>TOTAL</b>	<b>440</b>	<b>200</b>
	<b>THEORY 1 ---22 WEEKS X 06 HRS/WEEK=132hrs</b>			<b>PRACTICAL 1 ---22 WEEKS X 20 HRS/WEEK=440hrs</b>		

**E. DETAIL SYLLABUS FOR THE TRADE: DRAUGHTSMAN MECHANICAL**  
**UNDER CRAFT INSTRUCTOR TRAINING SCHEME**  
**SEMESTER-I**

Note: During the discussion of any machine tools, related precautions and safety measures should be discussed.

Tentative Week No.	THEORY	PRACTICAL
	Topics	Topics
1	<p>Introduction of First aid. Operation of electrical mains. Introduction of PPEs. Response to emergencies e.g.; power failure, fire, and system failure  <b>Soft Skills:</b> its importance and Job area after completion of training.  <b>Introduction to 5S</b> concept &amp; its application. Importance of 5S implementation throughout CITS course-workplace cleaning, machine cleaning, signage, proper storage of equipment etc.</p> <p><b>Importance of Technical English</b> terms used in industry –(in simple definition only) Technical forms, process charts, activity logs, in required formats of industry, estimation, cycle time, productivity reports, job cards.</p> <p><b>Basic Life support (BLS):-</b></p> <p>Basic Life Support (BLS) techniques for drowning, choking, electrocution, neck and spinal injury, including CPR (cardiopulmonary resuscitation).</p>	<p><b>Occupational Safety &amp; Health</b>  <b>Importance of housekeeping &amp; good shop floor practices.</b>            Health, Safety and Environment guidelines, legislations &amp; regulations as applicable. Disposal procedure of waste materials like cotton waste, metal chips/burrs etc. Basic safety introduction,            Personal protective Equipments(PPE):-            Basic injury prevention, Basic first aid, Hazard identification and avoidance, safety signs for Danger, Warning, caution &amp; personal safety message.            Preventive measures for electrical accidents &amp; steps to be taken in such accidents.            Use of Fire extinguishers.</p> <p><b>Technical English:</b>            Prepare different types of documentation as per industrial need by different methods of recording information.</p> <p><b>Basic Life support training:</b>            Be able to perform DRSABCD:            D: Check for Danger            R: Check for a Response            S: Send for help            A: Open the Airway            B: Check for normal Breathing            C: Perform CPR (Cardio Pulmonary Resuscitation)</p>

		D: Attach Defibrillator / Monitor as soon as available.
02	Importance of trade in the development of industry. Role of B.I.S and International Standards there uses in modern industry. Indian standards and awareness of other International Standards. Definition of development & its need in industry. Different methods of surface development.	Conventional representation and different rule as per B.I.S and other International Standards and there equivalent i.e. B.I.S, B.S, DIN, JIS, ASTM, AAR. Development of surfaces. Development of cutting plane for various types of pipe – different sizes and angles. Use the I.S. code of Practical following SP-46 : 2003 / latest
03&4	General principle of projection and their types isometric, pictorial view. General principles of dimensioning on engineering drawing.	Orthographic projection of machine parts & vice-versa. Dimension techniques and its application.
05 &6	Limits, fits and tolerances (including geometrical), interchange ability and its terms as per IS. Method of indicating surface texture on technical drawing.	Indication of linear and angular tolerances on technical drawing. Different methods of showing surface finish symbol on working drawings.
07&8	Importance of sectional views, types of sectional views and there uses. Types of fasteners and there uses. Screw threads term and nomenclature. Types of rivets and riveted joint. Description of welding joints and their representation (actual and symbolic) Indication of welding symbols on drawing as per I.S.	Different types of section. Screw thread and their representation in drawing. Practice on different types of riveted and welded joints.
09&10	Different types detailed and assembly drawing. Types of bearing, difference between plain and anti-frictional bearing. Advantages of anti-frictional bearing over plain bearing.	Drawing of a simple bearing and footstep bearing. Details & assembly drawing of roller and ball bearing including taper roller bearing.
11&12	Brief description of different types pipes and tubes, purpose of pipe fitting, pressure ratings, joints and their fittings. Pipe material and specification. Boiler mountings and accessories. Different parts of I.C engine and there purposes. Working principle of 2-stroke and 4-stroke engine. Different types of cam and followers used in industry, kinds of motion displacement diagram.	Different types of pipe layout, pipe joints, pipe fittings, flange, union etc. Different piping drawing i.e. developed drawing diametric drawing & orthographic projection. Drawing of cams and followers with different motion.
13	Brief description and function of centrifugal and reciprocating pump. Different types of valves and their function.	Assembly drawing of different types of pumps (centrifugal & reciprocating), valves and safety valves.
14	Brief description working principles and function of screw jack.	Assembly and details drawing of screw jack.



