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

COMPETENCY BASED CURRICULUM

CORE SKILLS

(Workshop Calculation & Science, Engineering Drawing, Soft Skills and Training Methodology)

CRAFTS INSTRUCTOR TRAINING SCHEME (CITS)

NSQF LEVEL - 6

Designed in 2019

Developed By

CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE
EN-81, Sector - V, Salt Lake
Kolkata – 700091
www.cstaricalcutta.gov.in

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ENGINEERING TECHNOLOGY

(Workshop Calculation, Workshop Science and Engineering Drawing)

RATIONALE

Success & Sustainability of any Training System depends upon the availability of good quality instructors in addition to other aspects. An Instructor should possess, besides trade skills, “Skills to Transfer Skills”. To cope up this quality possession of core skills is imperative. It is the skills set which enables comprehending the given job and subsequent planning to complete the task/job. Thus, it is regarded as core skills for all Engineering trades.

Knowledge of basic scientific principles creates the foundation for acquiring hard skills. It is the initial/inherent knowledge set which enables analyzing the given job and subsequent detail planning such as selecting proper physical conditions e.g. Temperature for a heat treatment process, Material of cutting tool etc. Ability to perform simple calculations also creates the foundation for proper hard skills. It is the inherent knowledge set which enables to analyze the given job - Quantitatively and subsequent detail planning such as selecting the physical conditions quantitatively e.g. speed, feed of a cutting operation etc.

Similarly, ability to read Engineering Drawing is essential to perform a job/ task of Engineering Trades. Thus it is also regarded as core skills for all Engineering trades. Knowledge of Engineering Drawing principles creates the foundation for acquiring hard skills. It is the initial/inherent knowledge set which enables analyzing the given job and consequent detail planning.

Thus, Workshop Calculation & Science and Engineering Drawing is regarded as a core skills set for acquiring hard skills in all Engineering Trades. Recognizing this importance of the core skills, the subjects of Workshop Calculation & Science and Engineering Drawing are made integral part of all Engineering Trades for Craft Instructors Training Scheme (CITS) under DGT, MSDE.

GENERAL INFORMATION

<table>
<tr><th colspan="6">Engineering Technology</th></tr>
<tr><td>1.</td><td>Name of the Subjects</td><td colspan="4">i) Workshop Calculation & Workshop Science - for Draughtsman trade group
ii) Workshop Calculation & Science and Engineering Drawing – except Draughtsman Group of trades</td></tr>
<tr><td>2.</td><td>Applicability</td><td colspan="4">For all Engineering Trades</td></tr>
<tr><td>3.</td><td>Duration of Training</td><td colspan="4">For Engineering Trades (Except Draughtsman Group): -
Workshop Calculation & Science - 80 Hours
Engineering Drawing - 120 Hours
For Draughtsman Group: -
Workshop Calculation - 120 Hours
Workshop Science - 80 Hours</td></tr>
<tr><td>4.</td><td>Examination</td><td colspan="4">The examination for the subject will be held at the end of each year.</td></tr>
<tr><td rowspan="5">5.</td><td rowspan="5">Summative Examination (Marks Distribution)</td><td colspan="2"></td><td>Full Marks</td><td>Pass Marks</td></tr>
<tr><td rowspan="2">Draughtsman trade group</td><td>Workshop Calculation</td><td>50</td><td>20</td></tr>
<tr><td>Workshop Science</td><td>50</td><td>20</td></tr>
<tr><td rowspan="2">Other Engineering trades</td><td>Workshop Cal. & Sc.</td><td>50</td><td>20</td></tr>
<tr><td>Engineering Drawing</td><td>50</td><td>20</td></tr>
<tr><td>6.</td><td>Space Norms</td><td colspan="4">One class room - 30 Sq. m
Drawing Hall - 60 Sq. m
CAD Lab. - 50 Sq. m
Note:
No separate CAD Lab. is required if IT Lab. / Information Centre is available in the Institute.</td></tr>
<tr><td>7.</td><td>Power Norms</td><td colspan="4">a. 1 KW for Class room
b. 1.3 KW for Drawing Hall
c. 6.5 KW for CAD Lab</td></tr>
<tr><td>8.</td><td>Unit strength (Batch Size)</td><td colspan="4">25</td></tr>
<tr><td>9.</td><td>Trainers' Qualification for Workshop Calculation and Science</td><td colspan="4">B.Voc/ Degree in Engineering from AICTE/ UGC recognized Engineering College/ University with two years experience in relevant field.
OR
03 years Diploma in Engineering from AICTE/ recognized Board of Technical Education or relevant Advanced Diploma (Vocational) from DGT with five years experience in relevant field.</td></tr>
</table>

		OR NTC/ NAC in any one of the Engineering trades with seven years' experience in relevant field. **<u>Essential Qualification:</u>** National Craft Instructor Certificate (NCIC) in relevant trade **OR** NCIC in RoDA or any of its variants under DGT.
10.	**Trainers' Qualification for Engineering Drawing**	B.Voc/ Degree in Engineering from AICTE/ UGC recognized Engineering College/ University with two years experience in the relevant field. **OR** 03 years Diploma in Engineering from AICTE/ recognized Board of Technical Education or relevant Advanced Diploma (Vocational) from DGT with five years experience in relevant field. **OR** NTC/ NAC in any one of the relevant engineering group of trades categorized under Engg. Drawing'/ D'man Mechanical / D'man Civil' with seven years experience. **Essential Qualification:** National Craft Instructor Certificate (NCIC) in relevant trade **OR** NCIC in RoDA / D'man (Mech /Civil) or any of its variants in Engineering Drawing from DGT institutes.

GROUPING OF TRADES IN CITS FOR ENGINEERING DRAWING

GROUP NO.	TRADE NAME
I	Carpenter, Foundryman, Sheet Metal Worker, all Welder trades {Welder, Welder (GMAW &GTAW), Welder (Pipe), Welder (Structural), Welder (Fabrication & Fitting) and Welder (Welding & Inspection)}, Plumber, Mechanic Motor Vehicle, Mechanic Diesel, Mech. Ref. & Air Conditioning, Mech. Agricultural Machinery, Fitter, Turner, Machinist & Operator Adv. M/C Tool, Machinist (Grinder), Tool & Die Maker, Mech. Machine Tool Maintenance, Mech. Tractor – **21 trades**
II	Electrician & Wireman, Instrument Mechanic, Electronics Mechanic - **03 trades**

LEARNING OUTCOME WITH ASSESSMENT CRITERIA

LEARNING OUTCOME	ASSESSMENT CRITERIA
Workshop Calculation & Science	
1. Demonstrate basic mathematical concepts and principles to perform practical operations.	Test basic skills on arithmetic, algebra, trigonometry and statistics.
	Applications will be assessed during execution of assessable outcome and will also be tested during theory and practical examination.
2. Explain basic science in the field of study including simple machines.	Test basic skills on science in the field of study including friction, heat, temperature and simple machines.
	Applications will be assessed during execution of assessable outcome and will also be tested during theory and practical examination.
Engineering Drawing	
1. Apply engineering drawing for different applications in the field of work.	Test basic skills on engineering drawing.
	Applications will be assessed during execution of assessable outcome and will also be tested during theory and practical examination.

