

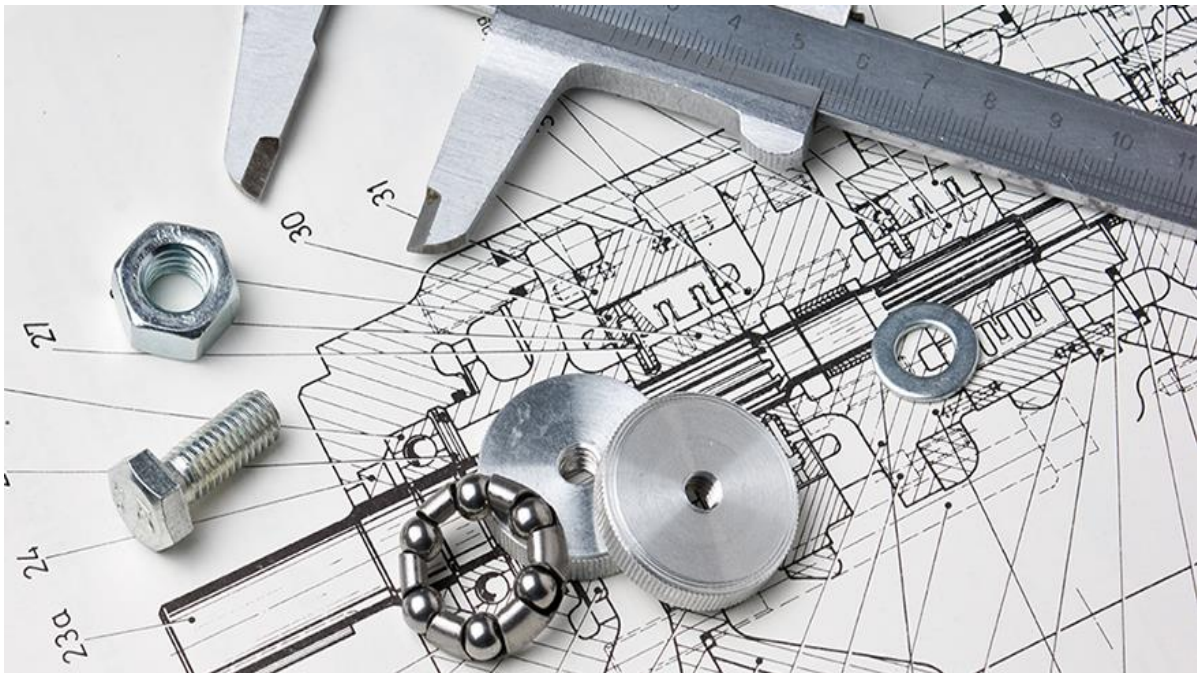


GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

COMPETENCY BASED CURRICULUM

ENGINEERING DRAWING

FOR CRAFTSMEN TRAINING SCHEME (CTS)



Designed in 2019

Developed By

CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE

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ENGINEERING DRAWING - I

(Common for CTS Engineering trades during 1st year)

(Not applicable for Draughtsman trade Group)