15	Different types of jig and fixture. Section of standard bush. Different locating methods and clamping devices. Function of gauges, different types of gauges and their uses. Use of template in industry.	Detail drawing of a milling fixture. Design and drawing of drilling jig. Sketching of different types of gauges such as plug, snap, thread, taper etc.
16	Press tool – types, parts and function.	Drawing of different types of press tool giving nomenclature of each part.
17	ALLIED TRADE: OVERVIEW M.M.V Safety precaution, description uses and care of hand tool including construction rule and allowance.	Familiarisation with saws, chisels, raps, planes, rules, try-square, scribes and dividers.
18	ALLIED TRADE: OVERVIEW FOUNDARY Hand tools use for moulding, description and care of hand tools. Description of different type of moulding, core sand and dressing materials. Machining / Shrinkage allowances.	Familiarisation with different types of mould, cores and core making, moulding tools. Floor, box moulding and part patterns.
19	ALLIED TRADE: OVERVIEW SHEET METAL WORKER Names and description of common equipments. Different types and uses of joint employed in sheet metal work.	Familiarisation with hand tools such as hammers, stakes, mallet, punches etc. Development of surfaces from working drawing.
20	ALLIED TRADE: OVERVIEW WELDER (G & E) Different types of welding and welding joints and symbols as per BIS. Surface and edge preparation required for welding.	Familiarisation with arc welding and gas welding, welding torch, electrodes, filler wires, tools used in the trade.

21-22	<p><b>PRACTICAL RELATED THEORY</b>  Different basic CAD commands and use of different menus and different tool bars.</p>	<p>Practice on CAD Draw simple figures.  CAD commands and use of different menus and different tool bars. Editing drawing using different options under modify menu. Creating dimensions of drawing with the help of dimension menu. Layer setup and creating sectional drawing. Familiarization with different options for creating dimensions and adding text to drawing creating drawing in different layers. Creating sectional drawing using different patterns. Editing objects through properties bar.</p>
23	<b>Industrial visit &amp; Submission of Report</b>	
24 - 26	<b>Revision &amp; Trade Test</b>	

**F. List of Tools & Equipment**  
**Trade - DRAUGHTSMAN MECHANICAL**  
 Under CITS  
**For a batch of 20 Trainees**  
**Semester-I**