Syllabus for Workshop Calculation and workshop Science

for Draughtsman Group of CITS trades

(Draughtsman Mechanical, Draughtsman Civil, Architectural Draughtsman, Surveyor, Interior Design & Decoration and Reading of Drawing & Arithmetic)

S No.	Workshop Calculation	Hours
1.	Concept of Fraction, Numbers, Variable, Constant, percentage, ratio proportion.	**10**
2.	Fundamental Algebraic formulae for multiplication and factorization. Algebraic equations, simple & simultaneous equations, quadratic equations and their applications. Concept on progressions.	**10**
3.	Mensuration: - Concept on basic geometrical definitions, basic geometrical theorems. Determination of areas, perimeters of triangles, quadrilaterals, polygons, circle, sector etc. Areas of irregular shaped surfaces. Simpson's rule, trapezoidal rule, applications.	**15**
4.	Determination of volumes ,surface areas of cylinders, prisms, pyramids cone spheres, frustums, Volume estimate related to civil work. Calculation related to swept volume, clearance volume.	**10**
5.	Trigonometry: Ratios, tables, degree, grade and radian. Calculation of height and distance with the help of trigonometric formulae. Application of trigonometry in determining the areas of polygons and solution of triangle.	**15**
6.	Trigonometric ratios of compound, multiple and sub-multiple angle and their uses.	**15**
7.	Related problems on stress, strain, factor of safety, torsion strength of different shafts. Determination of CG, MI of different solid sections. Problems on power transmission of shaft. Calculations involving Shear Force and Bending Moments diagrams of simply supported beams, cantilevers with point load and uniformly distributed load.	**15**
8.	Calculation of machining time for different turning, shaping, drilling, milling, grinding, etc.	**15**

9.	Graphs: basic concept, importance. Plotting of graphs of simple linear equation. Related problems on ohm's law, series-parallel combination. Statistics: Frequency tables, normal distribution, measure of central tendency – Mean, Median & Mode. Concept of probability. Charts like pie chart, bar chart, line diagram, Histogram and frequency polygon.	**15**
	Total	**120**
Sl No	**Workshop Science**	**Hours**
1.	Fundamental units, Scalar & Vector quantity. Difference system of units: F.P.S., C.G.S., M.K.S & S.I. Multiplication factors such as giga, mega, kilo, milli, micro etc. interrelation, calculation and applications. Dimensioning of physical quantities (MLT).	**6**
2.	**Engineering Materials:** – Classification properties and uses of ferrous metals, non-ferrous metals, alloys etc. Properties and uses of non-metals such as wood, plastic, rubber, ceramics industrial adhesives.	**8**
3.	**Heat & Temperature**: - Concepts, differences, effects of heat, different units, relation, specific heat, thermal capacity, latent heat, water equivalent, mechanical equivalent of heat. Different Temperature measuring scales and their relation. Transference of heat, conduction, convection and radiation. Thermal Expansion related calculations.	**8**
4.	**Force and Motion**: - Newton's laws of motion, displacement, velocity, acceleration, retardation, rest & motion such as linear, angular. Force – units, different laws for composition and resolution of forces. Concept on centre of gravity and equilibrium of forces in plane. Concept of moment of inertia and torque.	**8**
5.	**Work, power & energy**: – Definitions, units, calculation & application. Concept of HP, IHP, BHP and FHP – related calculations with mechanical efficiency. S.I. unit of power and their relations. Vector representation of work.	**8**
6.	**Friction: -** Definitions, effects of friction, Laws of static & dynamic friction, types of friction problems on horizontal and inclined applied	**8**

	forces. Angle of repose. Bodies on rough inclined plane: Explanation and related problems. Introduction on corrosion, causes and prevention. Lubrication process: Types of Lubricants, etc.	
7.	**Stress & Strain: -** Concepts of stress, strain, modulus of elasticity. Stress- strain curve. Hook's law, different module of elasticity like Young's modulus, modulus of rigidity, bulk modulus and their relations. Poisson's ratio. Principle of super position, stresses in varying cross-sections stress in composite bars.	**8**
8.	**Simple machines: -** Concept of Mechanical Advantage, Velocity Ratio, Efficiency and their relations. Working principles of inclined plane, lever, screw jack, wheel and axle, differential wheel and axle, worm and worm wheel, rack and pinion. Gear train.	**10**
9.	**Heat Treatment: -** Introduction, different methods of Heat Treatment and their purposes. Iron-carbon diagram and **T**ime-**T**emperature-**T**ransformation (TTT) diagram.	**6**
10.	**Electricity:-** Basic definitions like emf, current, resistance, potential difference, etc. Uses of electricity. Difference between ac and dc. Safety devices. Difference between conductors and semiconductors and resistors, Materials used for conductors, semiconductors and resistors. Ohm's Law. Series, parallel and series-parallel combination of resistances. Concept, definitions and units of electrical work, power and energy with related problems.	**10**
	Total	**80**

Syllabus for Workshop Calculation & Science for CITS
(Engineering Trades)
(Not applicable for Draughtsman Group of Trades)

Workshop Calculation		Duration in Hours
1.	**Fraction:** Concept of Fraction, Numbers, Variable, Constant, **Ratio & Proportion**: - Trade related problems	**5**
2.	**Percentage:** Definition, changing percentage to decimal and fraction and vice versa. Applied problems related to trade. Estimation and cost of product.	**5**
3.	**Algebra:** Fundamental Algebraic formulae for multiplication and factorization. Algebraic equations, simple & simultaneous equations, quadratic equations and their applications.	**5**
4.	**Mensuration 2D:** Concept on basic geometrical definitions, basic geometrical theorems. Determination of areas, perimeters of triangles, quadrilaterals, polygons, circle, sector etc.	**6**
5.	**Mensuration 3D:** Determination of volumes, surface areas of cube, cuboids cylinders, hollow cylinder, sphere prisms, pyramids cone spheres, frustums etc. Mass, Weight, Volume, Density, Viscosity, Specific gravity and related problems.	**6**
6.	**Trigonometry:** Concept of angles, measurement of angles in degrees, grades and radians and their conversions. Trigonometrical ratios and their relations. Review of ratios of some standard angles (0, 30,45,60,90 degrees), Height & Distances, Simple problems.	**8**
7.	**Graphs:** basic concept, importance. Plotting of graphs of simple linear equation. Related problems on ohm's law, series-parallel combination.	**5**
8.	**Statistics:** Frequency tables, normal distribution, measure of central tendency – Mean, Median & Mode. Concept of probability. Charts like pie chart, bar chart, line diagram, Histogram and frequency polygon.	**5**
Workshop Science		
1.	**Units and Dimensions:** Conversions between British & Metric system of Units. Fundamental and derived units in SI System, Dimensions of Physical Quantities (MLT)-Fundamental & Derived.	**2**
2.	**Engineering Materials:** Classification properties and uses of ferrous metals, non-ferrous metals, alloys etc. Properties and uses of non-metals such as wood, plastic, rubber, ceramics	**3**

