

SYLLABUS OF SEMESTER SYSTEM

FOR THE TRADE OF

DRAUGHTSMAN CIVIL

Under

Craftsmen Training Scheme (CTS)

(Two Year/Four Semesters)

Redesigned in

2014

By

Government of India

Ministry of Labour & Employment (DGE&T)

FORMAT FOR CTS

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2. Title

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GENERAL INFORMATION

1. Name of the Trade	DRAUGHTSMAN CIVIL (Engineering Trade)
2. N.C.O. Code No.	030.20
3. Qualification Pack Code No.	
4. Duration of Training	Two Years (FOUR semesters of six Months each)
5. Entry Qualification	10th class Passed
6. Unit Strength	20 Trainees (Two Batches-each batch of 20 Trainees)
7. Space Norms	a) Class room: 30 sqm. b) Workshop: 64 sqm.
8. Power Norms	a) Class room: 1kw (6000 lumen) b) Workshop : 2 kw (30,000 lumen)
9. Job Role : <p style="text-align: center;">At the end of course the trainee will be able to:-</p> <ul style="list-style-type: none"> • Work as a civil draughtsman at various department, to create a drawings for different types of buildings, using different CAD softwares in 2D,3D also can estimate the coat of building as well as their materials. He can carry out the surveying by using latest equipments. 	
10. Instructor's Qualification	Training officer/Instructor – 2 no's Workshop attendant – 1 no
11. Instructor's/Trainer's Qualification	Academic Qualification: (a)Passed10th class under 10+2 system with Science and Mathematics (b) Technical Qualification: <ul style="list-style-type: none"> • Degree or Diploma in Civil branch of engineering with 1 or 2 years post qualification experience respectively OR • NTC in same or relevant trade with 5 years' post qualification experience OR • NAC in same or relevant trade with 4 years' post qualification experience. (c)Desirable Qualification: <ul style="list-style-type: none"> • Passed National Craft Instructor Training course in same OR relevant trade.

Syllabus for the Trade of Draughtsman Civil under CTS

First Semester (Semester Code No. –DMC: SEM-I)

Duration: Six Months

Syllabus for TP 01 and TT 01

Week wise content Index of First Semester

Sl. No.	Week No.	Contents Heading		Duration
		Practical	Theory	
1.	1.	<ul style="list-style-type: none">• Orientation of Trade & Institution.	<ul style="list-style-type: none">• Rules & regulation of the Institute & Trade. List of Equip., Inst. & Achievements.	1 week
2.	2,3	<ul style="list-style-type: none">• Practice with BIS Code of Practice for Architectural & building drawings.	<ul style="list-style-type: none">• Introduction of BIS Code of Practice for Architectural & building drawings	2 week
3.	4, 5 & 6	<ul style="list-style-type: none">• Practice with signs & symbols in Building Drawings.	<ul style="list-style-type: none">• Building Materials.	3 week
4.	7,8	<ul style="list-style-type: none">• Practice with various permanent and temporary structures.	<ul style="list-style-type: none">• Permanent & Temporary structures.	2week
5.	9, 10	<ul style="list-style-type: none">• Showing Construction details.	<ul style="list-style-type: none">• Masonry	2week
6.	11,12 & 13	<ul style="list-style-type: none">• Drawing details of various structures with form work..• Details of different types of foundation.	<ul style="list-style-type: none">• Soil & Foundations	3 week
7.	14	<ul style="list-style-type: none">• Drawing details of various treatments at ground & upper floor	<ul style="list-style-type: none">• Treatments for buildings	1 week
8.	15	<ul style="list-style-type: none">• Drawing construction details of various floors and flooring	<ul style="list-style-type: none">• Floors & Floorings	1 week
9.	16	<ul style="list-style-type: none">• Drawing details of	<ul style="list-style-type: none">• Arches & Lintels	1 week

		Arches & Lintels at various opening of structures with form work.		
10.	17	<ul style="list-style-type: none"> • Drawing details of various Doors, Windows, ventilators. 	<ul style="list-style-type: none"> • Doors, Windows, ventilators. 	1 week
11.	18	<ul style="list-style-type: none"> • Drawing details of different types of stairs. 	<ul style="list-style-type: none"> • Stairs. 	1 week
12.	19.	<ul style="list-style-type: none"> • Drawing details of various Roofs 	<ul style="list-style-type: none"> • Roofs. 	1 week
13.	20.	<ul style="list-style-type: none"> • Drawing details of various ground & upper floor. 	<ul style="list-style-type: none"> • Reinforced cement concrete. 	1 week
14.	21.	<ul style="list-style-type: none"> • Practice with operating (window) & application (MS Office) software. 	<ul style="list-style-type: none"> • Fundamental of computers & Introduction of CAD 	1 week
15.	22,23	Project work / Site Visit		2 weeks
16.	24	Revision		1 week
17.	25,26	Examination		2 weeks

Syllabus for the Trade of Draughtsman Civil under CTS

First Semester (Semester Code No. –DMC: SEM-I)

Duration: Six Months

Syllabus for Workshop Calculation and Science

Week wise content Index of First Semester

Sl. No.	Week No.	Workshop Calculation and Science	Duration
1.	1	• Fundamental Units.	1 week
2.	2,3	• Derived Units & conversation practice.	2 week
3.	4,6	• Properties of Building Materials.	2 week
4.	7,8	• Heat and their conversation practice.	2 week
5.	9,10	• Work, Power& Energy.	2 week
6.	11,12 & 13	• Centre of Gravity and Equilibrium.	3 week
7.	14	• Simple stress & strain.	1 week
8.	15	• Shear force & bending	1 week
9.	16	• Shear force & bending moments.	1 week
10.	17	• Geometrical Properties.	1 week
11.	18	• Cetroid	1 week
12.	19	• Moments of Inertia	1 week
13	20	• Fractions	1 week
14	21	• Applied problems on least common multiple meaning, LCM of two numbers.	1 week
15	22 to26	Revision & Examination	

Syllabus for the Trade of Draughtsman Civil under CTS

Second Semester (Semester Code No. –DMC:SEM-II)