SL. NO.	DESCRIPTION	QUANTITY
<u>Trainees Kit</u>		
1	Drawing Instrument Box with accessories.	20+1 sets
2	Set square celluloid 45(250x1.5mm)	20+1 sets
3	Set square celluloid 60(250x1.5mm)	20+1 sets
4	French-curves(set of 20 celluloid)	20+1 sets
5	Drawing Board (700 x 500) IS:1444	20+1 sets
6	Tee-Square (700 mm blade) IS:1360	20+1 sets
7	Mini Drafter	20+1 sets
<u>General Outfit</u>		
1A)	Computer 3GHz or latest with 1GB Or higher RAM with compatible motherboard DVD combo drive with latest x version, hard disk with 160 GB or above, 19" TFT Monitor, 1 GB AGP card, 10/100 Ethernet card, Internal modem, UPS with 800 VA / Latest Version	11 nos.
B)	Software: MS-Office XP or latest version of operating software Auto-CAD with power pack or latest version.	11 users licenced
C)	Laser Jet printer Latest model – Print, Copy and Scan 1200x1200dpi, 16MB	1 no.
D)	UPS-10KVA	1 no.
2	Chest of drawers (8 drawers)	2 nos.
3	Trainees Locker (8 drawers )	3 nos.
4	Book Self	2 nos.
5	Steel tape 2 meters (Pull type)	1 nos.
6	Drawing table for A1 sheet	20+1 nos.
7	Stools (Revolving type) Adjustable height	20+1 nos.
8	T.O's Table 6ftX4ft	1 no.
9	T.O's Chair Armed chair – Revolving	1 no.
10	Almirah Steel 6ft. height or higher	2 nos.
11	Computer table	11 nos.
12	Computer chairs – Revolving	21 nos.
13	Table for printers	1 no.
14	D.L.P Projector 2000 LUMEN OR HIGHER	1 no.
15	Motorised Screen forv Projector	1 no.
16	White board 6FT. x 4FT.	1 no.
17	Fire Fighting Equipments	As required
18	First Aid Box	1 no.
19	Equipment for conducting BLS (Basic Life Support) training. (Optional)	1 set

Syllabus for the subject

of

**TRADE THEORY-II  
&  
TRADE PRACTICAL-II**

Under

**CRAFT INSTRUCTOR TRAINING SCHEME (CITS)**

**Trade: Draughtsman (Mechanical)**

Re-Designed in

- 2014 -

By

**Government of India  
Ministry of Labour & Employment  
Directorate General of Employment & Training**

## **G. GENERAL INFORMATION**

- 1. Name of the Course** : Craft Instructor Training
- 2. Duration of Instructor Training** : 1 Year (Two semesters each of six months duration).
- 3. Subjects covered in the Semesters** : Detailed in Section - D
- 4. Name of the Subject** : **TRADE THEORY –II & TRADE PRACTICAL-II**
- 5. Applicability** : **Draughtsman (Mechanical)**
- 6. Examination** : AITT to be held at the end of each semester.
- 7. Space Norms** :  
(a) One class room of minimum 30 sq. m. area having Minimum width of 5 m. and with 6000 lumen  
(b) Drawing Hall: 100 sq. meter having minimum width of 8 m. and with 25000 lumen  
**The electrical equipments of Class room should conform to minimum 3 star Building energy rating as per Bureau of Energy Efficiency (B.E.E.)**
- 8. Power Norms** :  
(a) 1 KW for Class room  
(b) Drawing Hall : 5.5 kw
- 9. Unit strength(Batch Size)** : 20 trainees
- 10. Entry qualification** : Candidate passed semester-I under CITS or completed Semester-I.
- 11. Trainers' Qualification** : Diploma or Degree in Mechanical / Production Engineering from AICTE recognized Board / University with five / two year's experience respectively and
- 12. Desirable** : Passed National Craft Instructor Training course in Draughtsman (Mechanical) trade.  
  
In case of two units, one trainer must be Degree in Engineering.

**H. TOPIC WISE DISTRIBUTION OF MARKS & HOURS**  
**TRADE: DRAUGHTMAN (MECHANICAL)**  
**CRAFT INSTRUCTOR TRAINING SCHEME**  
**SEMESTER-II**

Note: During the discussion of any machine tools, related precautions and safety measures should be discussed.