	industrial adhesives.	
3.	**Heat & Temperature:** Concepts, differences, effects of heat, different units, relation, specific heat, thermal capacity, latent heat, water equivalent, mechanical equivalent of heat. Different Temperature measuring scales and their relation. Transference of heat, conduction, convection and radiation. Thermal Expansion related calculations.	**4**
4.	**Force and Motion**: Newton's laws of motion, displacement, velocity, acceleration, retardation, rest & motion such as linear, angular. Force – units, different laws for composition and resolution of forces. Concept on centre of gravity and equilibrium of forces in plane. Concept of moment of inertia and torque.	**4**
5.	**Work, power & energy**: Definitions, units, calculation & application. Concept of HP, IHP, BHP and FHP – related calculations with mechanical efficiency. S.I. unit of power and their relations.	**4**
6.	**Friction:** Concept of friction, laws of friction, limiting friction, coefficient of friction and angle of friction. Rolling friction & sliding friction with examples. Friction on inclined surfaces	**3**
7.	**Stress & Strain:** Concepts of stress, strain, modulus of elasticity. Stress- strain curve. Hook's law, different module of elasticity like Young's modulus, modulus of rigidity, bulk modulus and their relations. Poisson's ratio.	**3**
8.	**Simple machines:** Concept of Mechanical Advantage, Velocity Ratio, Efficiency and their relations. Working principles of inclined plane, lever, screw jack, wheel and axle, differential wheel and axle, worm and worm wheel, rack and pinion. Gear train.	**4**
9.	**Electricity:** Basic definitions like emf, current, resistance, potential difference, etc. Uses of electricity. Difference between ac and dc. Safety devices. Difference between conductors and semiconductors and resistors, Materials used for conductors, semiconductors and resistors. Ohm's Law. Series, parallel and series-parallel combination of resistances. Concept, definitions and units of electrical work, power and energy with related problems.	**4**
10.	**Fluid Mechanics:** Properties of fluid (density, viscosity, specific weight, specific volume, specific gravity) with their units. Concept of atmospheric pressure, gauge pressure, absolute pressure, vacuum and differential pressure	**4**
	TOTAL	**80**

Syllabus of ENGINEERING DRAWING for CITS
(Engineering Trades)
(Not applicable for Draughtsman Group of Trades)
Group-I

S NO.	TOPICS	Duration in Hours
01	**CIRCLES, TANGENTS AND ELLIPSE:** Practical applications procedure for constructing tangent to given circle-lines- loop pattern-- tangential circles- external tangents- internal tangents ellipse	8
02	**PARABOLIC CURVES, HYPERBOLA:** Involutes - Properties and their application. Procedure for constructing parabolic curve-hyperbolic curve-in volute curve. epicycloids, hypocycloid, Involutes, spiral & Archimedes spiral	8
03	**TECHNICAL DRAWING/ SKETCHING OF COMPONENTS' PARTS:** Views of object Importance of technical sketching-types of sketches- Isometric drawing sketching- Oblique drawing sketching.	8
04	**PROJECTIONS**: Theory of projections (Elaborate theoretical instructions), Reference planes, orthographic projections concept 1st Angle and 3rd Angle, Projections of points, Projections of Lines– determination of true lengths & inclinations. Projections of plane, determination of true shape. Exercises on missing surfaces and views. Orthographic drawing or interpretation of views. Introduction to first angle projections of solids.	8
05	**ISOMETRIC VIEWS**: Fundamentals of isometric projections (Theoretical Projections) Isometric views from 2 to 3 given orthographic views. Preparation of simple working drawing of Furniture items like table, stool and any job prepared in the workshop.	10
06	**SECTIONAL VIEWS:** Importance and salient features, Methods of representing sections, conventional sections of various materials, classification of sections, conventional in sectioning. Drawing of full section, half section, partial or broken out sections, offset sections, revolved sections and removed sections. Drawing of different conventions for materials in section, conventional breaks for shafts, pipes, Rectangular, square angle, channel, rolled sections. Exercises on sectional views of different objects. -	10
07	**DEVELOPMENT AND INTERSECTIONS:** Development of surfaces-Types of surface- Methods of development-Intersection- Methods of drawing intersection lines-critical point or key point.	8
08	**FASTENERS**: Sketches of elements of screw threads, Sketches of studs, cap screws machine screws, set screws, Locking devices, bolts, Hexagonal & square nuts & nut bolt & washer assembly. Sketches of	8

	plain spring lock, toothed lock, washers, cap nut, check nut, slotted nut, cassel nut, sawn nut, wing nut, eye blot, tee bolt & foundation bolt. Sketches of various types of rivet heads (snap–pan–conical–countersunk) Sketches of keys (sunk, flat, saddle, gib head, woodruff) Sketches of hole & shaft assembly.	
09	**DETAIL DRAWING AND ASSEMBLY DRAWING:** Details of machine drawing- Assembly drawing- surface quality-surface finish standard-Method of indicating surface roughness for general engineering drawing-symbols used for indication of surface roughness-symbols for direction of lay. Geometrical tolerance. Detail drawing of the following with complete dimensioning, tolerances, material and Surface finish specifications 1. Universal couplings 2. Ball bearing and roller bearing. 3. Fast and loose pulley. 4. Stepped and V belt pulley. 5. Flanged Pipe joints, right angle bend. 6. Tool Post of Lathe Machine. 7. Tail Stock of Lathe Machine 8. Stepped and V belt pulley. 9. Flanged Pipe joints, right angle bend. 10. Tool Post of Lathe Machine. 11. Tail Stock of Lathe Machine Practice of blue print reading on limit, size, fits, tolerance, machining symbols, and reading out of assembly drawing etc., ISO Standards.	**22**
10	**READING OF ENGINEERING DRAWING:** Blue print and machine drawing reading exercises.	**6**
11	**GRAPHS & CHARTS**: Types (Bar, Pie, Percentage bar, Logarithmic), Preparation & interpretation of the graphs and charts.	**6**
12	**AUTO CAD:** Familiarization with AutoCAD application in engineering drawing. Practice on AutoCAD using Draw & Modify commands. Practice on AutoCAD with Rectangular snap using Draw, Modify, Inquiry commands. Practice on AutoCAD using text dimensioning& dimensioning styles	**6**
13	Practice on AutoCAD to draw nuts, bolts & washers. Isometric views-isometric views with square, taper and radial surface-simple & complex views. Perspective views. Practice on AutoCAD using isometric snap to make isometric drawings	**6**
14	Practice on AutoCAD using Hatch command and application. Practice on AutoCAD using 3D primitives with UCS (User Co-ordinate system).	**6**
	TOTAL	**120**

