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

COMPETENCY BASED CURRICULUM

MASON (BUILDING CONSTRUCTOR)

(Duration: One Year)

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL- 2.5

SECTOR – CONSTRUCTION

Directorate General of Training

MASON
(BUILDING CONSTRUCTOR)

(Engineering Trade)

(Revised in March 2023)

Version: 2.0

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL- 2.5

Developed By

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1. COURSE INFORMATION

During the one-year duration a candidate of Mason (Building Constructor) trade is trained on subjects Professional Skill, Professional Knowledge and Employability Skills related to job role. In addition to this a candidate is entrusted to make/do project work and Extra Curricular Activities to build up confidence. The practical skills are imparted in simple to complex manner & simultaneously theory subject is taught in the same fashion to apply cognitive knowledge while executing task. The practical part starts with basic constructional work viz. cutting of bricks / stones, Masonry (brick/stone), Cutting of rods, R.C.C work, etc. and finally to constructing building, finishing work, centering shuttering for R.C.C beams, column, lintels etc. at the end of the course. The broad components covered under Professional Skill subject are as below:

The practical part starts with basic constructional parts (Masonry) and the candidate imparted training on allied trades viz., carpenter (which leads to multi-skilling). In the basic carpentry the skills imparted are marking, sawing, Planning, chiseling, measurement, drilling, grinding of tools and observation of all safety aspects is mandatory. The safety aspects cover components like OSH&E, PPE, Fire extinguisher, First Aid etc. Masonry deals with making masonry brick wall as per drawing leaving space for door & window opening, Preparation of R.C.C casting, Construction of cavity wall, Laying out of building plan, diagonal check-up, fixing up of excavation lines, Wall & ceiling plastering, Making of different types of floor determining and Formation of Slope.

Further, laying of drain pipe, jointing, fittings & fixing of W.C. pan, urinals, gully trap. Construction of manhole etc., Construction of septic tank, Fixing& fittings of wash basin, flushing cistern, sink, vent pipe, etc., Construction of stone wall, Laying of marble on floor & stair, Construction of circular brick & hollow block walls, Preparing & mixing of concrete, formwork, casting of roof slab, beams, lintels, stair, column etc., cutting & setting of glazed tiles to walls, Laying of mosaic, terrazzo & tile flooring, Construction of R.C.C. & Brick stairs are being taught in the practical.

Professional Knowledge subject is simultaneously taught in the same fashion to apply cognitive knowledge while executing task. In addition components like Physical properties of materials, different types of constructional materials such as bricks, properties of good bricks, various types of cement with their properties, types of bonding in masonry work, foundation related knowledge, about R.C. Care also covered under theory part.

Projects need to be completed by the candidates in a group. In addition to above components the core skills components viz., Workshop calculation & Science, Engineering Drawing, Employability Skills are also covered. These core skills are essential skills which are necessary to perform the job in any given situation.

2. TRAINING SYSTEM

2.1 GENERAL

The Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers a range of vocational training courses catering to the need of different sectors of economy/ Labour market. The vocational training programmes are delivered under the aegis of Directorate General of Training (DGT). Craftsman Training Scheme (CTS) with variants and Apprenticeship Training Scheme (ATS) are two pioneer schemes of DGT for strengthening vocational training.

Mason (Building Constructor) trade under CTS is one of the popular courses delivered nationwide through network of ITIs. The course is of one-year duration. It mainly consists of Domain area and Core area. The Domain area (Trade Theory & Practical) imparts professional skills and knowledge, while Core area (Employability Skills) imparts requisite core skills, knowledge and life skills. After passing out the training program, the trainee is awarded National Trade Certificate (NTC) by DGT which is recognized worldwide.

Candidates broadly need to demonstrate that they are able to:

- Read & interpret technical parameters/document, plan and organize work processes, identify necessary materials and tools;
- Perform task with due consideration to safety rules, accident prevention regulations and environmental protection stipulations;
- Apply professional skill, knowledge, core skills & employability skills while performing jobs.
- Document the technical parameters related to the task undertaken.

2.2 PROGRESSION PATHWAYS

- Can join industry as Technician and will progress further as Senior Technician, Supervisor and can rise up to the level of Manager.
- Can become Entrepreneur in the related field.
- Can join Apprenticeship programme in different types of industries leading to National Apprenticeship certificate (NAC).
- Can join Crafts Instructor Training Scheme (CITS) in the trade for becoming instructor in ITIs.
- Can join advanced Diploma (Vocational) courses under DGT as applicable.

2.3 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of one year:-

S No.	Course Element	Notional Training Hours
1	Professional Skill (Trade Practical)	840

2	Professional Knowledge (Trade Theory)	240
3	Employability Skills	120
	Total	**1200**

Every year 150 hours of mandatory OJT (On the Job Training) at nearby industry, wherever not available then group project is mandatory.