Duration: Six Months

Syllabus for TP 02 and TT 02

Week wise content Index of Second Semester

Sl. No.	Week No	<u>Contents Heading</u>		Duration
		Practical	Theory	
1.	1,2	<ul style="list-style-type: none">• practice with local building development rules.	<ul style="list-style-type: none">• Building bye-laws.	2week
2.	3,4,5 &6	<ul style="list-style-type: none">• Planning of different types of building.	<ul style="list-style-type: none">• Principles of planning of residential building.	4week
3	7,8,9 & 10	<ul style="list-style-type: none">• Practice with latest design of public Building Drawings.	<ul style="list-style-type: none">• Planning of Public Building.	4week
4.	11	<ul style="list-style-type: none">• Practice with Prefabricated structure of building..	<ul style="list-style-type: none">• prefabricated structures	1 week
5.	12,13 & 14	<ul style="list-style-type: none">• Showing details of RCC in Buildings,.	<ul style="list-style-type: none">• Reinforced Cement Concrete	3 week
6.	15,16 & 17	<ul style="list-style-type: none">• Drawing details of steel structures..	<ul style="list-style-type: none">• Steel structures	3 week
7.	18, 19 & 20	<ul style="list-style-type: none">• Drawing details of various opening structures with form work.	<ul style="list-style-type: none">• Plumbing.	3 week
8.	21	<ul style="list-style-type: none">• Drawing IN 2D,3D in software	<ul style="list-style-type: none">• 2D,3D with CAD,3D Max, STAAD	1 week
9	22,23	Project work / site visit		2 weeks
10	24	Revision		1 week
11	25,26	Exam		2 weeks

Syllabus for the Trade of Draughtsman Civil under CTS

Second Semester (Semester Code No. –DMC:SEM-II)

Duration: Six Months

Syllabus for Workshop Calculation and Science

Week wise content Index of Second Semester

Sl. No.	Week No.	Workshop Calculation and Science	Duration
1.	1,2	<ul style="list-style-type: none">• addition and subtraction	2week
2.	3,4,5 &6	<ul style="list-style-type: none">• conversion of decimal fractions	4week
3.	7,8,9 & 10	<ul style="list-style-type: none">• multiple and decimal	4week
4.	11	<ul style="list-style-type: none">• Rules for average finding.	1 week
5.	12,13 & 14	<ul style="list-style-type: none">• percentage and fractions	3 week
6.	15,16 & 17	<ul style="list-style-type: none">• Computing the multiplying factor based on the percentage change	3 week
7.	18, 19 & 20	<ul style="list-style-type: none">• Centre of Gravity, Equilibrium.	3 week
8.	21	<ul style="list-style-type: none">• ratio and percentage	1 week
9	22 to 26	Revision & Examination	

Syllabus for the Trade of Draughtsman Civil under CTS

Third Semester (Semester Code No. –DMC:SEM-III)

Duration: Six Months

Syllabus for TP 03 and TT 03

Week wise content Index of Third Semester

Sl. No.	Week No	<u>Contents Heading</u>		Duration
		Practical	Theory	
1	1 to 4	<ul style="list-style-type: none">drawing a irrigation structures	<ul style="list-style-type: none">Water resources.	4 week
2	5 to 8	<ul style="list-style-type: none">drawing a details of construction of different types of roads	<ul style="list-style-type: none">Roads	4 week
3	9 to 10	<ul style="list-style-type: none">drawing a details for rails and gauges	<ul style="list-style-type: none">Railways	2 week
4	11 to 14	<ul style="list-style-type: none">Drawing -types of bridges.	<ul style="list-style-type: none">Bridges	4 week
5.	15& 16	<ul style="list-style-type: none">2D, 3D drawings of PHE.	<ul style="list-style-type: none">PHE	4 week
6.	17 to 18	<ul style="list-style-type: none">Preparing 2D,3D CAD drawings of various structures of Bridges.	<ul style="list-style-type: none">BRIDGES.	4 week
7	19 to 21	<ul style="list-style-type: none">Drawing details of various structures in 2D & 3D.	<ul style="list-style-type: none">Structural Drawings	4 week
8	22,23	Project work / site visit		2 weeks
9	24	Revision		1 week
10	25,26	Exam		2 weeks

Syllabus for the Trade of Draughtsman Civil under CTS

Third Semester (Semester Code No. –DMC:SEM-III)

Duration: Six Months

Syllabus for Workshop Calculation and Science

Week wise content Index of Third Semester

Sl. No.	Week No.	Workshop Calculation and Science	Duration
1	1 to 4	<ul style="list-style-type: none">• magnetic substances	4 week
2	5 to 8	<ul style="list-style-type: none">• magnet and magnetism	4 week
3	9 to 10	<ul style="list-style-type: none">• surface area of volume	2 week
4	11 to 14	<ul style="list-style-type: none">• Determination of area.	4 week
5.	15& 16	<ul style="list-style-type: none">• Properties of regular polygons, circles, parallelogram, parabola and ellipse.	4 week
6.	17 to 18	<ul style="list-style-type: none">• Properties of plain geometry.	4 week
7	19 to 21	<ul style="list-style-type: none">• properties of solid geometry	4 week
8	22 to 26	Revision & Examination	

Syllabus for the Trade of Draughtsman Civil under CTS

Fourth Semester (Semester Code No. –DMC:SEM-IV)

Duration: Six Months

Syllabus for TP 04 and TT 04

Week wise content Index of Fourth Semester

Sl. No.	Week No	<u>Contents Heading</u>		Duration
		Practical	Theory	
1	1	<ul style="list-style-type: none"> Reading topography map, contours drawings 	<ul style="list-style-type: none"> <i>Surveying</i>-classification- 	1 week
2	2,11	<ul style="list-style-type: none"> Operating & setting up a Theodolite. Observation of readings and sighting the points 	<ul style="list-style-type: none"> <i>Levelling</i>-introduction to Theodolite, identification & understanding of parts, 	10week
3	12,13	<ul style="list-style-type: none"> Field procedure for co-ordinate measurement-field procedure to run a traverse survey-linking data files. 	<ul style="list-style-type: none"> Total Station – application, components parts, accessories used, characteristics, features, Electronic display & Data reading, 	2week
4	14,15 & 16	<ul style="list-style-type: none"> GPS-components, steps in mapping, comparison of GPS with GIS,CAD and other system-field applications 	<ul style="list-style-type: none"> Remote sensing-introduction, application in civil engineering, ideal remote sensing system, 	3 week
4	17,18 & 19	<ul style="list-style-type: none"> Preparation of detailed Estimate by using software. 	<ul style="list-style-type: none"> Estimate-necessity, importance, types- 	3 week
5	20,21	<ul style="list-style-type: none"> Preparing drawing-system of sewerage- one pipe system, two pipe system, and single stack system. 	<ul style="list-style-type: none"> Working with other software to import to drawing -Concept of developing solid from sketch- Surface modelling concepts 	2 week
6	22,23	Project work / site visit		2 weeks
7	24	Revision		1 week
8	25,26	Exam		2 weeks

Syllabus for the Trade of Draughtsman Civil under CTS

Fourth Semester (Semester Code No. –DMC:SEM-IV)