Syllabus of ENGINEERING DRAWING for CITS
(Engineering Trades)
(Not applicable for Draughtsman Group of Trades)
Group-II

S. No.	Topics	Duration in Hours
01	**CIRCLES, TANGENTS AND ELLIPSE:** Practical applications procedure for constructing tangent to given circle-lines- loop pattern-- tangential circles- external tangents- internal tangents ellipse	10
02	**PARABOLIC CURVES, HYPERBOLA:** Involutes - Properties and their application. Procedure for constructing parabolic curve-hyperbolic curve-in volute curve. epicycloids, hypocycloid, Involutes, spiral & Archimedes spiral	10
03	**TECHNICAL DRAWING/ SKETCHING OF COMPONENTS' PARTS:** Views of object Importance of technical sketching-types of sketches-Isometric drawing sketching- Oblique drawing sketching.	10
04	**PROJECTIONS:** Theory of projections (Elaborate theoretical instructions), Reference planes, orthographic projections concept 1st Angle and 3rd Angle, Projections of points, Projections of Lines–determination of true lengths & inclinations. Projections of plane, determination of true shape. Exercises on missing surfaces and views. Orthographic drawing or interpretation of views. Introduction to first angle projections of solids.	15
05	**ISOMETRIC VIEWS**: Fundamentals of isometric projections (Theoretical Projections) Isometric views from 2 to 3 given orthographic views. Preparation of simple working drawing of Furniture items like table, stool and any job prepared in the workshop.	15
06	**FASTENERS:** Sketches of elements of screw threads, Sketches of studs, cap screws machine screws, set screws, Locking devices, bolts, Hexagonal & square nuts & nut bolt & washer assembly. Sketches of plain spring lock, toothed lock, washers, cap nut, check nut, slotted nut, cassel nut, sawn nut, wing nut, eye blot, tee bolt & foundation bolt. Sketches of various types of rivet heads (snap–pan–conical– countersunk) Sketches of keys (sunk, flat, saddle, gib head, woodruff) Sketches of hole & shaft assembly.	10
07	Sign and Symbols of Electrical, Electronics and related trades	10
08	Electrical and Electronics or trade related wiring diagram/ Layout diagram	12
09	Electrical, Electronics/ trade related circuit diagram	12
10	Block diagram of Instruments/ equipment of related trades	08
11	Practice of blue print reading on Electrical / Electronics / Computer or IT related drawing etc., ISO Standards.	08
	TOTAL	120

LIST OF TOOLS & EQUIPMENT
for ENGINEERING DRAWING under CITS
Group – I and Group - II

S No.	NAME OF TOOLS / EQUIPMENT	QUANTITY
Trainees Tool Kit		
1.	Drawing Instrument Box with accessories.	25 + 1 sets
2.	Set square celluloid 45(250x1.5mm)	25 + 1 sets
3.	Set square celluloid 60(250x1.5mm)	25 + 1 sets
4.	French-curves(set of 20 celluloid)	25 + 1 sets
5.	Drawing Board (700 x 500) IS:1444	25 + 1 sets
6.	Tee-Square (700 mm blade) IS:1360	25 + 1 sets
7.	Mini Drafter	25 + 1 sets
General Equipment		
8.	Desktop Computer - CPU: 32/64 Bit i3/i5/i7 or latest processor, Speed: 3 GHz or Higher. RAM: - 4 GB DDR-III or Higher. Wi-Fi Enabled. Network Card: Integrated Gigabit Ethernet, with USB Mouse, USB Keyboard and Monitor (Min. 17 Inch), Licensed Operating System and Antivirus compatible with trade related software.	13 nos.
9.	Software: MS-Office or latest version of operating software Auto-CAD with power pack or latest version	13 licensed users
10.	Laser Jet printer Latest model – Print, Copy and Scan 1200x1200dpi, 16MB	1 no.
11.	UPS	As required
12.	Chest of drawers	As required
13.	Trainees Locker	As required
14.	Drawing table for A1 sheet	25 nos.
15.	Stools	25 nos.
16.	Trainer / Faculty Table	1 no.
17.	Trainer / Faculty Chair	1 no.
18.	Almirah Steel / storage cabinet	As required
19.	Computer table	13 nos.
20.	Computer chairs	25 nos.
21.	Table for printers	1 no.
22.	D.L.P Projector 2000 LUMEN OR HIGHER	1 no.
23.	Motorised Screen for Projector	1 no.
24.	White board 6FT. x 4FT.	1 no.
25.	Fire Fighting Equipments	As required
26.	First Aid Box	1 no.

SOFT SKILLS

(for all Non - Engineering Trades)

RATIONALE

Hard Skills are a person's skill set and ability to perform a certain type of activity or task. Soft Skills are a person's ability to interact effectively with customers and co-workers. Soft Skills complement the Hard Skills which are occupational requirement of a job. It also complements many other activities even outside the work place.

Soft Skills refer to a number of features viz. behaviour, personal finance management, communication, etc. those make persons excellent workers, enhances ability to handle customers and suitable to work in a team. Studies suggest that Soft Skills are equally important indication of job performance as hard skills. Especially in-service sectors Soft Skills are regarded as more important attribute of a good worker.

The growth in Indian Economy is largely driven by growth in the service sectors including Travel & Tourism, Beauty & Wellness, Hospitality, etc. To sustain the momentum of this growth, availability of workforce having high Soft Skills is imperative.