On the Job Training (OJT)/ Group Project	150
Optional Courses (10th/ 12th class certificate along with ITI certification or add on short term courses)	240

Trainees of one-year or two-year trade can also opt for optional courses of up to 240 hours in each year for 10th/ 12th class certificate along with ITI certification, or, add on short term courses

2.4 ASSESSMENT & CERTIFICATION

The trainee will be tested for his skill, knowledge and attitude during the period of course through formative assessment and at the end of the training programme through summative assessment as notified by the DGT from time to time.

a) The **Continuous Assessment** (Internal) during the period of training will be done by **Formative Assessment Method** by testing for assessment criteria listed against learning outcomes. The training institute has to maintain an individual trainee portfolio as detailed in assessment guideline. The marks of internal assessment will be as per the formative assessment template provided on www.bharatskills.gov.in

b) The final assessment will be in the form of summative assessment. The All India Trade Test for awarding NTC will be conducted by Controller of examinations, DGT as per the guidelines. The pattern and marking structure is being notified by DGT from time to time. **The learning outcome and assessment criteria will be the basis for setting question papers for final assessment. The examiner during final examination will also check** the individual trainee's profile as detailed in assessment guideline before giving marks for practical examination.

2.4.1 PASS REGULATION

For the purposes of determining the overall result, weightage of 100% is applied for six months and one year duration courses and 50% weightage is applied to each examination for two years courses. The minimum pass percent for Trade Practical and Formative assessment is 60% & for all other subjects is 33%.

2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while

undertaking the assessment. Due consideration should be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/waste as per procedure, behavioral attitude, sensitivity to the environment and regularity in training. The sensitivity towards OSHE and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based comprising some of the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work
- Computer based multiple choice question examination
- Practical Examination

Evidences and records of internal (Formative) assessments are to be preserved until forthcoming examination for audit and verification by examining body. The following marking pattern to be adopted for formative assessment:

Performance Level	Evidence
(a) Marks in the range of 60%-75% to be allotted during assessment	
For performance in this grade, the candidate should produce work which demonstrates attainment of an acceptable standard of craftsmanship with occasional guidance, and due regard for safety procedures and practices	• Demonstration of good skill in the use of hand tools, machine tools and workshop equipment. • 60-70% accuracy achieved while undertaking different work with those demanded by the component/job. • A fairly good level of neatness and consistency in the finish. • Occasional support in completing the project/job.
(b) Marks in the range of 75%-90% to be allotted during assessment	
For this grade, a candidate should produce work which demonstrates attainment of a reasonable standard of craftsmanship, with little guidance, and regard for safety procedures and practices	• Good skill levels in the use of hand tools, machine tools and workshop equipment. • 70-80% accuracy achieved while undertaking different work with those demanded by the component/job. • A good level of neatness and consistency in the finish.

	● Little support in completing the project/job.
(c) Marks in the range of more than 90% to be allotted during assessment	
For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship.	● High skill levels in the use of hand tools, machine tools and workshop equipment. ● Above 80% accuracy achieved while undertaking different work with those demanded by the component/job. ● A high level of neatness and consistency in the finish. ● Minimal or no support in completing the project.

3. JOB ROLE

Bricklayer, Construction; Brick Mason lays brick with mortar, and other construction material to construct and repair building walls, arches, chimneys, floors, pillars and other structures. Receives instructions regarding nature and type of work to be done. Directs Labourers to prepare mortar in required proportions and water bricks. Spreads mortar by trowel over foundation or laid bricks and lays bricks by hand in horizontal rows or designs and shapes per approved specification. Taps bricks with trowel to embed them firmly in mortar and ensures correct vertical and horizontal alignment of brick setting by sight or with string and plumb bob. Closes gaps in between bricks by filling with half bricks and mortar and by tapping with trowel. Fixes wooden frames, lay lime concrete over roofing and sets girders in position. May dismantle masonry for reconstruction or facility of work. May do plastering, decoration pointing and repair work. May erect scaffolding.

Helper Mason; needs to support Assistant Mason and Mason which are at level-2 and level-3 in semi-skilled and skilled category for carrying out the related works such as shifting of materials, handling tools, tackles and housekeeping. The responsibilities include site development and clearance, provide support for laying of bricks and blocks, mortar and cement concrete mixing, rendering coat plastering, help in setting and layout, knowing importance of scaffolding and have the basic knowledge in the environment, health, safety pertaining to the trade.

Plumbing Mason; is responsible for making masonry manholes, laying pipes in masonry works and other earth work related to plumbing.

Paviour; lays bricks and stone on leveled ground to make floors, pavements, streets etc. Receives instructions regarding type of pavement, floor or street to be laid and other specifications and collects materials required. Directs Labourers to level surface for laying bricks and stones for required construction. Lays stone slabs or bricks in line on leveled ground, by sizing them if necessary, with brick hammer and trowel and tapes them to get set firmly in position. Checks alignment while laying using straight edge and spirit level and fills gaps in between with chips, bricks bits, cement etc.; May do pre-stressed and R.C. (reinforced concrete) work.