Duration: Six Months

Syllabus for Workshop Calculation and Science

Week wise content Index of Fourth Semester

Sl. No.	Week No.	Workshop Calculation and Science	Duration
1	1	<ul style="list-style-type: none">• Properties of regular polygons, circles parallelogram, parabola and ellipse.	1 week
2	2,3	<ul style="list-style-type: none">• Trigonometry-basic ratios & use of trigonometrically tables.	2 week
3	4,5	<ul style="list-style-type: none">• Problems on heights and distances.	2 week
4	6,7,	<ul style="list-style-type: none">• More problems on mensuration.	2 week
5	8 ,9	<ul style="list-style-type: none">• More problems on trigonometry.	2 week
6	10,11	<ul style="list-style-type: none">• Workout problems on height and distances.	2 week
7	12,13	<ul style="list-style-type: none">• Calculation of areas and volumes from trapezoidal and Prismoidal formula	2 week
8	14,15 &16	<ul style="list-style-type: none">• Computation of Areas of Irregular figures	3 week
9	17,18 & 19	<ul style="list-style-type: none">• Trapezoidal rule, Simpson's rule- Problems- Volumes of regular and irregular solids	3 week
10	20,21	<ul style="list-style-type: none">• Revision on Mensuration.	3 week
11	22 to 26	Revision & Examination	

Syllabus for the Trade of Draughtsman Civil under CTS

First Semester (Semester Code No. –DMC: SEM-I)

Duration: Six Months

Syllabus for TP 01 and TT 01

Week No.	Trade Practical	Trade Theory
1	<ul style="list-style-type: none"> • Orientation of the Trade and Institute. • Awareness about the jobs made by the ex. Trainees. • Techniques of use of Instruments, Equipments, their care and maintenance. • Method of fixing of drawing sheet on the drawing board and drawing a layout of different size of sheets. • Safety precautions to be observed in the Computer Lab 	<ul style="list-style-type: none"> • Rules and regulations of the Institute and Trade. • List of the subjects to be taught for each semester. • List of the Instruments, equipments and materials to be used during training. • List out the Achievements to be made for each semester.
2 & 3	<ul style="list-style-type: none"> • Lines, lettering and Dimensioning. • Construction of plain geometrical figures. • Construction of solid geometrical figures, • Projections - Orthographic, isometric, oblique and Perspective. 	<ul style="list-style-type: none"> • Importance of B.I.S. introduction of Code of Practice for Architectural and Building Drawings (IS: 962-1989). • Layout of drawing. Lines, Lettering, • Dimensioning, Scales and Projection
4 & 6	<ul style="list-style-type: none"> • Symbols & conventional representation for materials in sections as per IS 962-1989 for building drawings. • Components of building. Drawing single room building with flat & pitched roof (plan & elevation only). 	<ul style="list-style-type: none"> • Building materials - Rocks & Stones. • classification of rocks-geological, physical & chemical. • Stones – classification, uses, and requirements of good building stones, natural stone, and cuddappa slabs, kola stone, sand stone, Shahabad stone, granite, marble- Artificial stones. • Bricks – brick earth, composition, manufacturing process, classification, properties, special types of bricks, compressive strength, test on bricks, grade of bricks as per BIS.

		<ul style="list-style-type: none"> • Lime & Pozzolanas – sources of lime, classification, fat, hydraulic & poor, uses. • Pozzolan materials – surki, fly ash, ground blast furnace slag, rice husk ash, • Cement – composition of ordinary Portland cement, functions of cement ingredients, types, grades, storage, tests, BIS specifications of OPC. • Admixtures – types & uses. Glass – constituents, classification, functions & utility, types, sizes & thickness. • Ceramic Products – earthenware, stoneware, porcelain, terracotta, glazing, types of tiles, clay terracing tiles, thermal care tiles, glazed ceramic tiles, fully vitrified tiles, roof tiles, special requirements for floor, wall & roof tiles, sanitary appliances. • Mortar – properties, uses, types, mix ratio for different works. • Concrete – constituents & their requirements, uses, types. • Paints & Varnishes – function of paint, types & their uses, oil, enamel, emulsion, distemper, cement, aluminium, bituminous & Plastic paints, • varnishes – characteristics, ingredients, types & their uses, oil, turpentine, spirit & water varnish. • Metal & Plastic – types, cast iron, steel, aluminium, G.I., stainless steel, market form, for concrete & pre stressed concrete, hot rolled steel sections, cold formed light gauge section. • Plastics – characteristics & uses, types, thermoplastics and products – pipes, taps, tubes windows, water tanks, doors, partitions, basins, sizes, capacity & uses. • Timber & Timber Products. –
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		<p>types, teak, sal, rosewood, mango & jack, defects, seasoning.</p> <ul style="list-style-type: none"> • Timber products- veneers, plywood, particle board, fibre board, hard wood, block board, laminated board & uses. • Roof coverings – objectives & uses, mangalore tiles, AC sheets, FRB sheets, G.I. sheets, shell roof, R.C.C. roof, advantages & types. • Damp proofing materials – properties, functions, types, chemicals used for grouting / coating porous concrete surfaces, • admixtures - for cement mortar & cement concrete, functions, accelerators, retarders, air repelling chemicals.
7 & 8	<ul style="list-style-type: none"> • Drawing a Permanent & temporary structures - sub structure, super structure, load bearing structure, cavity wall, framed structure, • Partition- aluminium frame with glass sheet, timber, straw board, wood wool, asbestos cement board & plastic board partitions. • preparing - Scaffolding, shoring & underpinning 	<ul style="list-style-type: none"> • Permanent & temporary structures – life of structures, sub structure, super structure, load bearing structure, cavity wall, framed structure, concept of framed structure & advantages. • Partition – requirements of good partition, types, brick, concrete, glass, aluminium frame with glass sheet, timber, straw board, wood wool, asbestos cement board & plastic board partitions. Form work – materials, requirements for good form work for column, RC beam & slab. • Scaffolding, shoring & underpinning – • Scaffolding- component parts, types-single, double & steel scaffolding. • Shoring- types, raking, flying & dead shores. • Underpinning – purpose, types, pit method, pile method.
9 & 10	<ul style="list-style-type: none"> • Stone masonry-, Brick Masonry - Elements, types of bonds. • Foundation- Construction details of Shallow & Deep Foundation. 	<ul style="list-style-type: none"> • Masonry. Stone masonry- terms used - natural bed, sill, corbel, course, cornice, coping, weathering, throat, spalls, quoins, string course, lacing