Recognizing this importance of Soft Skills in service sectors the subject of **Soft Skill** and **English Communication** are made integral part of curricula for all Non-Engineering trades under **CITS.**

GENERAL INFORMATION

1.	Name of the Subject	**SOFT SKILLS**		
2.	Applicability	**For all Non-Engineering Trades**		
3.	Duration of Training	Practical – 100 Hrs. Theory – 100 Hrs.		
4.	Examination	The examination for the subject will be held at the end of each year.		
5.	Summative Examination (Marks Distribution)		**Professional Skills**	**Professional Knowledge**
		Full Marks	50	50
		Pass Marks	30	20
6.	Space Norms	One class room - 30 Sq. m		
7.	Power Norms	1 KW		
8.	Unit strength (Batch Size)	25		
9.	**Trainers' Qualification for Soft skills**	MBA/BBA/Any Graduate/Diploma in any discipline from AICTE/UGC recognized college/university with three years' experience and short-term ToT course in Soft Skills from DGT institutes. (Must have studied English / Communication Skills and Basic Computer at 12th /Diploma level and above)		

Syllabus - Soft Skills (for all Non-Engineering CITS Trades)		
Learning Outcomes	**Professional Skills**	**Professional Knowledge**
COMMUNICATION SKILLS		
Exhibit attitude & effective communication skills with logical reasoning ability to maximize efficiency in work (Skill - 40 hrs Knowledge - 40 Hrs)	Oral communication Skills, Voice, accent, Voice modulation, pace, Intonation, etc. Study of different pictorial expressions of non-verbal communication and its analysis.	**<u>Communication & Listening Skills</u>** Components of effective communication, Types of communication- Oral, Written, Reading & body language, Handling of communication, Barriers of communication, Listening Tools & Speaking Tools, Non-verbal communication and its importance.
	Demo on Strengths and Weaknesses	**<u>Self-Management& Personality Development</u>** Self-Management, SWOT analysis, self-learning and management.
	Demo on Motivation, Positive attitude.	Motivation and Image building Techniques
	Practice on personal appearance, Dressing Manners & Etiquettes.	**<u>Personal Grooming & Hygiene</u>** Presentation of Self, Formal & Informal Dressing, Dressing for Occasions.
	Practice on attending of mock interview of different types. Listening & doubt clarifying etc. Case studies on Interview sessions.	**<u>Techniques of Attending Interviews</u>** Interview & its types. Preparation for the interview, stages of interview. Do's & Don'ts in an interview.
BASIC MATHEMATICAL CALCULATION		
Demonstrate reasonable quantitative aptitude and interpret data in the field of work while performing practical tasks. (Skill - 25hrs Knowledge - 25 Hrs)	Conversions of different units viz. length, area, mass etc. Simple Problems on Perimeter and area of a triangle, a circle, a square, rectangle, semicircle etc.	Introduction to units and dimensions of different objects Perimeter, Area of regular shapes, viz. Triangle, Square, and Circle, rectangle, semicircle etc.
	Simple Problems on Comparing quantities, weight, speed, height, age, ratio, percentage, and price, etc. Simple calculation on profit and loss statement, discount calculations of	**<u>Quantitative Aptitude</u>** Introduction, Comparing quantities viz. Speed, age, height, ratio, percentage, weight, and price, etc. Introduction to cost price, sale price, profit, loss and discounts of products. Introduction to online internet banking

	products. Demonstration of utilization of mobile apps for financial transactions.	mechanisms, various modes of payments, cash transactions and associated mobile apps. Concept of insurance and taxes and types. Personal saving and investment mechanism.
	Exercises on aptitude/puzzles	**<u>Logical reasoning</u>** Introduction to logical reasoning. Types of logical reasoning. Principles of logical reasoning with examples on numbers and sequences, arrangement and relations,
	Practice on Types of Charts and Graphs	**<u>Data Interpretation</u>** Data analysis and interpretation. Types of variables for different applications. Basic graph types (Bar, Line, PIE Charts).
ENERGY & ENVIRONMENT		
Describe method of energy conservation and day-to- day contribution to work for optimum utilization of resources. (Skill - 10 Hrs Knowledge - 10 Hrs)	Video demo on different types of energy resources.	Conventional &Non-Conventional Energy Resources Fossil Fuel, Biomass Bio-Gas Solar, etc. Public awareness on Energy conservation and use of clean energy.
ENGLISH LITERACY		
Demonstrate English language fluency while carrying out official work. (Skill - 25hrs Knowledge - 25 Hrs)	Pronunciation of simple words, Diction (use of word and speech) Transformation of sentences, Spellings. Reading and understanding simple sentences about self, work and environment. Construction of simple sentences Writing simple English, Speaking with preparation on self, on family, on	English Literacy: - Pronunciation, Functional Grammar, Reading, Writing, Speaking / Spoken English.

	friends/ classmates, on work. Role-playing and discussions on current affairs. Job description. Practice of Taking messages, passing on instructions. Practice making Resumes or curriculum vita. Letters of application &referencing to previous communication.	

LEARNING OUTCOMES WITH ASSESSMENT CRITERIA	
SOFT SKILLS	
1. Exhibit attitude & effective communication skills with logical reasoning ability to maximize efficiency at work.	Recognize correct sources of information, organize and Interpret accordingly for decision making.
	Analyze & use documents, regulations and occupationally related provisions.
	Conduct appropriate and target oriented discussions with higher authority and within the team.
	Applications will be assessed during execution of assessable outcome and will also be tested during theory and practical examination.
2. Demonstrate reasonable quantitative aptitude and interpret data in the field of work while performing practical tasks.	Check & record data to analyze the given trade related Practical job.
	Ensure quality forgiven parameters as per the job sheet by use of appropriate tools.
	Review list of appropriate materials by interpreting detail job sheet and determine required quantities of such materials forgiven piece of work.
	Applications will be assessed during execution of assessable outcome and will also be tested during theory and practical examination.
3. Describe method of energy conservation and day-to-day contribution to work for optimum utilization of resources.	Explain environment, its eco-system and different types of energy.
	Describe the impact of given human activities & measures of public awareness.
	Demonstrate measures to conserve energy for betterment of environment eco-system.
	Demonstrate economic use of raw material forgiven piece of work.
4. Demonstrate English language fluency while carrying out official work.	Analyze & ensure correct usage of simple words and construction of sentences grammatically.
	Communicate messages or information in English while selection of resume.
	Read, write & speak in English while handling given official work.

TRAINING METHODOLOGY
(Common for all CITS Trades)

RATIONALE

The economic prosperity and pace of development of a nation depend upon the development of human resources of that nation. The significant fact in the development of human resources refers to the level of competencies and the factors responsible for efficient delivery of these competencies. It largely depends on those who develop these competencies. Therefore, for this purpose highly competent instructors for imparting these competencies are need of Hour.

Instructors imparting these competencies should have the capability to perform efficiently too. For this, Capacity Building of Instructors is crucial.

Some of the objectives of this course are to equip the Instructors and prospective instructors with requisite knowledge and skill in instructional technology, make them competent to impart skill under various schemes of DGT based on sound pedagogical principles/concept, develop the competencies of the Instructors and prospective instructors in preparation and utilization of teaching aids and handling of visual and audio visual equipments supported by Information and Communication Technology (ICT).