Assistant Mason; needs to work as semiskilled category tradesman and perform tasks under instruction and close supervision of Mason Level-3 as Assistant Mason. He is expected to carry out the setting and layout, laying of bricks and blocks, rendering coat plastering, finishing of concrete, fixing doors and windows in a room/cubical while effectively engaging and supervising the Helper Mason under him for all trade relevant tasks. He should ensure trade specific compliance to environment, health and safety aspects

Assistant Shuttering Carpenter; works as semi-skilled category tradesman and performs tasks under instructions and close supervision of Shuttering Carpenter Level-3 as an Assistant Shuttering Carpenter. He is expected to make, assemble, erect and dismantle Conventional/ system formwork for all type of in situ and pre-cast RCC work, reading drawings, setting and layout. He should ensure trade specific compliance of environment, health, safety aspects and should engage and supervise the Helper Shuttering Carpenter under him for all relevant tasks.

Concrete Placers, Concrete Finishers and Related Workers; erect reinforced concrete frameworks and structures, make forms for moulding concrete, reinforce concrete surfaces, cement openings in walls or casings for wells, finish and repair cement surfaces.

Plasterer; plasters walls, ceilings and other surface of structures with cement, lime, mud or other mortar using hand trowel, level etc. Mixes sand, cement, lime brick powder etc. in required proportion adding water to it to prepare plastering mortar. Wets structure to be plastered with water to ensure proper adherence; spreads plaster with trowel to give preliminary coating. Levels and smoothens primary coat of plaster with straight edge, shapes borders to guide second coating and scratches surface of primary coat to provide bond for subsequent coating. Plasters area to be covered with primary coat and allows it to set for some time ensuring that it does not get dry before final coating. Applies thin layer of finish plastering coat over surface, makes out corners and angles to suit it and smoothens plastered area with straight edge and trowel. Directs and supervises sprinkling of water for curing during plastering and watches drying and final outcome of surface. May undertake ornamental plastering.

Stone Mason; Stone Setter/Stone Fixer builds stone walls, pillars and other structures by sizing and setting dressed or undressed stones. Receives instructions regarding nature and type of work to be done. Cuts stones to required size prior to setting by chipping with chisel and other cutting tools and gets them dressed or dresses them if necessary. Gets mortar prepared by labourers and spreads it with trowel bit by bit over area where stones are to be fixed. Fixes stones manually one by one in position and sets them by tapping with hammer. Checks vertical and horizontal alignments of set stones with plumb bob, ensures correct setting by alterations if necessary and fills in gaps in between stone slabs with stone chips and mortar. Removes excess mortar with trowel to smoothen joints and stones to raise structure as required. May dismantle masonry and reset girders if necessary. May do plastering, repairing and ornamental work. May lay stones on leveled ground to construct floors pavements, streets, etc. May erect scaffolding for construction work.

Tile Setter; Tile Layer fits and sets tiles to walls, floors and ceilings of buildings according to specified design using cement or other mortar and hand tools. Receives instructions regarding

specifications, layout and material to be used. Soaks tiles in water to prepare them for setting. Applies mortar or cement coat over wall with trowel and lays tiles aligned in rows according to pattern. Checks alignment of tiles laid with straight edge, levelling hoard, spirit level etc., makes adjustments if necessary and taps them with trowel handle to get them set firmly. Sprinkles dry cement over freshly laid concrete for laying floor tiles and ensures proper bond between cement and tiles while laying. Cuts and shapes tiles for corner pieces, fills gaps with cement as necessary and ensures proper joining setting and alignment. May erect scaffolding for setting ceiling tiles.

Reference NCO-2015:

(i) 7112.0200 - Bricklayer, Construction
(ii) 9313.0301 - Helper Mason
(iii) 7112.0201 - Plumbing Mason
(iv) 7112.0400 - Paviour
(v) 7112.0601 - Assistant Mason
(vi) 7115.0201 - Assistant Shuttering Carpenter
(vii) 7114.9900 - Concrete Placers, Concrete Finishers and Related workers
(viii) 7123.0100 - Plasterer
(ix) 7112.0100 - Stone Mason
(x) 7122.0100- Tile Setter

Reference NOS: -

(i) CSC/N9424
(ii) CON/N0144
(iii) CON/N0143
(iv) CON/N0111
(v) CON/N9432
(vi) IES/N9443
(vii) IES/N9445
(viii) IES/N9446
(ix) IES/N9447
(x) IES/N9444
(xi) IES/N9449
(xii) IES/N9451
(xiii) CSC/N9401
(xiv) CSC/N9402