	<ul style="list-style-type: none"> • Drawing a setting – out of building on ground excavation. 	<p>course, through stone, plinth, jambs.</p> <ul style="list-style-type: none"> • Classification – rubble, coursed, un-coursed, random rubble, ashlar. Principles of construction, • Tools – trowel, square, spirit level, plumb bob, chisel line & pins, spall hammer, punching tool. • Brick masonry - Technical terms – header, stretcher, bed joint, lap, perpend, closer-king, queen, bevelled, bat. • Masonry-bond, types, header, stretcher, English, Flemish, one-one & half-two brick thick, • T-junction in English, cavity bond, defects, maintenance, • composite masonry, reinforced masonry walls, columns. • Principles of constructing bonds and points to be considered in construction of brick masonry. • Hollow block construction – advantages, load-non load bearing block, open cavity block – • face shells, web, gross area, nominal dimensions, minimum thickness of face shells & web, grade of hollow concrete block • materials used, admixtures added- mixing, moulding, • placing & compacting, curing drying. • Physical requirements – use of light weight aggregates- hallow concrete (block) masonry, • construction of walls & advantages.
11 & 13	<ul style="list-style-type: none"> • Showing details of treatments in building Anti-termites, • Dampness. Fire proofing. • Details of supporting structures for construction – • Shoring, Scaffolding, Underpinning, and Form work for R.C.C structure • Details of different types of foundation. 	<ul style="list-style-type: none"> • Soil - bearing capacity of soil - maximum / ultimate & safe bearing capacity, • bearing capacity of different types of soils, factors affecting bearing capacity. • Methods-determining bearing capacity & improving bearing capacity of soil.

		<ul style="list-style-type: none"> • Foundation - objectives, Requirement of a good foundation, types- • shallow - spread, isolated or column footing, combined, continuous, inverted arch, cantilever, grillage, stepped & raft or mat foundation. • Deep- piles – flow chart for types. Box caisson, pneumatic, open. Well foundations & their types. • Machine foundation-general requirements-types- • reciprocating type-centrifugal type-impact type- • IS Code for practice.
14	<ul style="list-style-type: none"> • Drawing details of RCC members. Rectangular beams, lintel, chajjas, slab, stair including column with footing & continuous columns showing disposition of reinforcement. 	<ul style="list-style-type: none"> • Treatments for building structure- • DPC-Sources and effects of dampness, method of prevention of dampness in building, • periodic repair and care for prevention, • Anti-termite treatment- objectives & uses, method. • Weathering course- purpose, materials required-brick jelly, concrete preparation-laying procedure- • preparation of mortar with DPC materials for laying pressed clay tiles- • pointing & finishing of laid clay tiles. Fire-proofing.
15	<ul style="list-style-type: none"> • Drawing details of types of ground & upper floors. • Various floor finishing & construction sequence 	<ul style="list-style-type: none"> • Floors - Types – timber, composite, RCC floors, etc. • Flooring- materials used, selection of flooring-cost, appearance, durability, etc. • types, sequence of construction (as per BIS/CPWD/PWD specifications)-mosaic, granolithic, tiled, granite, marble, pre-cast concrete flooring, plastic & PVC tile flooring-carpet tile & rubber flooring, etc. For ground / upper floor.
16	<ul style="list-style-type: none"> • Drawing of different forms of arches, lintels centring & 	<ul style="list-style-type: none"> • Arches & Lintel - Technical terms-voussoirs, keystone,

	Shuttering.	<p>intrados, soffit, extrados, crown, arch ring, abutment, skewback, springing point, springing line, springer, span, rise, depth, spandril, haunch.</p> <ul style="list-style-type: none"> • different types of arches-one, two, three, four centred, segmental, semi circular, horse-shoe, stilted, semi-elliptical, inverted, pointed, relieving, flat, rough, axed, gauged, brick, stone & concrete. • Lintel- types-wooden, brick, stone, steel & RCC. Form work and centring.
17	<ul style="list-style-type: none"> • Making detailed drawing of different types of doors including panelled glazed and flush door. • Making detailed drawing of windows and ventilators. 	<ul style="list-style-type: none"> • Doors – Components Parts of door, Location, standard sizes and different materials used, types-framed & panelled, glazed, flush, louvered, collapsible, swinging, revolving, folding, telescopic, rolling shutter & sliding doors. • Windows-types, casement, glazed, bay, gable, clearstory, lantern, sky, corner, pivoted circular & dormer windows, metal window. • Ventilators-purpose-types, mosquito proof, ventilator combined with windows / doors • Fixtures and fastenings used-different types of hinges, bolts, locks & handles.
18	<ul style="list-style-type: none"> • Drawing details of brick, stone, wooden, steel & RCC stairs. • Drawing of straight, open newel dog- legged, geometrical and bifurcated stairs & spiral stairs. 	<ul style="list-style-type: none"> • Stairs- Terms- trade, riser, rise, step, baluster, balustrade, flight, landing, nosing, line of nosing, going, headroom, handrail, string, newel post, pitch, winders, etc. • Requirements of good stair- location, length of flight, headroom, stair width, pitch of stair, landing, winders, balustrade, and steps. • Types- straight flight, quarter turn, half turn (dog-legged, open newel), three quarter turn, circular or spiral, geometrical & bifurcated. • Materials- stone, brick, wood, RCC, & metal. Planning and

		designing of stairs. Details of construction.
19	<ul style="list-style-type: none"> • Drawing details of pitched roof including king & queen post, roof trusses. • Drawing details of a wooden roof truss, showing detailed connections. 	<ul style="list-style-type: none"> • Roofs & Roof coverings – purposes- • terms-span, rise, pitch, ridge, ridge piece, hip, eaves, eaves-board, valley, gable, verge, wall-plates, purlin, common rafter, cleat, hipped end, batten, template, truss, verg. • Types- pitched-shed, gable, hip, gambrel, mansard, north light, lean to roof, couple, couple-close, collar beam, collar & tie, • Truss-king post, queen post, mansard, bel-fast, steel, composite. Flat- materials- RCC, flat stone & brick. Types-madras terrace roof, jack arch flat, RCC slab. • Shell-types-north-light & double curved. • Dome. Components parts.
20	<ul style="list-style-type: none"> • Drawing details of reinforcement in the R.C.C. Structures. 	<ul style="list-style-type: none"> • Introduction to RCC, materials, proportion and their form work, including bar bending and constructional details as per IS Code. • Methods of concreting, • selection of construction materials, coarse aggregate, cement –water ratio, • Reinforcement, characteristics of reinforcement. Methods of mixing concrete slump test, • R.C.C. Knowledge about innovative construction technology for safety against earthquake, monolithic RCC construction etc.
21	<ul style="list-style-type: none"> • Computer practice, window & MS Office (word, excel & power point) Installation of Auto CAD Software. • Operation of Auto CAD package, Function Keys & practice of basic commands. 	<ul style="list-style-type: none"> • Fundamentals of computer (operating system & application software) and importance of Microsoft Office & other related Software for Civil. Introduction of Auto CAD & its Graphical User Interface. • Method of Installation & Basic commands of Auto CAD.
22,23	Project work / on the job training	