GENERAL INFORMATION

1.	**Name of the Subject**	**Training Methodology**		
2.	**Applicability**	For all Engineering and Non-Engineering Trades		
3.	**Duration of Training**	**Practical - 320** **Theory - 200**		
4.	**Examination**	The examination for the subject will be held at the end of each year.		
5.	**Summative Examination (Marks Distribution)**		**Practical**	**Theory**
		Full Marks	200	100
		Pass Marks	120	40
6.	**Space Norms**	One class room - 30 Sq. m		
7.	**Power Norms**	1 KW		
8.	**Unit strength (Batch Size)**	25		
9.	**Trainers' Qualification for Training Methodology**	B.Voc / Degree in any discipline from AICTE/ UGC recognized College/ university with two years experience in training/teaching field. **OR** Diploma in any discipline from recognized board/ University with five years experience in training/teaching field. **OR** NTC/ NAC passed in any trade with seven years experience in training/teaching field. **Essential Qualification:** National Craft Instructor Certificate (NCIC) in any of the variants under DGT /B.Ed /ToT from NITTTR or equivqlent.		

Syllabus - Training Methodology (Common for all CITS Trades)			
Unit No.	**Reference Learning Outcome**	**TM Practical**	**TM Theory**
1.	Plan & prepare the learners for the class using basics of educational psychology & motivational techniques. (Professional Skills – 30 hrs., Professional Knowledge – 18 hrs.)	**Roles and Responsibilities of an Instructor** 1.1 What kind of Learner are you - Questionnaire to be answered by Trainees. 1.2 What do you already know about training procedures - Questionnaire - By Trainees. 1.3 Video show of a Trainer delivering classroom lecture/demonstration to the trainees. 1.4 Conduct a group discussion among the trainees about the topic. 1.5 Video/PPT for highlighting the principles of Vocational Training. 1.6 Video/PPT for highlighting the topic. 1.7 PPT for highlighting specific traits and skills for specific trades.	**Roles and Responsibilities of an Instructor** • Current Skill Development programmes of DGT • Difference between Training and Education • Difference between Vocational Education and Vocational Training • Principles of Vocational Training. • Instruction vs. Teaching – (i) Principles of Instruction. (ii) Difference between Instruction and Teaching. (iii) Common defects in Instruction. • Characteristics of good Instruction. • Qualities, Personality Traits and Responsibilities of good Instructor
2.	-do-	**Psychology of Learning** 2.1 Ppt. / Video Show / Educational Film based on psychological parameters like Personality, Aptitude, Skills, values and Potentials. 2.2 PPT/Video show for showing the effects of psychology of learning in Education & Training. 2.3 PPT/Video show of different experiments on theories of learning by the different psychologists and their effect in learning situation and relation with Laws of	**Psychology of Learning** • Developmental psychology - Developmental tasks based on stages of development (Age 14 yrs. onward.) • Psychology of learning (i) Nature and Principles of Learning (ii)Factors (Motivation, Interest and Attitude) affecting Learning. • Theories of learning – Pavlov, Throndike, Kohler/Gestalt and Skinner. • Individual differences of learners. • Motivation – (i) Concept of

		learning. 2.4 PPT / Video Show on Modality Learning (Auditory, Visual and Kinesthetic modality). 2.5 Ppt. / Video Show / Educational Film on Motivating the Trainees. 2.6 Transaction analysis in a workshop. 2.7 Questionnaire on personality development for assessing the psychological attributes.	Motivation (ii) Determinants of Motivation (Anxiety, Need & Difficulty of tasks) (iii) Theories of Motivation – Maslow, Mc Clelland and Atkinsons. • Transaction analysis in a Class room. • Assessment of Prior Learning to identify the strength & Weakness of Trainees and Planning the Strategies of Delivery.
3.	Analyze the syllabus of the Course. (Professional Skills – 22 hrs., Professional Knowledge – 14 hrs.)	**Analysis of Syllabus and Course Construction** 3.1 Group discussion on designing a training curriculum - By Trainer. 3.2 Group task on Analysis of (with a sample of syllabus) • Job / Task • Elements of skills - Discussions by Trainees and Trainer. 3.3 Outlines of a syllabus: • Must know, should know & could know - Discussion by Trainees and Trainer. 3.4 Preparation of schedule of instructions – By Trainees. 3.5 Course Construction: Simple to complex, Concrete to Abstract – Trainer.	**Analysis of Syllabus and Course Construction** • Syllabus and its formation - Factors for formulation of syllabus, aims and writing Learning outcomes. • Methods of Analyzing the Syllabus - Breakup of syllabus and schedule of instruction with time duration. • Identification of skills and Knowledge ADDIE Model Instructional Designing Process. • Construction of course outline • Time management and its concept in formulation of a trade syllabus and instruction with time duration.
4.	Plan & prepare the training session using various methods viz. 4 step method, question & questioning technique etc. (Professional Skills – 22 hrs., Professional Knowledge	**Planning for Instruction and skills practice** 4.1 Make the trainees to frame questions on different levels of learning. 4.2 PPT /Video show for highlighting the different phases of skill learning. 4.3 Video show or giving a full	**Planning for Instruction and skills practice** • Skill and its basic elements • Phases of acquiring skills. • Steps in imparting Skills. • Question & questioning techniques. • Lesson plan. • Demonstration plan.

	– 14 hrs.)	demonstration about the steps of imparting skills. 4.4 Question - Answer - Debate session. 4.5 Defining objectives and preparation of lesson plan. 4.6 Defining objectives and preparation of demonstration plan. 4.7 Teaching practice - body languages – skills in presentation.	• Different methods of imparting skills. • Delivery techniques of different methods (4 Step method). • Introduction to Bloom's taxonomy (cognitive, effective and Psychomotor domains)
5.	Communicate effectively with the trainees both verbally and nonverbally. (Professional Skills – 24 hrs., Professional Knowledge – 15 hrs.) Use Instructional Technology & facilitate the training program. (Professional Skills – 22 hrs., Professional Knowledge – 14 hrs.)	**Instructional Technology and facilitate learning** 5.1 Group discussion of 4 step method and analyze a Video show of a trainer conducting a class by 4-step method. 5.2 Practice to identify the process of communication and use of non-verbal communication to convey messages Practice on pre-listening activity and respond them and respond after the CD track by directed by CD track. 5.3 PPT/Video show for highlighting the effects of Dale cone of experience in learning Preparation of charts, transparencies, slides, posters, mock-ups. 5.4 Training different types of board in a classroom session : Black board, white board, flannel board, magnetic board etc. 5.5 Use and maintenance of OHP. 5.6 Use and maintenance of Digital Camera. 5.7 Use and maintenance of LCD projector and smart board. 5.8 Teaching practical – micro teaching analysis.	**Instructional Technology and facilitate learning** • Teaching practice through moderation 2. A comparison with conventional method with modern Training – By Trainer 3. Group discussion of 4 step method – Test method – By Trainer 4. Project work & display on making working model – mockups Project Work By Trainer & Trainees. • Communication: (Class Room) 1. Communication process & elements of communication – By Trainer. 2. How good listener and what type of communicator you are - By Trainer 3. Discussion with trainer on improving individual talents in public speaking - By Trainees. • Dale cone of experience Different Types of Teaching Learning Aids: Projected/ Non Projected Using different types of board in a class room session. Black board, White board, Flannel board, Magnetic board etc.