4. GENERAL INFORMATION

Name of the Trade	**MASON (BUILDING CONSTRUCTOR)**
NCO - 2015	7112.0200, 9313.0301, 7112.0201, 7112.0400, 7112.0601, 7115.0201, 7114.9900, 7123.0100, 7112.0100, 7122.0100
NOS Covered	CSC/N9424, CON/N0144, CON/N0143, CON/N0111, CON/N9432, IES/N9443, IES/N09445, IES/N9446, IES/N9447, IES/N9444, IES/N9449, IES/N9451, CSC/N9401, CSC/N9402
NSQF Level	Level-2.5
Duration of Craftsmen Training	One year (1200 hours + 150 hours OJT/Group Project)
Entry Qualification	Passed 8th class examination
Minimum Age	14 years as on first day of academic session.
Eligibility for PwD	LD, CP, LC, DW, AA, LV, DEAF, AUTISM, SLD, MD
Unit Strength (No. of Student)	24 (There is no separate provision of supernumerary seats)
Space Norms	80 Sq. m
Power Norms	4 KW
Instructors Qualification for:	
(i) Mason (Building Constructor) Trade	B.Voc/Degree in civil engineering from AICTE/UGC recognized Engineering College/ university with one-year experience in the relevant field. **OR** 03 years Diploma in civil engineering from AICTE/ recognized board of technical education or relevant Advanced Diploma (Vocational) from DGT with two years' experience in the relevant field. **OR** NTC/NAC passed in the trade of Mason (Building Constructor) with three years' experience in the relevant field. **Essential Qualification:** Relevant Regular / RPL variants of National Craft Instructor Certificate (NCIC) under DGT. ***NOTE: - Out of two Instructors required for the unit of 2(1+1), one must have Degree/Diploma and other must have NTC/NAC qualifications. However, both of them must possess NCIC in any of its variants.***
(ii) Workshop Calculation & Science	B.Voc/Degree in Engineering from AICTE/UGC recognized Engineering College/ university with one-year 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 two years' experience in the relevant field. OR NTC/ NAC in any one of the engineering trades with three years' experience. ***Essential Qualification:*** National Craft Instructor Certificate (NCIC) in relevant trade OR NCIC in RoDA or any of its variants under DGT
(iii) Engineering Drawing	B.Voc/Degree in Engineering from AICTE/UGC recognized Engineering College/ university with one-year 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 two years' experience in the relevant field. **OR** NTC/ NAC in any one of the engineering/ Draughtsman group of trades with three years' experience. **Essential Qualification:** Regular / RPL variants of National Craft Instructor Certificate (NCIC) in relevant trade OR Regular/RPL variants NCIC in RoDA or any of its variants under DGT
(iv) Employability Skill	MBA/ BBA / Any Graduate/ Diploma in any discipline with Two years' experience with short term ToT Course in Employability Skills. (Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above) OR Existing Social Studies Instructors in ITIs with short term ToT Course in Employability Skills.
(v) Minimum Age for Instructor	21 Years
List of Tools and Equipment	As per Annexure – I

5. LEARNING OUTCOME

Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.

5.1 LEARNING OUTCOME

1. Perform wood work with carpenter's tools following safety precautions. (NOS: CSC/N9424)
2. Plan and organize the work to make masonry brick wall as per drawing and specification applying different types of tools, materials and check for dimensional accuracy. (NOS: CON/N0144)
3. Construct wall leaving space for door & window opening. (NOS: CON/N0144)
4. Perform R.C.C casting, rod cutting in different sizes, bending, binding & placing. Mixing & compaction of Concrete with different proportions. (NOS: CON/N9432)
5. Perform Construction of cavity wall. (NOS: IES/N9443)
6. Perform Laying out of building plan, diagonal check-up, fixing up of excavation lines. (NOS: CON/N0143)
7. Perform Wall & ceiling plastering with application of mortar, smoothening the surface by using of screeds & floats. (NOS: CON/N0111)
8. Make different types of floor with determination and formation of Slope. (NOS: IES/N9444)
9. Lay drain pipe, jointing, fittings & fixing of W.C. pan, urinals, gully trap. Construction of manhole etc. (NOS: IES/N9445)
10. Construct septic tank. (NOS: IES/N9446)
11. Perform fixing & fittings of wash basin, flushing cistern, sink, vent pipe, etc. (NOS: IES/N9447)
12. Lay marble on floor & stair with marking, cutting & complete setting. (NOS: IES/N9444)
13. Construct circular brick wall & hollow block walls. (NOS: IES/N9449)
14. Prepare & mix concrete, formwork, cutting & bending of bar, casting of roof slab, beams, lintels, stair, column etc. (NOS: CON/N9432)
15. Cut& set glazed tiles to walls. (NOS: IES/N9451)
16. Lay mosaic, terrazzo & tile flooring. (NOS: IES/N9451)
17. Perform Construction of R.C.C. & Brick stairs. (NOS: IES/N9449)
18. Read and apply engineering drawing for different application in the field of work. (NOS: CSC/N9401)
19. Demonstrate basic mathematical concept and principles to perform practical operations. (NOS: CSC/N9402)