Trade Theory				Trade Practical		
Sl. No.	Topics	Hours	Marks	Topics	Hours	Marks
1	Types of assembly drawings	8	40	Types of assembly drawings	32	50
2	Geometrical & dimensional tolerance	8	10	Geometrical & dimensional tolerance	32	10
3	Transmission of power by different methods	8	5	Transmission of power by gear belt pulley.	32	30
4	Symbolic representation of welding	4	5	Symbolic representation of welding	16	10
5	Inspection & inspection technique.	8	15	Inspection & inspection technique with measuring instrument.	32	15
6	Conventional & CNC M/C	8	5	Conventional & CNC M/C	32	15
7	Allied in Fitter , MMV , Turner , Machinist ,	32	10	Tool and equipments in the trades Fitter , MMV , Turner , Machinist ,	128	40
8	CAD ,NC & CNC machine	12	10	CAD ,NC & CNC machine	48	30
	<b>Total</b>	<b>88</b>	<b>100</b>		<b>352</b>	<b>200</b>
	<b>THEORY II ---22 WEEKS X 04 HRS/WEEK=88 hrs</b>			<b>PRACTICAL II ---22 WEEKS X 16 HRS/WEEK=352hrs</b>		

**I. TOPIC DETAIL SYLLABUS FOR THE TRADE: DRAUGHTMAN (MECHANICAL)**  
**CRAFT INSTRUCTOR TRAINING SCHEME**  
**SEMESTER-II**

Note: During the discussion of any machine tools, related precautions and safety measures should be discussed.

Tentative Week No.	THEORY	PRACTICAL
01&02	Types of assembly drawings, preparing & planning of assembly drawings. Elements of production drawing.	Practice of detailed & assembly drawings of the components of different machine and machine parts.
03&4	Types of geometrical & dimensional tolerance. Selection of tolerance in hole basis and shaft basis system. Terminology for surface roughness system & selection of fit.	Representation of geometrical and dimensional tolerances on drawing. Drawing of Keys, Cotters, Flanges. Drawing practice for method of indicating surface texture on technical drawing. Representation of surface roughness on drawing.
05&6	Transmission of power by belt, gear, pulleys, chain and couplings.	Drawing of different types of pulleys. Working drawing of coupling and knuckle joint. Design and drawing of gears (spur helical & bevel) worm and worm wheel.
07	Symbolic representation of welds on structural work.	Detailed drawing of structural work. Assembly drawing of different types of welded joints used in industries.
08&09	Engineering Inspection & inspection techniques.	Use of different precision measuring instruments & gauges.
10 & 11	Difference between Conventional & CNC machining system. Working principles of CNC machines.	Demonstrations on CNC machines.
12 & 13	<b>ALLIED TRADE: OVERVIEW FITTER:</b> Description and application of simple hand tools, cutting tools and measuring instruments etc.	Familiarisation with fitter related skills. Different types of hand tools, cutting tools and measuring instruments used in marking, preparing & fitting.

14&15	ALLIED TRADE: OVERVIEW MECH. MOTOR VEHICLE: Brief description of I.C engine and its parts such as cylinder block, piston, connecting rod, cam shaft, carburettor, spark plug, Fuel Injection pump, etc.	Familiarisation and identification of different parts of I.C engine. Both spark ignition and compression ignition: 2-stroke & 4-stroke engines.
16 & 17	ALLIED TRADE: OVERVIEW TURNER Lathe – its types, parts, accessories, tools, tool materials and different operations.	Familiarisation with plain, step, boring and taper turning, thread cutting.
18 &19	ALLIED TRADE: OVERVIEW MACHINIST: Description of shaping, planning & milling machines, their parts, accessories and different mechanism and operations.	Familiarisation with simple operations on milling and shaping machine.
20 &21	Analyzing the drawing using inquiry option. Creating isometric drawing from orthographic views. Editing properties of the drawing. Making, editing & inserting block under insert menu. Introduction of solid and parametric modelling. Printing and plotting commands. Awareness about design / drawing related latest software.	Methods of generating solids and solid editing. Setting up of drawing limits units & scale. Use of 3D modelling with solid modelling software for FEA. Saving a drawing file in other formats. Detailed & Assembly of simple machine drawing. Creating layout, page setup, selection of plotting devices & plotting a drawings. Industrial cum study tour in different organization having drawing & design office with required facilities
22	Introduction NC &CNC mc. Advantages of CNC m/c. & code of CNC m/c. (G.-code & M. code).	Overview of programming & operation of CNC. Concept on MASTER CAM.
23	<b>Industrial visit &amp; Submission of Report</b>	
24 - 26	<b>Revision &amp; Trade Test</b>	



