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DRAFT

Syllabus for the Trade

Of

READING OF DRAWING AND

ARITHMETIC

Under

(Modular Pattern)

Of

CRAFT INSTRUCTOR TRAINING SCHEME

TRADE TECHNOLOGY – I

(TT- I)

Duration:- 3 Months/13Weeks

Designed in – 2009

Government of India
Ministry of Labour & Employment
Directorate General of Employment and Training
ADVANCED TRAINING INSTITUTE KOLKATA
DASNAGAR, HOWRAH

WEST BENGAL – 711105

List of members attended the Trade Committee Meeting to finalise the Draft Syllabus for the trade of **Reading of Drawing And Arithmetic** under Modular Pattern of Craft Instructor Training Scheme of Trade Technology – I(TT – I), held on **19.5.2009**, at Advanced Training Institute Kolkata.

Sl. No.	Name & Designation S/Shri/Smt.	Organisation
1.	J.Ukil, J.D.T.	A.T.I.Kolkata
2.	S.P.Ghosh, Asst.Engineer (Trg.)	Bridge & Roof Co. Ltd.
3.	S.Sinha, Officer In-charge Trg.	MSME Tool Room Kolkata.
4.	A.K.Koley, Consulting Engineer	
5.	Dr. N.K.Singh, Asst. Professor(Workshop)	I.S.M. University, Dhanbad
6.	S.Pal, D.D.T.	A.T.I. Chennai
7.	S.Polley, Instructor,	Representative of Govt. Of W.B.
8.	M.Banerjee, Instructor	Don Bosco, SERI
9.	A.K.Mandal, A.D.T.	A.T.I.Kolkata
10.	A.K.Dutta, A.D.T.	A.T.I.Kolkata
11.	A.Chakraborty, T.O.	CSTARI, Kolkata
12.	Sk. A. Hossain, T.O.	A.T.I.Kolkata
13.	S.Ghosh, Sr. D/Man	A.T.I.Kolkata
14.	D. Ghosh, V.I.	A.T.I.Kolkata

COURSE STRUCTURE

Module: - TRADE TECHNOLOGY –I (TT-I)

DURATION: 3 Month/13 weeks.

Sl. No.	Components	Units	Allotted time/week	Allotted Time/Module
1.	Trade Technology	a) Theory	14 hr./wk.	14x13=182 hr.
		b) Practical	25 hr./wk.	25x13=325 hr.
2.	Library	c) Library	01hr./wk.	1x13=13 hr.
			40hr./wk.	520 hr./Module

OBJECTIVE

THE OBJECTIVE OF THE COURSE IS TO TRAIN INSTRUCTORS USING I.C.T. & C.B.T. IN THE TECHNIQUES FOR IMPARTING TRAINING ON LATEST KNOWLEDGE IN THE RELATED TRADE KEEPING IN VIEW OF THE PRESENT AND FUTURE GLOBAL INDUSTRIAL REQUIREMENTS, SO THAT SEMI-SKILLED /SKILLED MAN POWER OF THE COUNTRY MAY BECOME ENABLE TO COMPETE IN THE GLOBAL MARKET.

**SYLLABUS FOR MODULAR PATTERN
OF
CRAFT INSTRUCTOR TRAINING SCHEME
TRADE : READING OF DRAWING AND ARITHMETIC
TRADE TECHNOLOGY –I (TT-I)**

WEEK NO.	TRADE THEORY	Practical
1.	<p>Importance of trade. Environmental, occupational & safety hazards specific to the trade like electrical, computer & related shop floor hazards.</p> <p>Introduction to I.S. & its function. Preliminary knowledge on Engineering Drawing instrument: materials, specifications & functions. Scales : Principles, types and applications</p>	<p>Exercises on types of letters, lines & conventional symbols as per I.S.</p> <p>Practising free hand sketches on hand tools, simple machine parts & equipments.</p> <p>Construction of scales.</p>
2.	<p>Drawing Sheets : Sizes, layout, planning, preservation, management and house – keeping. Lines & lettering : types, nature and application as per Indian Standard.</p>	<p>Practice on size and location dimension for parts, holes, angles, taper, threads, etc. as per I.S.</p>
3.	<p>Dimensioning : Introduction, importance, systems, symbol & applications.</p>	<p>Geometrical constructions. Practising on dimensioning with tolerance, machining symbols & surface roughness values as per IS.</p>
4.	<p>Notation system : Points on all quadrants. Straight lines : parallel, perpendicular &</p>	<p>Projection of points, straight lines and planes. Drawing of simple machine parts in 1st &</p>