6. ASSESSMENT CRITERIA

LEARNING OUTCOMES	ASSESSMENT CRITERIA
1. Perform wood work with carpenter's tools following safety precautions. (NOS: CSC/N9424)	Identify the woods and character.
	Identify the Carpenter's hand Tools.
	Prepare the job as per drawing.
	Observe safety procedure during wood cutting, sawing, chiselling, planning as per standard norms and procedures.
	Check and verify the job as per drawing
2. Plan and organize the work to make masonry brick wall as per drawing and specification applying different types of tools, materials and check for dimensional accuracy. (NOS: CON/N0144)	Identify mason's tools, instruments and equipment and Plan for marking and make this available for use in a timely manner.
	Select raw material and visual inspect for defects.
	Mark as per specification applying desired mathematical calculation and observing standard procedure.
	Perform basic handling of brick, rotating of bricks in one hand and as per specification to make the job.
	Make a simple construction of different type of Brick joints with mortar.
	Observe safety procedure during above operation as per standard norms and procedures.
	Check for dimensional accuracy as per standard procedure.
	Avoid waste, ascertain unused materials and components for disposal, store these in an environmentally appropriate manner and prepare for disposal.
3. Construct wall leaving space for door & window opening. (NOS: CON/N0144)	Study drawing, Identify the door and window opening.
	Mark space for door & window.
	Make desired space for door & window during masonry work.
	Check the opening space as per Drawing.
4. Perform R.C.C casting, rod cutting in different sizes, bending, binding & placing. Mixing & compaction of Concrete with different proportions. (NOS: CON/N9432)	Read and interpret the drawing.
	Identify required Mason's hand tools.
	Cut rods as per size with cutting tools.
	Bend bar (rod) as per drawing with bar bending die.
	Check the measurement of bar as per drawing.
	Bind rods with proper hand tools as per drawing.
	Identify the equipment for mixing concrete.
	Mix up simple concrete as per specified ratio.
	Laying of concrete and compact as per procedure.

	Observe safety procedure during concreting.
	Check and verify the job as per drawing.
5. Perform Construction of cavity wall. (NOS: IES/N9443)	Identify different types of Mason's hand tools.
	Identify the Construction materials.
	Plan for cavity wall construction.
	Make a cavity wall in brick Masonry work.
	Check & verify the job as per drawing.
6. Perform Laying out of building plan, diagonal check-up, fixing up of excavation lines. (NOS: CON/N0143)	Identify different types of Mason's hand tools &equipment's for laying out.
	Set right angle on the ground following proper method.
	Laying out the building plan.
	Check the diagonal.
	Mark excavation lines as per Drawing.
	Check & verify the work as per drawing.
7. Perform wall& ceiling plastering with application of mortar, smoothening the surface by using of screeds & floats. (NOS: CON/N0111)	Identify different types of plastering tools.
	Make scaffolding as per requirement.
	Prepare mortar in specified proportions.
	Apply mortar on wall surface& ceiling.
	Make plaster work.
	Observe safety procedure during plaster.
8. Make different types of floor with determination and formation of Slope. (NOS: IES/N9444)	Identify different types of floors.
	Identify different types of tools required for flooring.
	Determine slope and make floor accordingly.
	Check and verify the job as per requirements.
9. Lay drain pipe, jointing, and fittings & fixing of W.C. pan, urinals, gully trap. Construction of manhole etc. (NOS: IES/N9445)	Plan for the desired work and identify tools, instrument and equipment for marking and make this available for use on a timely manner.
	Select and Prepare raw materials, fittings, etc. and visually inspect for defects.
	Mark the position to fix the fittings.
	Set up a W.C pan & urinals.
	Construct a gully trap, manhole.
	Observe safety points on above work as per standard norms and guidelines.
10. Construct septic tank. (NOS: IES/N9446)	Read and interpret the drawing.
	Mark the position of septic tank for excavation.

	Construct Septic tank conforming PWD norms.
	Check bonding & waterproofing of tank walls.
	Perform lining field drains with bricks.
	Check and verify the work as per standard norms and guidelines.
11. Perform fixing& fittings of wash basin, flushing cistern, sink, vent pipe, etc. (NOS: IES/N9447)	Plan for the work and select the tools, instrument and equipment for the Fixing& fittings of wash basin, flushing cistern, sink, vent pipe, etc.
	Mark the position and fix fittings e.g. wash basin, flushing cistern, sink, vent pipe, etc. observing standard procedure and method.
	Check and verify the work as per standard norms and guidelines.
12. Lay marble on floor & stair with marking, cutting & complete setting. (NOS: IES/N9444)	Plan and identify tools and equipment for marking, cutting and make this available for use in a timely manner.
	Select raw materials and inspect visually for defect.
	Measure, mark and cut marble as required.
	Lay marble on floor and stair.
	Observe safety procedure during above work asper standard norms.
	Check for finishing and dimensional accuracy as per standard procedure.
13. Construct circular brick wall & hollow block walls. (NOS: IES/N9449)	Plan for the work and arrange materials, tools and equipment for circular / hollow brick work.
	Prepare bricks as required in circular / hollow brick wall.
	Construct circular / hollow block wall.
	Check for finishing and dimensional accuracy as per standard procedure.
14. Prepare& mix of concrete, formwork, cutting & bending of bar, casting of roof slab, beams, lintels, stair, column etc. (NOS: CON/N9432)	Read and interpret the drawing.
	Make shuttering and formwork with proper support.
	Perform cutting & bending of bar & bind them as per measurement and drawing.
	Perform leveling and check measurement criteria.
	Mix concrete and cast roof slab, beams, lintels, stair, column etc. as per measurement and drawing.
	Observe safety procedure during above work as per standard norms.
15. Cut& set of glazed tiles to	Plan for the work and arrange for raw material and