24	Revision
25,26	Examination

Syllabus for the Trade of Draughtsman Civil under CTS

First Semester (Semester Code No. –DMC:SEM-I)

Duration: Six Months

Syllabus for Workshop Calculation and Science

Week No.	Workshop Calculation and Science
1	<ul style="list-style-type: none"> Units- Fundamental, Systems of Units (MKS, FPS & CGS) and their conversion-converts length from FPS to CGS and vice versa-convert mass from FPS to CGS and vice versa.
2 & 3	<ul style="list-style-type: none"> Derived Units –units of Area, Volume and their Conversion-units of weight & its conversion-units of pressure and speed and their Conversion.
4 & 6	<ul style="list-style-type: none"> Properties of Engineering Materials Physical, Mechanical & Chemical. Density, bulk density, specific gravity, porosity, water absorption, permeability, chemical resistance, fire resistance, weathering resistance, thermal conductivity, durability
7 & 8	<ul style="list-style-type: none"> Heat- uses of different temperature measuring instruments-effects of heat under different conditions-calculate the heat gained and heat lost-different modes of transmissions. Distinguishes between heat and temperature. Converts scales of temperature °C to °F and vice versa. Effects of Heat, Quality of Heat and Transference of Heat.
9 & 10	<ul style="list-style-type: none"> Work-classification, Newton’s law, units of force, computation of work done. Power- computes horse power, calculates mechanical efficiency. and Energy-. Form of energy, mechanical energy, computes potential and kinetic energy, law of conservation of energy. Relationship between Force and Work, BHP, IHP and Efficiency. Problem concerning work, power and energy
11 & 13	<ul style="list-style-type: none"> Centre of Gravity and Equilibrium – locates the centre of Gravity of regular and irregular bodies. Discriminates among the three states of Equilibrium.
14	<ul style="list-style-type: none"> SIMPLE STRESSES AND STRAINS APPLICATION OF STRESS AND STRAIN IN ENGINEERING FIELD-relationship among the term stress, strain & modulus of elasticity- importance of modulus of elasticity and factor of safety on loaded structures. Stress-classifies stresses-computes stress under different load conditions. Strain-calculates strain developed on bodies of various states-hook’s law- calculates safe working load and ultimate load to arrive at factor of safety for loaded structure-relates modulus of elasticity and factor of safety- problems relating stress, strain & modulus of elasticity.
15	<ul style="list-style-type: none"> SHEAR FORCE AND BENDING MOMENT- method of finding B.M. & S.F.-problems on B.M. & S.F., position and amount of max. B.M. & S.F. B.M. & S.F. for combined concentrated & U.D.L. partially covering the span.
16	<ul style="list-style-type: none"> SHEAR FORCE AND BENDING MOMENT IN BEAMS. B.M. & S.F. for overhanging beams-points of contra-flexures.

	<ul style="list-style-type: none"> • Nature of B.M. & S.F.-diagrams for fixed beams in standard cases. • Nature of B.M. & S.F. diagrams for continuous beams having number of supports
17	<ul style="list-style-type: none"> • GEOMETRICAL PROPERTIES OF SECTIONS- • properties of lines, angles, triangles, polygons & circles. • Apply these in marking and layout work in shop floor.
18	<ul style="list-style-type: none"> • CENTROID • Centroid of Symmetrical shapes (solid / hollow square, rectangular, circular, I Sections) • Centroid of Asymmetrical shapes (triangular, semi circular, quadrant, trapezoidal, parabolic sections) -Centroid of Anti Symmetric shapes (S , Z sections) – Built up structural sections - Problems
19	<ul style="list-style-type: none"> • MOMENT OF INERTIA & Modulus of section and • their definition-units and method of finding. • Polar moment of inertia, Radius of gyration, Section Modulus, Polar modulus - Parallel and perpendicular axes theorems – • Derivation of expressions for M.I / Polar M I, Section modulus and Radius of gyration of regular geometrical plane sections (rectangle, circle, triangle) – • M.I about centroidal axis / base, Section modulus, Radius of gyration of symmetric, asymmetric anti symmetric and built up sections • Numerical problems.
20	<ul style="list-style-type: none"> • Fraction –common fraction, fractional numbers, equivalent fractions, • different form of fraction, conversion of fractions.
21	<ul style="list-style-type: none"> • Least common multiple-meaning, • LCM of two numbers. • Applied problems.
22 to 26	Revision & Examination

Syllabus for the Trade of Draughtsman Civil under CTS

Second Semester (Semester Code No. –DMC: SEM-II)

Duration: Six Months

Syllabus for TP 02 and TT 02

Week No.	Trade Practical	Trade Theory
1,2	<ul style="list-style-type: none"> • Drawing details of single storied residential house with single room (drawing should be of both pitched and flat roof). • Drawing plan, elevation, and section with aid of line diagrams. • Lay out and detailing of residential building 	<ul style="list-style-type: none"> • Building bye laws – objects, importance, function of local authority, responsibility of owner, • applicability of bye-laws, necessity of setbacks, plot coverage, floor space index, maximum height of buildings, number of floors, built up area, • view & details necessary for a civil drawing, site plan, • necessity for approval of plan from local body, lay out plan & key plan- • composition of submission drawing. Off street parking, fire protection, minimum width of street & plot sizes, • Rules of state urban development, authorities, requirement of green belt and land scaping and provision for safety.
3,4,5&6	<ul style="list-style-type: none"> • Preparation of plan, section and elevation of buildings with specifications for the given line drawing to suitable Scale: • A Reading room with R.C.C flat roof • A House with single bed room and attached bathroom with R.C.C. flat roof. • residential building with two bed rooms with R.C.C. flat roof • House with single bed and hall with partly tiled and partly R.C.C. flat roof. • Two roomed house with RCC slope roof with gable ends • A House with fully tiled roof 	<ul style="list-style-type: none"> • Building Planning-Economy, orientation of building, relation between various activities of different rooms, • Provision for lighting and ventilation, • Provision for safety from fire and explosion, • provision for drainage and sanitation. • Planning of residential buildings - • classification, requirements, • design of residential areas, building site,