**A. List of Tools & Equipment**  
**Trade - DRAUGHTSMAN (MECHANICAL)**  
**Under Craft Instructors Training Scheme**  
**For a batch of 20 Trainees**  
**Semester-II**

SL.NO.	DESCRIPTION	QUANTIT Y
<b>Trainees Kit</b>		
1	Drawing Instrument Box with accessories.	20+1 sets
2	Set square celluloid 45(250x1.5mm)	20+1 sets
3	Set square celluloid 60(250x1.5mm)	20+1 sets
4	French-curves(set of 20 celluloid)	20+1 sets
5	Drawing Board (700 x 500) IS:1444	20+1 sets
6	Tee-Square (700 mm blade) IS:1360	20+1 sets
7	Mini Drafter	20+1 sets
<b>General Outfit</b>		
1A)	Computer 3GHz or latest with 1GB or Higher RAM with compatible motherboard DVD combo drive with latest x version, hard disk with 160 GB or above, 19" TFT Monitor, 1 GB AGP card, 10/100 Ethernet card, Internal modem, UPS with 800 VA or Latest version	11 nos.
B)	Software: MS-Office, XP or latest version of operating system , Auto-CAD with power pack or latest version.	11 users licenced
C)	Laser Jet printer Latest model Print, Copy and Scan 1200x1200dpi, 16MB – A3 size	1 no.
D)	UPS-10KVA	1 no.
2	Chest of drawers (8 drawers)	2 nos.
3	Trainees Locker (8 drawers )	3 nos.
4	Book Self	2 nos.
5	Steel tape 2 meters (Pull type)	1 nos.
6	Drawing table (A1 sheet)	20+1 nos.
7	Stools(Revolving and adjustable type)	20+1 nos.
8	Print Trimmer 1050 mm cutting edge	1 no.
9	T.O's Table 6ft. X 4ft.	1 no.
10	T.O's Chair – revolving type with Arm	1 no.
11	Almirah Steel 6 ft.	2 nos.
12	Computer table	11 nos.
13	Computer chairs (Revolving type)	21 nos.
14	Master cam software latest version	10 user license
15	Table for printers	1 no.
16	D.L.P Projector – 2000 LUMEN OR HIGHER	1 no.
17	Motorised screen for projector	1 no.
18	White board 6ft. X 4ft.	1 no.
19	Fire Fighting Equipments	As required
20	First Aid Box	1 no.

**B. FURNITURE, ACCESSORIES AND AUDIO VISUAL AIDS FOR SEMESTER-I & II (COMMON FOR ALL ENGG. TRADES)**

<b>Sl No.</b>	<b>Item</b>	<b>Qnt.</b>
1.	Class Room Chairs (armless) / Dual desk may also be allowed	20 /10
2.	Class Room Tables ( 3ft X 2ft) / Dual desk may also be allowed	20 /10
3.	Chair for Trainer (armed) movable	01
4.	Table for Trainer (4 ½ ft X 2 ½ ft) with Drawer and cupboard	01
5.	LCD / LED Projector	01
6.	Multimedia Computer System with all accessories with UPS (.5 KVA)	01 set
7.	Computer Table	01
8.	White Board (6ft X 4 ft.)	01 no.
9.	LCD Projector Screen	
10.	Air Conditioner 1.5Ton (OPTIONAL)	02
11.	Wall Clock	01 no.
12.	Wall charts, Transparencies and DVDs related to the trade	As required
13.	Laser Printer with scanner	01
14.	Steel Cupboard with 8 pigeon lockers	3
15.	Work bench for fitters with two vices of 100mm	2
16.	Steel cupboard 180x90x45cm	2
17.	Steel cupboard 120x60x45cm	2
18.	Multi drawer tool rack trolley with minimum 4 drawers and 20 tool capacity	04
19.	First aid box.	1