walls. (NOS: IES/N9451)	different types of plastering, pointing & tile setting tools.
	Prepare wall surface and mortar in specified proportions.
	Perform pointing to wall and apply mortar on wall surface.
	Marking & Cutting of glazed tiles as per requirement.
	Set glazed tiles to wall and fill joints.
	Check for finishing and dimensional accuracy.
16. Lay mosaic, terrazzo & tile flooring. (NOS: IES/N9451)	Plan for the work and arrange for raw material and different types of tile setting tools.
	Prepare floor surface and mortar in specified proportions.
	Perform leveling to floor applying mortar on floor surface.
	Marking & Cutting of floor tiles.
	Setting of tiles on floor.
	Check for finishing and dimensional accuracy
17. Perform Construction of R.C.C. & Brick stairs. (NOS: IES/N9449)	Read and interpret the drawing.
	Make shuttering and formwork with proper support.
	Perform cutting & bending of bar & bind them as per measurement and drawing.
	Perform leveling and check measurement criteria.
	Mix concrete and cast R.C.C stair or perform construction of brick stair as per measurement and drawing.
	Observe safety procedure during above work as per standard norms.
18. Read and apply engineering drawing for different application in the field of work. (NOS: CSC/N9401)	Read & interpret the information on drawings and apply in executing practical work.
	Read &analyze the specification to ascertain the material requirement, tools and assembly/maintenance parameters.
	Encounter drawings with missing/unspecified key information and make own calculations to fill in missing dimension/parameters to carry out the work.
19. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. (NOS: CSC/N9402)	Solve different mathematical problems
	Explain concept of basic science related to the field of study

SYLLABUS FOR MASON (BUILDING CONSTRUCTOR) TRADE			
Duration – One Year			
Duration	**Reference Learning Outcome**	**Professional Skills (Trade Practical)**	**Professional Knowledge (Trade Theory)**
Professional Skill 76 Hrs; Professional Knowledge 14 Hrs	Perform wood work with carpenter's tools following safety precautions.	1. Familiarization with Institute, administrative setup of Institute. 2. Rules & resolutions of attendance with leave facility. 3. Importance of Trade training, instruments & equipment's used. 4. Importance of trade training, List of tools & Machinery used in the trade. 5. Safety attitude development of the trainee by educating them to use Personal Protective Equipment (PPE). 6. First Aid Method and basic training. 7. Safe disposal of waste materials like Pieces of wood, rod, stone, mud, etc. 8. Hazard identification and avoidance. 9. Safety signs for Danger, Warning, caution & personal safety message. 10. Preventive measures for electrical accidents & steps to be taken in such accidents.	● Importance of safety and general precautions required for the trade. ● Importance of the trade. ● Types of work to be done by trainees in the institute. ● Scope of a mason work. ● Types of services has to plan. ● Role of a mason, nature of job done by masons

		11. Use of Fire extinguishers. 12. Practice and understand precautions to be followed while working in mason jobs. 13. Safe use of tools and equipments used in the trade.	CHAPTER -3 VIDEO DEMO
		Carpenter works :- 14. Demonstrate uses of Carpenter's hand tools. 15. Centering work. Uses of nails, screws, nuts & bolts, hinges etc. 16. Perform centering & form work.	● Common types of wood- their description and use. ● Carpenter's hand tools, their names and uses. ● Carpentry joints and their uses. Use of nails, screws, dowels, etc.
Professional Skill 150 Hrs; Professional Knowledge 23 Hrs	Plan and organize the work to make masonry brick wall as per drawing and specification applying different types of tools, materials and check for dimensional accuracy.	17. Handling of brick, turning of brick for stretcher & header faces. 18. Cutting of brick with brick hammer as desire shape & size. 19. Shaping mortar, spreading on the bed joining bricks. 20. Preparation of various types of mortars according to the ratio of ingredients. 21. Building $4\frac{1}{2}$" straight wall about 6courses high with one end stepped and the other racked back. 22. Building $4\frac{1}{2}$" quoin wall with oneend stepped and the other racked back. Use of plumb rule. 23. Construct of 1 &1 ½ brick wall junctions in English & Flemish bonds. Racking out the joints &finishing	● Technical terms used in brick masonry. Necessity of bonding bricks. Types of bond Types of mortars, different grades of sand for brick work & plastering. Grades of cement. ● Brickwork-racking back & toothing. Differences between English & Flemish bonds. Details of English & Flemish bond for 1 and $1\frac{1}{2}$ brick walls. Precautions at quoins. ● Cross wall-method of construction. Grouting of mortar, jointing and finishing of brickwork. Types of pointing & tools used. Details of bonding & special precautions at 'T', 'L' and cross junctions. Types of copings-weathering & throating.