	<p>with hips and valleys</p> <ul style="list-style-type: none"> • A Small workshop with north light steel roof truss (6 to 10m Span) over R.C.C. Columns. 	
7 to 10	<ul style="list-style-type: none"> • A Primary health center for rural area with R.C.C roof. • A Village Library building with R.C.C flat roof • A small Restaurant building with R.C.C flat roof • A Single storeyed School building with R.C.C flat roof • A Bank building with R.C.C flat roof. 	<ul style="list-style-type: none"> • Planning of public buildings – suitable location, • classification, principles of design of public building, • requirement of public building, green house, and civic aesthetic. • Parks & play ground-types of recreation, necessity of open spaces, classification of parks, park system, park design, park way, space standards, landscaping. • Concepts of design of earthquake resisting buildings- general requirements of structures for earthquake resistance & structural safety, • concept of ductility , deformability & damageability, concept of base isolation, • reinforcement detailing for ductility of RC structures, flexible building elements, • special requirements for RC column & beams to resist earthquake, earthquake resistant features for masonry buildings, • protection of opening in masonry walls, masonry bond, framing of thin load bearing walls, • reinforcement for hollow block masonry, • reduction of earthquake effects, • base isolation techniques
11	<ul style="list-style-type: none"> • Drawing a prefabricated different types of building. 	<ul style="list-style-type: none"> • Prefabricated Structures-stages of preparation, • method of construction, assembling components of structure-columns, beams, etc.- • advantages & disadvantages.
12 to 14	<ul style="list-style-type: none"> • RCC members. -Details of one-way slab, two-way slab, T-beam, Inverted beam, Lintel, • Doubly reinforced beam, 	<ul style="list-style-type: none"> • Reinforced cement concrete structures-materials-grade of cement & steel- • behaviour of RC members in

	<ul style="list-style-type: none"> cantilever, retaining wall, • column and column base, detail of step etc. • Details of Bending of bars, crank, covers etc, • RCC framed structure, portal frame, • B.I.S. Code 456-2000 and its application, bar-bending schedule 	<ul style="list-style-type: none"> bending-methods of design-working stress method & limit state method.
15 & 17	<ul style="list-style-type: none"> • Drawing of different types of steel sections, rivet, bolts, etc • .section and elevation of girders, plate girders roof trusses, stanchion etc. 	<ul style="list-style-type: none"> • Steel structures-tension & compression member- • classification of beams, section & channels, rivet, bolt, etc. • Steel structure fabrication. • Construction details of columns, beams, girders, plate girders, stanchions etc.
18 to 20	<ul style="list-style-type: none"> • Public Health & Sanitation. • Preparation of drawings, showing various pipe joints for underground drainage, • method of sanitary fittings in multi-storeyed building. • Manholes and septic tank. Water supply system. • Plumbing System of New technology. • Public Health & sanitation. • Preparation of drawings showing various pipe joints for underground drainage, • Method of sanitary fittings in multi-storeyed building. • Manholes and septic tank. • Water supply system. 	<ul style="list-style-type: none"> • Basic plumbing services for building. • Introduction of New technology of Plumbing System. • Public health engineering. Introduction – • terms used in public health engineering. • System of sanitation house plumbing, sanitary fittings etc. • types of supply system and purification of water.
21	C A D P R A C T I C E I N ARCHI. CAD, Building Estimator & STADD SOFTWARE	
22,23	Project work / on the job training	
24	Revision	
25,26	Examination	

Syllabus for the Trade of Draughtsman Civil under CTS

Second Semester (Semester Code No. –DMC:SEM-II)

Duration: Six Months

Syllabus for Workshop Calculation and Science

Week No.	Workshop Calculation and Science
1,2	Addition & subtraction of force. Multiplication of fractions, applied shop problems. Division of fractions. Simplifications and applied problems.
3,4,5&6	Decimal-meaning, fixing decimal point, conversion of decimal fractions to decimal, conversion of decimal to decimal fraction, compression of decimal, conversion of common fraction to a decimal. Denominator of a fraction considering of multiples of fraction lie powers. Denominator of a fraction consisting of any whole number. Recurring decimal. Addition & subtraction, arrangement of decimal point in the same column.
7,8,9&10	Multiplication of decimals, by whole number, locating decimal point, problems on multiplication of decimal fraction. Division of decimals-by whole number, by another number. Problems on division of decimals. Application of decimals. Problems on decimal number
11,12,13	Averages-rule of finding the average of two or more quantities of the same kind, total of the quantities from average value.
14,15&16	Percentages and fractions-meaning, two essential magnitudes, representing percentage as decimals-as equivalent ratio. Converting any fraction into percentage, converting decimals into percentages
17,18&19	Average and percentage of error-percentage increases & decreases. Computing the multiplying factor based on the percentage change
20,21	Ratio & proportion
22 to 26	Revision & Examination

Syllabus for the Trade of Draughtsman Civil under CTS

Third Semester (Semester Code No. –DMC: SEM-III)

Duration: Six Months

Syllabus for TP 03 and TT 03

Week No.	Trade Practical	Trade Theory
1,2,3 &4	Drawing of different types of irrigation structures –viz. dams, barrages, weir etc. with the help of given sketch & data. Longitudinal section of distributaries.	<p>1. INTRODUCTON OF WATER RESOURCES ENGINEERING. Different terms used in irrigation. Hydrology like duty, delta, base period, intensity of irrigation, hydrograph , peak flow, run off, catchment area, CCA, corps like, rabi, kharif etc.</p> <p>3. Storage/ diversion head work definition: types of dam –masonry, concrete, arc and buttress dams, earth.</p> <p>(a)Reservoir –types of reservoirs viz . Single purpose and multipurpose, area, capacity of reservoir.</p> <p>B) CANALS:-canals, classification of canals and distribution system, canal structures via head regulators, escape, etc. Drawing of canal alignment including longitudinal and cross section of canals with the given data. Types of cross drainage work viz. aqueducts, siphon aqueduct, super passage, level crossing in irrigation.</p>
5 to 8	Preparing a drawing of Cross-sections showing the different types of roads	Road-Introduction to roads, general principles of alignment. Classification and construction of different types of roads-earthen, gravel, WBM, bituminous, cement concrete road, hill roads.
9 to 10	Drawan ideal railing typical cross-section of railway tracks embankment, layout plans of railway platforms, marshalling yards siding, loop lines. Signalling points & crossing. Drawing typical cross section of railways tracks embankment lay out plan of railway.	Indian railways –rail gauges, functions, requirements of ideal rail, types of rail sections, length of rail, welding of rail, wear of rail, coning of wheels, hogged rail, bending of rail, creep of rail, causes and prevention of creep. Sleeper and ballast-function-types-requirement-materials-rail fastenings and plate laying- rail joints-types-fish plate-fish bolt-spikes-chairs and keys-bearing plate-block-elastic fastening-anchors and anti-creepers, plate laying-PQRS method of relaying-maintenance of track-station yards-points and crossing-signalling-interlocking-rapid transport