			• Chalk Board/ White Board practice How to use it. • Application, use & maintenance of OHP. • Application, use & maintenance of Digital Camera. • Application, use & maintenance of LCD projector and Smart board. • Micro – Teaching concept.
6.	Design written instructional materials and implement for imparting training. (Professional Skills – 22 hrs., Professional Knowledge – 14 hrs.)	**Written Instructional Materials** 6.1 Make the trainees to prepare the different WIM. 6.2 Teaching practice (Lesson & Demonstration) – Micro teaching. 6.3 Guide the trainees how to maintain the records properly.	**Written Instructional Materials** • Written Instructional Materials. • Operation sheet. • Job sheet. • Information Sheet. • Assignment Sheet. • Experiment Sheet. • Pre-job Check Sheet. • Final Job Check Sheet. • Daily Dairy, Progress Chart, Maintaining Theory & Practical records.
7.	Assess, evaluate and certify the tests. (Professional Skills – 24 hrs., Professional Knowledge – 15 hrs.)	**Assessment and Certification Test & Evaluation – its importance** 7.1 Case study on different types of test & its necessity – By Trainer. 7.2 Various test conducted under aegis of NCVT. 7.3 Purpose, application & comprehension of a test. 7.4 Group assignment on setting different types of question on different levels of learning in cognitive domain according to Bloom Taxonomy – By Trainees. 7.5 Setting an ideal question paper & evaluation – By Trainees. 7.6 Evaluation techniques &	**Assessment and Certification Test & Evaluation – its importance** • Assessment & types of assessment • Current assessment methods applied in DGT Schemes. • Characteristic of a good Test. • Rule for preparation of Objectives types test Items. Preparing Student Multiple Choice Types Matching Types Short Answer Types. • Preparation of Questions Paper. • Evaluation of Theory & Practical Test • NCVT as a certifying agency

		marking schemes Theory & Practical by Trainer & Trainees Formative Assessment techniques for awarding seasonal marks. 7.7 Discussion among the trainees. 7.8 Undertake competence based assessment as per standards.	– certificates issue under aegis of NCVT. • Concept of formative assessment and summative assessment. • Prepare for undertaking assessment of competence as per standards. • Conduct assessment of competence.
8.	Organize workshop and classroom learning observing instructional methods. (Professional Skills – 22 hrs., Professional Knowledge – 14 hrs.)	**Organization and Management of Instructional Functions** 8.1 Group discussion among the trainees. 8.2 Instructional areas layout – utility space – By Trainer. 8.3 Group activities to complete a particular job. 8.4 Showing a model video of proper housekeeping and analyze the same. 8.5 Debate on conventional housekeeping vs. 5's concept – By Trainer & Trainees. 8.6 Introductions to Colour Dynamics. 8.7 Safety measure, slogans, precaution etc. – By Trainers.	**Organization and Management of Instructional Functions** • Training & Managerial responsibilities Introduction & discussion on managerial responsibilities. • Management of Workshop & Class room. • Group teaching and learning. • Instructional area – house keeping Need for proper housekeeping & safety rules and overview – By Trainer. • Basic quality Concept & 5'S. • Colour Dynamics. • Safety in Instructional Area.
9.	Counsel & mentor the trainees by identifying their Strength & Weaknesses. (Professional Skills – 22 hrs., Professional Knowledge – 14 hrs.)	**Counseling & Mentoring** 9.1 Communication Lab - Language Proficiency. 9.2 Determine the rating of characteristic according to graph printing. Analyze the different characteristics that forms the base of ethics. React to real life ethical situation. 9.3 Prepare the parameters for skills required to become a good trainer and list out in the chart format. Rate your skills in each area by circling the appropriate number.	**Counseling & Mentoring** • Handling trainee's grievances - Define Grievances, Types of Grievances, Cooperate Grievances, Do's & Don'ts in Grievances. • Boosting Morale - Boosting ethics & Development work environment, ethics theory, Development of work environment & training process, knowledge of presentation & self motivation. • Identifying the strengths -

		9.4 Group discussion. 9.5 Tips to crack interview Answer questions about yourself, your skills with confidence. Practice tricky questions meant to test your thinking skills using lateral thinking.	SWOT Analysis. Define SWOT analysis, Important of SWOT analysis, characteristics of SWOT analysis, Example of SWOT analysis related with Trade development in detail. • Techniques of writing good CV.
10.	Develop Entrepreneurship skills. (Professional Skills – 22 hrs., Professional Knowledge – 14 hrs.)	**Entrepreneurship Development** 10.1 Case study on Entrepreneurship skills. 10.2 Video (Current Entrepreneur)/ Case studies. 10.3 PPT/Video show for highlighting how to improve stress in workplace. 10.4 PPT/Video show for highlighting the importance. 10.5 Trace and interpret the sequence of operation for setting up a small business from the flow sequence diagram. 10.6 Draw a similar diagram for the product chosen by you. 10.7 Trainee has to prepare the impact of quality and list the importance of quality and analyze. 10.8 Group discussion. 10.9 Case study/ video.	**Entrepreneurship Development** • Leadership - Define leadership, types of leadership, leadership Traits, Functions of leadership, styles of leadership. • Stress management - Define Management, Type of stress Management, How to improve stress in workplace, Team leader in workplace. • Time management - Workplace time Management, maintain Time management, Benefits of Time Management in workplace, Time management schedule. • Self Employment as a Career path - Define Entrepreneurship, Strategy of entrepreneurship, Market Research. • Implementation of self Employment in workplace, Mange self employment in workplace. • Quality consciousness – its relevance. • Interaction with Industries current example of different ITI.
11.	Apply ICT & Internet in training (computer based training) and	**ICT and Internet** 11.1 Use of internet, Email application etc.	**ICT and Internet** • Use of Internet in teaching, Training and learning - How