		it flush. 24. Construction of 1 brick thick walls in English & Flemish garden bonds. 25. Construct of detached brick pillars with footings square & rectangular types.	● Pillars: Necessity, types, relation between cross section & height. Details of reinforcement for square &rectangular pillars. ● Types of cement, sand & lime. English &Flemish garden wall bonds. PWD specification on brickwork. ● Foundation: Definition, purpose, types, important terms, causes of failure of foundations.
Professional Skill 25 Hrs; Professional Knowledge 06 Hrs	Construct wall leaving space for door & window opening.	26. Form a door opening in a wall of English bond. Bonding of jambs & reveals. 27. Form a window opening in a wall in English bond. 28. Construction of sill with over sailing courses. Use of gauge rod Fixing door & window frames.	● Purpose of arch centering & form work. Different types of bricks & their sizes. Characteristics of good bricks Sizes of mortar joints for different works. Stretcher & heade
Professional Skill 50 Hrs; Professional Knowledge 7 Hrs	Perform R.C.C casting, rod cutting in different sizes, bending, binding & placing. Mixing & compaction of Concrete with different proportions.	29. Demonstrate R.C.C, re-enforcement of different dia. With unit weight. Cutting, bending & binding of bar. 30. Perform Pre-casting a lintel-compacting, curing & setting the same in position. Check for equal bearing. 31. Spanning of opening by casting alintel in site. 32. Making of shuttering &supports with uprights and wedges. 33. Cutting, bending & placing of reinforcement. 34. Mixing, placing & compacting concrete.	● RCC lintels: Materials required, ● method of construction, precast lintels, ● method of construction of formwork, details of reinforcement. ● Arches: Purpose, technical terms & types. Setting out an arch.

		35. Spanning of opening with a semi-circular arch, making centering, cutting of templates for voussoirs & preparing voussoirs, setting uprights of arch. Construction of arch &removing centering.	
Professional Skill 25 Hrs; Professional Knowledge 04 Hrs	Perform Construction of cavity wall.	36. Construct cavity walls, setting out both leaves, provision of wall ties and use of cavity rods.	● Cavity wall: Technical terms, advantages, constructional details, precautions to be taken at the bottom of cavity.
Professional Skill 50 Hrs; Professional Knowledge 10 Hrs	Perform Laying out of building plan, diagonal check-up, fixing up of excavation lines.	37. Setting out a building: Obtaining first, second, third & fourth lines, marking diagonals, setting out cross walls & offsets. 38. Marking excavation lines & fixing of plinth & floor levels.	● Steps in setting out & marking centre line, excavation line & other lines-use of dead man-checking accuracy & precautions. Windows & ventilators: Including steel windows & ventilators, fixtures & fastenings used.
Professional Skill 70 Hrs; Professional Knowledge 12 Hrs	Perform wall & ceiling plastering with application of mortar, smoothening the surface by using of screeds & floats.	39. Plastering of walls-setting of spots-applying mortar-use of screeds &floats. 40. Fixing of screeds to soffits of door & window openings-reversing the screeds & squaring. 41. Plastering of ceiling: Application of mortar, strengthening and finishing (Improvise a roof with stone or concrete slab for the purpose of demonstration).	● Plastering: Tools used, necessity of screeds& their fixing, ● Steps in plastering. ● Concrete: Ingredients, selection of materials, various ratios of mix, their uses, measuring of materials for mixing. VIDEO CHAPTER -5
Professional Skill 50 Hrs;	Make different types of floor with determination and	42. Flooring practice: Determination and formation of slope,	● Floors: Types, constructional details such as consolidation of

Professional Knowledge 07Hrs	formation of Slope.	application of slurry for finishing, setting out of skirting, formation of spots for skirting. 43. Use of screeds, formation of curve at the junction of skirting & floor.	bed, sand filling, concrete base & finishing. Granolithic flooring. Local Municipal byelaws.
Professional Skill 100 Hrs; Professional Knowledge 20 Hrs	Lay drain pipe, jointing, fittings& fixing of W.C. pan, urinals, gully trap. Construction of manhole etc.	44. Drainage: Set out a drainage line including position of manhole& gully trap. 45. Practice in setting up and reading of dumpy level. 46. Lay out drainage to required gradients with the help of dumpy level and/or boning rod and laying its surface with bricks. 47. Laying of concrete foundation for drainage pipes and jointing. Checking of alignment. Cutting the pipe to the required length. 48. Covering of drain pipe with concrete as per PWD specification. 49. Laying out foundation concrete and construction of manhole. 50. Method of providing footrests, Forming of drain and benching.	• Purpose of drainage, different systems, their advantages & disadvantages, method of collection, carriage & final disposal of wastage, various types of constructions required. Roofs: Classification, parts, trussed roof, covering materials. • House drainage system-normal layout of drainage. • Traps-gully, nahani, etc.-their description. • Purpose & method of fixing sanitary fittings such as WC, urinal, washbasin, kitchen sink, etc. • Construction of surface drains and laying its surface with bricks. • Drainage pipes: Types, materials, sizes, gradient for different diameters, method of laying & jointing, importance of water tightness, concrete base and covering.
Professional Skill 50 Hrs; Professional Knowledge 06 Hrs	Construct septic tank. Perform fixing & fittings of wash basin, flushing	51. Construct Septic tank conforming PWD norms, Bonding &waterproofing of tank walls, lining field drains with bricks. Shoring for deep trenches following	• Septic tank: Purpose, parts and method of construction. Chapter -6 video demo