Sl. No.	Topic	Time in hrs.
1.	Engineering Drawing – Introduction Introduction to Engineering Drawing and Drawing Instruments – <ul style="list-style-type: none"> • Conventions • Viewing of engineering drawing sheets. • Method of Folding of printed Drawing sheet as per BIS SP: 46-2003 	1
2.	Drawing Instrument <ul style="list-style-type: none"> • Drawing board, T-square, Drafter (Drafting M/c), Set squares, Protector, Drawing Instrument Box (Compass, Dividers, Scale, Diagonal Scales etc.), pencils of different grades, Drawing pins/ Clips. 	1
3.	Free hand drawing of – <ul style="list-style-type: none"> • Lines, polygons, ellipse etc. • Geometrical figures and blocks with dimension • Transferring measurement from the given object to the free hand sketches. • Solid objects – Cube, Cuboids, Cone, Prism, Pyramid, Frustum of Cone with dimensions. • Free hand drawing of hand tools and measuring tools, simple fasteners (nuts, bolts, rivets etc.) trade related sketches 	10
4.	Lines <ul style="list-style-type: none"> • Definition, types and applications in drawing as per BIS: 46-2003 • Classification of lines (Hidden, centre, construction, extension, Dimension, Section) • Drawing lines of given length (Straight, curved) • Drawing of parallel lines, perpendicular line • Methods of Division of line segment 	2
5.	Drawing of Geometrical figures: Definition, nomenclature and practice of – <ul style="list-style-type: none"> • Angle: Measurement and its types, method of bisecting. • Triangle: different types • Rectangle, Square, Rhombus, Parallelogram. • Circle and its elements • Different polygon and their values of included angles. Inscribed and circumscribed polygons 	8
6.	Lettering & Numbering – <ul style="list-style-type: none"> • Single Stroke, Double Stroke, Inclined. 	6
7.	Dimensioning and its Practice <ul style="list-style-type: none"> • Definition, types and methods of dimensioning (functional, non-functional and auxiliary) • Position of dimensioning (Unidirectional, Aligned) 	4

	<ul style="list-style-type: none"> • Types of arrowhead • Leader line with text • Symbols preceding the value of dimension and dimensional tolerance. 	
8.	<p>Sizes and layout of drawing sheets</p> <ul style="list-style-type: none"> • Selection of sizes • Title Block, its position and content • Item Reference on Drawing Sheet (Item list) 	2
9.	<p>Method of presentation of Engg. Drawing</p> <ul style="list-style-type: none"> • Pictorial View • Orthographic View • Isometric View 	2
10.	<p>Symbolic representation – different symbols used in the trades</p> <ul style="list-style-type: none"> • Fastener (Rivets, Bolts and Nuts) • Bars and profile sections • Weld, Brazed and soldered joints • Electrical and electronics element • Piping joints and fitting 	6
11.	<p>Projections</p> <ul style="list-style-type: none"> • Concept of axes plane and quadrant • Orthographic projections • Method of first angle and third angle projections (definition and difference) • Symbol of 1st angle and 3rd angle projection in 3rd angle. 	15
12.	Orthographic projection from isometric projection	15
13.	Reading of fabrication drawing	8
Total		80

ENGINEERING DRAWING - II

(03 groups of CTS Engineering trades during 2nd year)

(Not applicable for Draughtsman trade Group)

2nd Year – (Group - I)- Mechanical trade group – Fitter, Turner, Machinist, Machinist Grinder, Mechanic Machine Tool Maintenance, Operator Advance Machine Tool, Mechanic Motor Vehicle, Mechanic Agriculture Machinery, Ref. & A/C Mechanic, Central Air Conditioning Plant, Mechanic Mining Machinery, TDM (D&M), TDM (J&F), Marine Fitter, Aeronautical Structure, Spinning Technician, Textile Wet Processing Technician, Weaving Technician, Textile Mechatronics, Painter General, Mechanic Maint. (Chemical Plant), Refractory Technician, - 22 trades.

Sl. No.	Topic	Time in hrs.
1.	Construction of scales and diagonal scales	4
2.	Conic sections (Ellipse and Parabola)	3
3.	Sketches of nuts, bolt, screw thread, different types of locking devices e.g. Double nut, Castle nut, Pin, etc.	6
4.	Sketches of foundation	08
5.	Rivets and rivetted joints, welded joints	10
6.	Sketches of pipes and pipe joints	10
7.	Assembly view of Vee blocks, Bush & Bearing, Different types of Coupling viz., Muff coupling, Half Lap Coupling, Flange coupling, etc. Simple work holding device e.g. vice Drawing details of two mating blocks and assembled view	25
8.	Sketch of shaft and pulley, belt, gear, gear drives	14
Total		80