	various types of Distance learning programmes. (Professional Skills – 22 hrs., Professional Knowledge – 14 hrs.)	11.2 Preparation of Slides by Power Point. **Distance Learning Programme** 11.3 Interactive Class on Video Conference / Practice. 11.4 Practice on installation and commissioning of equipments at Spokes.	to use internet, Email application. • Computer aided learning, training and teaching. • Use, application and maintenance of computer. **Distance Learning Programme** • Why Distance Learning - Define Distance Learning, Types of Distance Learning Advantages & Disadvantages of Distance Learning, Importance of distance Learning. • Organizations adopting Distance Learning. • Initiative of DGT – current detail/ History of DGT &Further scope. • Current Trends – Smart Learning, e Learning, Virtual Classroom. • Limitations of Distance Learning.
12.	Plan and conduct sessions to impart competency based skills and knowledge. (Professional Skills – 22 hrs., Professional Knowledge – 14 hrs.)	**Interpret NSQF and QP** 12.1 Discussion on NSQF. 12.2 Interpret one QP. 12.3 Interpret one NOS. 12.4 Interpret learning outcomes.	**Interpret NSQF and QP** • Overview of NSQF, QP, NOS, Learning outcomes (LOs), Performance criteria. • Role of NSDA, NSDC and SSC.
13.	Apply Adult Learning Principles. (Professional Skills – 22 hrs., Professional Knowledge – 14 hrs.)	**Principles of Adult Learning** 13.1 Apply adult learning in simulated environment. 13.2 Role plays using the principles of adult learning.	**Principles of Adult Learning** • Malcom Knowles assumptions of Adult learning. • Principles of adult learning and how to apply them in training delivery. • Characteristics of adult learners • Factors affecting adult learning.

			• Techniques to create and maintain a positive learning environment.
14.	Develop and implement continuous professional development plan. (Professional Skills – 22 hrs., Professional Knowledge – 12 hrs.)	**Prepare for Continuing Professional Development** 14.1 Develop a professional development plan to enhance professional capabilities. 14.2 Group discussion on CPD and its importance. 14.3 Make Professional Development plan for trainees and trainers	**Prepare for Continuing Professional Development** • Importance of continuous learning and professional development. • Personal development and professional goals & objectives. • Professional Development plan.

LEARNING OUTCOMES WITH ASSESSMENT CRITERIA	
TRAINING METHODOLOGY	
1. Plan & prepare the learners for the class using basics of educational psychology & motivational techniques.	Implement techniques based on psychological parameters like Personality, Aptitude, Skills, values and Potentials.
	Use different experiments on theories of learning by the different psychologists and their effect in learning situation and relation with Laws of learning.
	Demonstrate on Modality Learning (Auditory, Visual and Kinesthetic modality).
	Set Questionnaire on personality development for assessing the psychological attributes.
	Motivate trainees for the training session.
2. Analyze the syllabus of the Course.	Select salient points on designing a training curriculum.
	Analyse a sample syllabus.
	Discuss Elements of skills, Outlines of a syllabus.
	Make project work on making break up of syllabus and list of topics - Video show/PPT of ADDIE Model.
	Design schedule of instructions.
	Construct a sample course using principles of teaching.
3. Plan & prepare the training session using various methods viz. 4 step method, question& questioning technique etc.	Set questions on different levels of learning in psychomotor domain according to Bloom Taxonomy.
	Demonstrate the steps of imparting skills.
	Prepare lesson plan and demonstration plan using 4 Step methods.
	Use questioning techniques.
4. Communicate effectively with the trainees both verbally and nonverbally.	Identify the process of communication.
	Use verbal & non-verbal communication to convey messages, pre-listening activity and respond to them.
	Communicate effectively with the trainees in training session.
5. Use Instructional Technology & facilitate the training program.	Use various instructional Technologies viz. OHP, Digital Camera, LCD projector, smart board etc.
	Plan and design charts, transparencies, slides, posters, mock-ups etc.
	Conduct micro teaching sessions.
6. Design written instructional materials and implement for imparting training.	Plan & prepare different WIM viz. Operation sheet, Job sheet, Information Sheet, Assignment Sheet, Experiment Sheet, Experiment Sheet, Final Job Check Sheet etc.
	Maintain various records viz. Daily Dairy, Progress Chart, Theory &

	Practical records etc.
7. Assess, evaluate and certify the tests.	Identify different types of test & its necessity.
	Set different types of question on different levels of learning in cognitive domain according to Bloom Taxonomy.
	Set an ideal question paper & evaluate.
	Apply various evaluation techniques & marking schemes.
	Undertake competence-based assessment as per standards.
	Conduct formative assessment and summative assessment.
8. Organize workshop and classroom learning observing instructional methods.	Carry out management of Workshop &Class room.
	Demonstrate group teaching and learning.
	Explain housekeeping & safety rules in Instructional area.
	Conduct debate on quality Concept & 5'S.
9. Counsel & mentor the trainees by identifying their Strength & Weaknesses.	Handle trainee's grievances.
	Boost Morale of trainees.
	Conduct SWOT analysis for identifying their Strength & Weaknesses.
	Plan and Prepare the parameters for skills required to become a good trainer.
	Write a good CV.
10. Develop Entrepreneurship skills.	Use effective leadership Traits.
	Apply Stress management techniques.
	Plan & Use Time management techniques.
	Interpret the sequence of operation for setting up a small business from the flow sequence diagram
	Analyze the impact of quality and list the importance of quality.
11. Apply ICT & Internet in training (computer-based training) and various types of Distance learning programmes.	Use internet, Email application, Fax etc.
	Prepare transparency sheet with the help of computer.
	Prepare Slides by Power Point.
	Conduct Interactive Class on Video Conference.
	Install and commission equipments at Spokes level.
12. Conduct competency-based training using LO/ QP/ NOS and NSQF guidelines	Interpret one LO, QP, NOS for NSQF alignment.
	Explain learning outcomes.
	Identify different roles of NSDA, NSDC and SSC.
13. Apply Adult Learning Principles.	Apply adult learning in simulated environment.
	Identify various factors affecting adult learning

	Use role plays using the principles of adult learning.
	Apply techniques to create and maintain a positive learning environment.
14. Develop and implement continuous professional development plan.	Develop a professional development plan to enhance professional capabilities.
	Implement CPD in instructor career.

Tools and Equipment for Training Methodology (Common for all CITS Trades)			
Sl. No.	**Name of the Tools & Equipment**	**Specification**	**Quantity**
1.	Class Room Chairs (armless) / Dual desk may also be allowed		25 /13 nos.
2.	Class Room Tables / Dual desk may also be allowed	3 ft X 2 ft	25 /13 nos.
3.	Chair for Trainer		01 no.
4.	Table for Trainer (4 ft X 2 ft) with Drawer and cupboard		01 no.
5.	LCD / LED Projector		01 no.
6.	Multimedia Computer System with all accessories	Latest or latest minus one configuration	01 No
7.	UPS		As required
8.	White Board	6 ft X 4 ft	01 no.
9.	LCD Projector Screen		01 no.
10.	Digital Video Camera (hard Disk) with Tripod stand		01 no.
11.	Air Conditioner for computer room		As required
12.	Wall charts, Transparencies and DVDs related to the trade		As required
13.	Printer with scanner		01 no.
14.	Steel cupboard		As required
15.	First aid box.		01 no.