	inclined in respect of different planes. Planes : perpendicular, parallel & inclined in respect of different planes. Use and application of reading of drawing.	3 rd angle projections . Exercises on reading of drawing related to identification & retrieval of missing lines, views, section, dimensions as well as identification of surface.
5.	Pictorial Views : types, methods of representation & functions. Orthographic Projections : First Angle & Third Angle : Principles and method of representation.	Conversion of isometric/oblique drawing into orthographic projections and vice versa of machine parts.
6.	Sectioning : Basic concept, importance, symbols for different materials, standard parts which are not to be sectioned.	Exercises on different sectional views on the given models/actual objects. Exercises on true shapes of different sectional views.
7.	Development of Surfaces : Principles, types, importance & applications.	Exercises on development of surface of simple objects like cube, cone, pyramid, cylinder, prism etc.
8.	Interpenetration of solids : Introduction & importance.	Exercises on interpenetration of solids.
9.	Fastener & fastening : Nut, Bolt, Key & Cotter, Gasket, Seals etc. : Types , Uses, Symbols & applications	Drawings on screwed fastenings – screw threads, nuts, bolts, studs and other locking devices.
10.	Types of rivets and different types of riveted joints & symbols. Selection of fastener devices as per requirement.	Drawing of various types of rivets & riveted joints. Technical drawings for structural metal work.
11.	Ratio and proportion : Definition, examples and exercises. Percentage – Definition, examples and exercises. Graph – Introduction, procedure of drawing graph, examples and exercises.	Preparation of different Graphs and Charts. Method of preparation of drawing, printing, recording and preservation.
12.	Fundamental of computer, DOS and Windows operating system, MS – Office.	Familiarization with the devices of computer. Exercises on MS-Office.
13.	Revision Final Examination.	

LIST OF TOOLS & EQUIPMENT FOR A BATCH OF 20 TRAINEES

Trade : **Reading of Drawing & Arithmetic**

Module : TT - I

Sl.No.	DESCRIPTION	QUANTITY	ESTIMATED COST IN Rs.
1.	Drawing Instrument Box with accessories.	20+1 sets	20,000
2.	Scale set card board (Metric)	20+1 sets	2,000
3.	Set square celluloid 45(250x1.5mm)	20+1 sets	2,000
4.	Set square celluloid 60(250x1.5mm)	20+1 sets	2,000
5.	French-curves(set of 20 celluloid)	20+1 sets	1,000
6.	Drawing Board (700 x 500) IS:1444	20+1 sets	25,000
7.	Tee-Square (700 mm blade) IS:1360	20+1 sets	10,000
8.	Steel Rule 300 mm (inches and millimeters)	20+1 sets	2,000
9.	Mini Drafter	20+1 sets	20,000
10.	Rot ring Pens (0.1mm to 0.7mm)	20+1 sets	2,500
11.	Plastic models for development and geometrical solids	4 sets	2,000
12.	Universal Drafting Machine 1500x1000 mm with Accessories.	4 nos.	25,000
13.	Wooden Geometry Box	1 set.	1,000
14.	Stencil set complete in box	4 Sets.	1,500
15.	Steel tape 2 meters (Pull type)	3 nos.	500
16.	Radius and Fillet templates	2 sets	500
17.	Chest of drawers (8 drawers)	3 nos.	36,000
18.	Trainees Locker (5 Drawers)	4 Nos.	20,000
19.	Book Self (Glass Panel)	2Nos.	16,000
20.	Discussion Table	1No.	10,000
21.	Drawing table	20 nos.	50,000
22.	Stools (Revolving)	20 nos.	20,000
23.	Trainer's Table	1 No.	15,000
24.	Trainer's Chair	1 no.	8,000
25.	Almirah Steel (Standard size)	3 nos.	30,000
26.	Computer table	11 nos.	60,000
27.	Computer chairs	21 nos.	55,000
28.	Table for printers	3 nos.	15,000
29.	White board	1 no.	5,000
30.	OHP	1 no.	15,000
31.	L.C.D. Projector	1 no.	1,00,000
32.	Pentium IV Computer 3GHz or latest with 2 GB DDR RAM with compatible motherboard	11 nos.	70,000 each

