

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.	Sizes and layout of drawing sheets <ul style="list-style-type: none"> • Selection of sizes • Title Block, its position and content • Item Reference on Drawing Sheet (Item list) 	2
9.	Method of presentation of Engg. Drawing <ul style="list-style-type: none"> • Pictorial View • Orthographic View • Isometric View 	2
10.	Symbolic representation – different symbols used in the trades <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.	Projections <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