## C.LIST OF TRADE COMMITTEE MEMBERS

Sl. No.	Name & Designation Sh/Mr/Ms.	Organization	Mentor Council Designation
<b>Members of Sector Mentor council</b>			
1.	A. D. Shahane, Vice-President, (Corporate Trg.)	Larsen & Tourbo Ltd., Mumbai:400001	Chairman
2.	Dr. P.K.Jain, Professor	IIT, Roorkee, Roorkee-247667, Uttarakhand	Member
3.	N. Ramakrishnan, Professor	IIT Gandhinagar, Gujarat-382424	Member
4.	Dr. P.V.Rao, Professor	IIT Delhi, New Delhi-110016	Member
5.	Dr. Debdas Roy, Asstt. Professor	NIFFT, Hatia, Ranchi-834003, Jharkhand	Member
6.	Dr. Anil Kumar Singh, Professor	NIFFT, Hatia, Ranchi-834003, Jharkhand	Member
7.	Dr. P.P.Bandyopadhyay Professor	IIT Kharagpur, Kharagpur- 721302, West Bengal	Member
8.	Dr. P.K.Ray, Professor	IIT Kharagpur, Kharagpur- 721302, West Bengal	Member
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12.	N. Krishna Murthy Principal Scientific Officer	CQA(Heavy Vehicles), DGQA, Chennai, Tamil Nadu	Member
13.	Sunil Khodke Training Manager	Bobst India Pvt. Ltd., Pune	Member
14.	Ajay Dhuri	TATA Motors, Pune	Member
15.	Uday Apte	TATA Motors, Pune	Member
16.	H B Jagadeesh, Sr. Manager	HMT, Bengaluru	Member
17.	K Venugopal Director & COO	NTTF, Peenya, Bengaluru	Member
18.	B.A.Damahe, Principal L&T Institute of Technology	L&T Institute of Technology, Mumbai	Member
19.	Lakshmanan. R Senior Manager	BOSCH Ltd., Bengaluru	Member
20.	R C Agnihotri Principal	Indo- Swiss Training Centre Chandigarh, 160030	Member
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21.	Sunil Kumar Gupta (Director)	DGET HQ, New Delhi.	Mentor

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24.	Sukhdev Singh (JDT)	ATI Kanpur	Team Leader
25.	Ravi Pandey (V.I)	ATI Kanpur	Member
26.	A.K. Nasakar (T.O)	ATI Kolkata	Member
27.	Samir Sarkar (T.O)	ATI Kolkata	Member
28.	J. Ram Eswara Rao (T.O)	RDAT Hyderabad	Member
29.	T.G. Kadam (T.O)	ATI Mumbai	Member
30.	K. Mahendar (DDT)	ATI Chennai	Member
31.	Shrikant S Sonnavane (T.O)	ATI Mumbai	Member
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33.	G.N. Eswarappa (DDT)	FTI Bangalore	Member
34.	G. Govindan, Sr. Draughtsman	ATI Chennai	Member
35.	M.N.Renukaradhya, Dy.Director/Principal Grade I.,	Govt. ITI, Tumkur Road, Banglore, Karnataka	Member
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40.	M. Anbalagan, B.E., Assistant Training Officer	Govt. ITI Coimbatore, Tamil Nadu	Member
41.	K. Lakshmi Narayanan, T.O.	DET, Tamil Nadu	Member
<b>Other industry representatives</b>			
42.	Venugopal Parvatikar	Skill Sonics, Bangalore	Member
43.	Venkata Dasari	Skill Sonics, Bangalore	Member
44.	Srihari, D	CADEM Tech. Pvt. Ltd., Bengaluru	Member
45.	Dasarathi.G.V.	CADEM Tech. Pvt. Ltd., Bengaluru	Member
46.	L.R.S.Mani	Ohm Shakti Industries, Bengaluru	Member