		system- construction of permanent ways.
11 to 14	Preparing drawing of a masonry culvert and take out various quantities of items of work & prepare abstract of cost. Preparing drawing of an arched bridge.	Bridge:-component parts of bridge. IRC loading, selection of type of bridge and location, scour-afflux-economic span-waterway-factors governing the ideal site for bridge-alignment of bridge-factors to be considered in alignment. Foundation - selection-caisson. Cofferdam- types. Types of super structure, substructure-piers, abutments, wing walls-simple bridge-continuous-cantilever-balanced cantilever-arch-bow-string girder type bridge-rigid frame-suspension-continuous steel-steel arched-importance of bearings –types of bearing-elastomer bearings.
15,16	PREPARATION OF DRAWINGS USING CAD SOFTWARE I PUBLIC HEALTH ENGINEERING Draw plan and sectional views of the following 1. Rapid Sand Filter 2. Septic Tank with dispersion Trench / Soak pit 3. R.C.C square overhead tank supported by four columns	
17,18	BRIDGE DRAWING Draw plan and sectional views of the following 4. R.C.C Slab Culvert with splayed wing walls 5. Steel Foot over bridge across a highway 6. Two span Tee Beam Bridge with square returns	
19,21	STRUCTURAL ENGINEERING Draw plan, cross section and longitudinal section 7. Continuous one-way slab (with three equal spans) 8. Simply supported two-way slab 9. Singly reinforced rectangular beam 10. Doubly reinforced Continuous beam (with two equal spans) 11. Tee Beams supporting continuous slab 12. Lintel and Sunshade 13. Dog-legged staircase 14. R.C.C. Column with square isolated footings 15 Steel Beam to Steel Column connections – Seat angle and Web angle connections. 16. Steel Beam to Steel Beam connections – Web to Web connections.	
22,23	Project work / on the job training	
24	Revision	
25,26	Examination	

Syllabus for the Trade of Draughtsman Civil under CTS

Third Semester (Semester Code No. –DMC:SEM-III)

Duration: Six Months

Syllabus for Workshop Calculation and Science

Week No.	Workshop Calculation and Science
1-4	Magnetic substance – permanent magnet.
5-8	Magnet and magnetism. Laws of magnetic attraction and repulsion
9,10	Surface area and volumes of rectangular parallelepipeds, cylinders, pyramids and spheres. Unit of force and weight, equation of motion.
11,14	Determination of area of circles, sectors, segments and ellipse.
15-21	Properties of regular polygons, circles, parallelogram, parabola and ellipse. Determination of sides, area of triangle, quadrilateral & polygon.
22 to 26	Revision & Examination

Syllabus for the Trade of Draughtsman Civil under CTS

Fourth Semester (Semester Code No. –DMC: SEM-IV)

Duration: Six Months

Syllabus for TP 04 and TT 04

Week No.	Trade Practical	Trade Theory
1	Drawing a Conventional signs & symbols used in survey. Reading topography map, contours drawings.	Surveying- classification-accuracy & speed in field and office work, common terms used and definitions, conventional signs & symbols, use of legends
2 to 3	Operating & setting up a Theodolite. Observation of readings and sighting the points from the instrument. Measurement of horizontal angles by- Repetition method & Reiteration method.	Levelling- introduction to Theodolite, identification & understanding of parts, technical terms. Temporary adjustments, procedure in setting up, method of measurement of horizontal & vertical angles, repetition & reiteration systems. Types of field book, adjustment of errors while laying a given angle by repetition, method of setting out straight lines, establishing line at given angles with given lines.
4,5	Practice in measuring vertical angles, setting out given vertical angles, booking. Demonstration of permanent adjustment of	Instrumental errors, their elimination, permanent adjustment, care & maintenance of theodolite. Method of running a traverse, different methods of measuring angles & bearings.
6,7	Setting out a straight line over & across obstacles, prolonging lines, establishing lines at given angles with given lines, setting out given rectilinear lines.	Method of plotting traverses-Gales traverse system, checking of measurements of closed & open traverse, use of traverse tables, closing errors and its adjustment.
8,9	Running a closed traverse over a given area, booking, calculating the ordinates and plotting the traverse. Simple problems-Transition curves	Omitted measurements and their calculation-practice in working out problems. Curves-types, designation of curves, elimination of simple curve, setting out simple curve by offsets from long chords, offsets from tangents, offsets from chords produced and Rankine's method of deflection angles
10,11	Running an open traverse, calculate & plot the same and fix the details, measuring a base line for triangulation	Technical terms in connection with simple triangulation-base line measurements its correction-procedure of measuring angles-methods of calculating sides from triangulation, data check, errors & precautions.
12, 13	Field procedure for co-ordinate	Total Station – application,

	measurement-field procedure to run a traverse survey-linking data files.	components parts, accessories used, characteristics, features, Electronic display & Data reading, instrument preparation, setting and measurement (distance, angle, bearing etc.) Measurement of area, elevation, traversing, contour, etc. By using latest software (surveying).
14,16	GPS-components, steps in mapping, comparison of GPS with GIS,CAD and other system-field applications	Remote sensing-introduction, application in civil engineering, ideal remote sensing system, atmospheric windows, ranges of sensing system, types of sensors. Photogrammetry-basic principles, arial photography, interpretation, various application like water resources, terrain, evolution, forestry, agriculture, land use, visual interpretation, ground water verification. Multispectral, multitemporal, multistage concept, statelite images, FCC, digital image processing, image restoration, image enhancement, false colour imagery. Pattern recognition and digital signal processing, basic introduction, band interleave method, clustering analysis, statistical techniques.
17 to 19	Preparation of detailed Estimate by using software. Stages in detailed estimation. Problems on Preparation of Preliminary/Approximate Estimates for building projects.	Estimate-necessity, importance, types- approximate and detailed estimate- main and sub estimates, revised, supplementary, maintenance / repair estimate-taking off quantities- method and find out quantities of materials for Residential and Public building- estimate for wood and reinforcement for the above construction. Rate analysis and Specifications
20,21	Preparing drawing- system of sewerage- one pipe system, two pipe system, single stack system. Plumbing layout details. Electrical wiring plan with all fittings showing in drawing.by using Software.	Working with other software to import to drawing -Concept of developing solid from sketch- Surface modelling concepts -Surface modelling concepts - Hollow sections -Concept of developing solid from sketch - Understanding about the Planes for sketching and axis of revolution.
22,23	Project work / on the job training	
24	Revision	
25,26	Examination	

Syllabus for the Trade of Draughtsman Civil under CTS

Fourth Semester (Semester Code No. –DMC:SEM-IV)