	DVD combo drive with latest x version, hard disk with 160 GB or above, 19" Colour Monitor, 1 GB AGP card, 10/100 Ethernet card, Wireless USB LAN Adapter.		
33.	UPS 650 VA offline.	11 Nos.	2500 each
34.	Software: MS-Office or latest version Auto-CAD 2010 with power pack or latest version.	11 users	12,00,000
35.	Laser Jet printer(A3 size) Latest model 1200x1200dpi, 16MB	2 nos.	20,000
36.	Laser Colour Printer (A3 size)	1No.	35,000
37.	Teaching aid : CD/DVD for Welding Joint, Structural Work, Pipe Joint, Carpentry Joint etc.	As required	20,000
38.	Xerox Machine(A3 size) mono	1 No.	30,000
39.	Fire Fighting Equipment, First Aid Box etc.	As required	25,000

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Syllabus for the Trade
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READING OF DRAWING AND
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Under
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Of
CRAFT INSTRUCTOR TRAINING SCHEME

TRADE TECHNOLOGY – II

(TT- II)

Duration:- 3 Months/13Weeks

Designed in – 2009

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13.	S.Ghosh, Sr. D/Man	A.T.I.Kolkata
14.	D. Ghosh, V.I.	A.T.I.Kolkata

COURSE STRUCTURE

Module: - TRADE TECHNOLOGY –II

(TT-II)

DURATION: 3 Month/13 weeks.

Sl. No.	Components	Units	Allotted time/week	Allotted Time/Module
1.	Trade Technology	a)Theory	14 hr./wk.	14x13=182 hr.
		b)Practical	25 hr./wk.	25x13=325 hr.
2.	Library	c)Library	01hr./wk.	1x13=13 hr.
			40hr./wk.	520 hr./Module

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TRADE : READING OF DRAWING AND ARITHMETIC
TRADE TECHNOLOGY –II (TT-II)**

WEEK NO.	TRADE THEORY	Practical
1.	Bearing : Types, symbols & applications.	Drawing of bearings – bushed bearing, pedestal bearing, foot step bearing , plumber block, ball and roller bearing
2.	Carpentry : joints, symbols & applications.	Drawing of carpentry joints : angle joint, framing joint, broadening joint and lengthening joint and their different types.
3.	Pipe & Pipe joints - types , symbols & applications.	Drawing of pipe joints – flanged joint, socket and spigot joint etc. Drawing on various types of shaft couplings, flanged, cone, universal and muff.
4.	Basic circuits & symbols of Electrical, Electronics, Hydraulics & Pneumatics and their applications.	Drawing on basic electrical, electronics, hydraulic & pneumatics circuits & symbols.
5.	Concept of Assembly and detail drawing : relation , importance & application.	Practising on detail and assembly drawings of simple machine components.
6.	Basic concepts & calculation related to cutting speed, feed, r.p.m., depth of cut. Calculation of machining time for drilling, turning, shaping, milling etc.	Exercise of blue print reading on simple electrical, electronic & hydraulic & pneumatic circuits with symbols
7.	Cast and machined gears, calculation related to all types gears.	Drawing of Gears : spur, helical, bevel, worm & worm wheel.
8.	Description of welded joints and their symbols, representation of welding symbols on drawings.	Welding joints, application of welding symbols on welded structure.
9.	Limits, fits, tolerance & surface finish : Introduction, representation, importance, symbols & applications.	Practice on tolerance dimensioning and indication of surface finish symbols as per IS on working drawing.
10.	Method of using precision measuring instruments such as Vernier, micrometer, gauges etc.	Practice with precision measuring instruments on real object and comparison with working drawing.
11.	Concepts of 2D Drafting & 3D Modelling	Practice on drafting of simple components using Auto-CAD.
12.	Practice & Exercises on 2D Drafting & 3D Modelling using AutoCAD.	
13.	Revision and Final Test	

LIST OF TOOLS & EQUIPMENT FOR A BATCH OF 20 TRAINEES

Trade : **Reading of Drawing & Arithmetic**

Module : TT – II

For TT-II : Tools and Equipment List is same as TT-I. In addition following items are also required.

Sl. No.	DESCRIPTION	QUANTITY	ESTIMATED COST IN Rs.
1.	Pentium IV Computer 3GHz or latest with 2 GB DDR RAM with compatible motherboard DVD combo drive with latest x version, hard disk with 160 GB or above, 19" Colour Monitor, 1 GB AGP card, 10/100 Ethernet card, Wireless USB LAN Adapter.	10 nos.	70,000 each
2.	UPS 650 VA offline.	10 nos.	2,500 each
3.	Software: MS-Office or latest version Auto-CAD 2010 with power pack or latest version.	10 users	10,00,000
4.	Computer table	10 nos.	55,000
5.	Hub/Switch/Access Point	1 No.	10,000
6.	LAN and Inter Net connectivity with modem (Broad Band)	As required.	4,000