Duration: Six Months

Syllabus for Workshop Calculation and Science

Week No.	Workshop Calculation and Science
1	Properties of regular polygons, circles parallelogram, parabola and ellipse. Determination of sides, area of triangle, quadrilateral & polygons.
2 to 3	Trigonometry-basic ratios & use of trigonometrically tables.
4,5	Problems on heights and distances.
6,7	More problems on mensuration.
8,9	More problems on trigonometry.
10,11	Workout problems on height and distances.
12, 13	Calculation of areas and volumes from trapezoidal and Prismoidal formula.
14,16	Areas of regular and irregular sections- Computation of Areas of Irregular figures- End Ordinate rule, Mid Ordinate rule, Average Ordinate rule,
17 to 19	Trapezoidal rule, Simpson's rule- Problems- Volumes of regular and irregular solids- Computation of Volumes of irregular solids- End Area rule, Mid Area rule, Average Area or Mean Area rule, Trapezoidal rule, Simpson's or Prismoidal rule
20,21	Revision on Mensuration
22 to 26	Revision & Examination

TRADE : DRAUGHTSMAN CIVIL

LIST OF TOOLS & EQUIPMENTS

A. TRAINEES TOOL KIT FOR 20 TRAINEES AND ONE INSTRUCTOR

SL. No.	Name of items	Quantity
1.	Box drawing instrument containing one 15 cm compass with pin point, pin point & lengthening bar, one pair spring bows, rotating compass with interchangeable ink and pencil points, drawing pens with plain point & cross point, screw driver and box of leads.(0.2,0.3,0.4 mm).	21 Nos.
2.	Protractor celluloid 15 cm semi- circular.	21 Nos.
3.	Scale card board- metric set of eight A to H in a box 1: 1,1:2, 1:2:5, 1: 5, 1:10, 1:20, 1:50, 1:100,1:200, 1:500, 1:1000,1:2000,1:1250, 1:6000, 1:38 1/3, 1:66 2/3	21 Nos.
4.	Scales plotting box wood 6 metric scales 30 cms long with offset scales.	21 Nos.
5.	Set square transparent 20 cm, 2 mm thick with bevelled edges 45 degree .	21 Nos.
6.	Set square celluloid 25 cm,2mm thick with bevelled edges 60 degrees.	21 Nos.
7.	Board drawing 1250mm X 900mm with stand & draughtsman stool	21 Nos.
8.	T-Square 1250mm/Mini drafter/ Parallel Bar	21 Nos.
9.	Template –Architects and builders	21 Nos.

TRADE : DRAUGHTSMAN CIVIL (CTS)

LIST OF TOOLS & EQUIPMENTS

B. GENERAL MACHINERY SHOP OUTFIT:

SL. No.	Name of items	Quantity
1	Geometrical models(wooden/plastic) as per given below: i) Cube 08 cm sides. ii) Rectangular parallel piped 8cmX15cm iii) Sphere 8cm dia. iv) Right circular cone 8 cm dia base and 15 cm vertical height v) Square pyramid 8cm side base and 15 cm vertical height vi) Cylinder 8 cm dia. 15 cm height. vii) Prisms triangular 8 cm sides triangle and 15 cm length. viii) Prism hexagonal 8 cm side's hexagon and 15 lengths	04 each
2	Templates – Circle, Ellipse, furniture, etc.	04
3	French curves - transparent plastic set of 12	04
4	Flexible curves 80 cm long	04
5	Radius curve metric 3 mm to 15 mm	04
6	Brass parallel rulers in a case	04
7	Calculator Scientific (Non-programmable)	04
8	Digital Planimeter.	04
9	Proportional dividers 15 cm	04

TRADE : DRAUGHTSMAN CIVIL (CTS)

C. LIST OF SURVEYING INSTRUMENTS

SL. No.	Name of items	Quantity
1	Steel tape 30 meters long.	04
2	Digital Theodolite with latest model	02
3	Instrument for Total Station with latest model	02
4	GPS (latest model)	02
5	Auto level	02

TRADE : DRAUGHTSMAN CIVIL (CTS)

D. LIST OF TOOLS & EQUIPMENTS

FOR

COMPUTER LAB

SL. No.	Name of items	Quantity
1	Personal computer with latest configuration min. 19 inch LED Screen and graphic card with latest operating system.	20
2	Laptop with latest configuration	02
3	Plotter A0 size	01
4	Printer (Desk jet / Laser jet) with scanner (multipurpose)	01
5	Server work station with latest configuration	01
6	Broad Band connection	01
7	UPS 5 KV	02
8	Computer Table	20
9	Computer Chair.	20
10	Furniture for server, printer, plotter	01each
11	White Board (6' x 4')	02
12	DLP Projector (2000 lumens or higher)	02
13	First Aid Box	01
14	Screen for Projector (motorized)	02
15	Fire Extinguisher	01
16	Air Conditioner 2.0 Ton	02
17	Wall Clock	01
18	Document Camera / Visualiser	02
19	Smart Board / Inter Active Board	02
20	CCTV Camera	04
21	Steel Cupboard 180 x 90 x 45 cm	02
22	Steel Cupboard 120 x 60 x 45 cm	02
23	Book Shelf	02

TRADE : DRAUGHTSMAN CIVIL (CTS)

E. LIST OF FURNITURE

SL. No.	Name of items	Quantity
1	Trainer's / Instructor's table (big size full secretariat) (6 feet x 4 feet)	01
2	Chair for Trainer / Instructor	01
3	Class room chairs (armless) / Dual desk	20
4	Class room tables (armless) / Dual desk	20
5	Almirah steel (major) 6" / higher	02

TRADE: DRAUGHTSMAN CIVIL (CTS)

List of the Consumables

Sl.No.	Consumables
1	DRAWING SHEET 120 GSM
2	GRAPH SHEET 80 GSM
3	PENCILS (HB,H,2H)
4	ERASER (Non Dust)
5	CELLO TAPE (wonder made)
6	WHITE BOARD MARKER (Blue, red, black, green)
7	DVD's (RW) & PEN DRIVE (16 GB minimum)
8	POCKET HARD DISK (1 TB minimum)
9	A 4 & A 3 SHEET Ream 90 GSM
10	PEPAR / TRACING PAPER ROLL 90 GSM

TRADE: DRAUGHTSMAN CIVIL (CTS)

Trade Testing and Certification

Same as for other similar Non-Engineering Trades

TRADE: DRAUGHTSMAN CIVIL (CTS)

Further Learning Options

After successful completion of CTS Course in the Trade of Plumber, the trainees have the option to continue their further studies by joining the CITS Course in the same Trade.

TRADE: DRAUGHTSMAN CIVIL (CTS)

List of Trade Committee Members

Sl.No	NAME& DESIGNATION S/SHRI	REPRESENTING ORGANIZATION	REMARKS
1			
2			
3			
4			
5			
6			
7			