	cistern, sink, vent pipe, etc.	proper Safety precautions. 52. Fix brackets for washbasin and flushing cistern. 53. Fix WC pan, kitchen &bathroom traps, sinks, etc. Fixing of vent pipe to walls.	
Professional Skill 30 Hrs; Professional Knowledge 07Hrs	Lay marble on floor& stair with marking, cutting &complete setting.	54. Marble work: Method of cutting and setting on stair, floor, wall &pillar.	• Marble floor: types, constructional details.
Professional Skill 25 Hrs; Professional Knowledge 12 Hrs	Construct circular brick wall & hollow block walls.	55. Construct a $4\frac{1}{2}$" dia. X 9" thick circular brick wall 4 layers. 56. Construct circular gate pillars with Brick / stone/ tile/ concrete.	• Circular walls: Details of construction. Purpose-made bricks. • Setting out and construction of circular gate pillars with brick/stone/tile/concrete. • Hollow block masonry: Laying of hollow blocks for walls & columns. • Use of structural clay tile for partition. • Precast concrete partition, metal lathe partition and concrete block partition.
Professional Skill 64 Hrs; Professional Knowledge 15 Hrs	Prepare & mix of concrete, formwork, cutting & bending of bar, casting of roof slab, beams, lintels, stair, column etc.	57. Construct of roof with RCC slab and beam.	• Introduction to RCC: Uses, materials, properties and formwork, bending of bars & construction. • Reference to ISI code. Reinforced brickwork. • Brief description of slabs, beams, lintels, stairs, columns, etc. • RCC work: Mixing of concrete. • Laying, compacting &Curing of concrete. • Thumb rule for percentage of reinforcement for

			lintels, slabs, beams & columns. ● Necessity hook & cranking. Shear reinforcement.
Professional Skill 25 Hrs; Professional Knowledge 07 Hrs	Cut & set glazed tiles to walls.	**Finishing works :** 58. External/internal wall finishing practice by plastering or Pointing. 59. Fixing cement concrete jelly. 60. Laying of glazed tiles. 61. Fixing the thread, filling between ends, plumbing, setting out a jamb, bonding. 62. Marking & cutting tiles.	● Method of finishing-factors to be kept in mind, PWD specification on the above. ● Use of glazed tiles for wall facing, steps in fixing, precautions. ● Construction & expansion joints-method of filling-repair of cracks.
Professional Skill 50 Hrs; Professional Knowledge 14 Hrs	Lay mosaic, terrazzo & tile flooring. Perform Construction of R.C.C. & Brick stairs.	63. Flooring: Mosaic, terrazzo, and tile flooring. 64. Laying out a stair on the ground.	● Stairs: Technical terms, relation between tread & rise, ● Types of stairs, construction details of brick, stone & RCC stairs. ● Spiral stairs with precast concrete steps. ● Formwork & shuttering-their removal-precautions-PWD specifications.
ENGINEERING DRAWING: 40 Hrs.			
Professional Knowledge ED- 40 Hrs.	Read and apply engineering drawing for different application in the field of work.	Introduction to Engineering Drawing and Drawing Instruments – ● Conventions ● Sizes and layout of drawing sheets ● Title Block, its position and content ● Drawing Instrument Free hand drawing of – ● Geometrical figures and blocks with dimension ● Transferring measurement from the given object to the sketches. ● Free hand drawing of hand tools and measuring tools. Drawing of Geometrical figures: ● Angle, Triangle, Circle, Rectangle, Square, Parallelogram. ● Reading of dimension and Dimensioning Practice. Symbolic representation – ● Different symbols used in the trades.	

		Reading of Plan drawing
WORKSHOP CALCULATION SCIENCE: 36 Hrs.		
Professional Knowledge WCS- 36 Hrs.	Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study.	**Unit, Fractions** Classification of unit system Fundamental and Derived units F.P.S, C.G.S, M.K.S and SI units Measurement units and conversion Factors, HCF, LCM and problems Fractions - Addition, subtraction, multiplication & division Decimal fractions - Addition, subtraction, multiplication & division Solving problems by using calculator **Square root, Ratio and Proportions, Percentage** Square and square root Simple problems using calculator Applications of Pythagoras theorem and related problems Ratio and proportion Ratio and proportion - Direct and indirect proportions Percentage Percentage - Changing percentage to decimal and fraction **Material Science** Types metals, types of ferrous and non-ferrous metals Physical and mechanical properties of metals Introduction of iron and cast iron **Mass, Weight, Volume and Density** Mass, volume, density, weight and specific gravity Related problems for mass, volume, density, weight and specific gravity **Heat & Temperature and Pressure** Concept of heat and temperature, effects of heat, difference between heat and temperature, boiling point & melting point of different metals and non-metals Scales of temperature, Celsius, Fahrenheit, kelvin and conversion between scales of temperature Co-efficient of linear expansion and related problems with assignments Thermal conductivity and insulators **Mensuration** Area and perimeter of square, rectangle and parallelogram Area and perimeter of Triangles Area and perimeter of circle, semi-circle, circular ring, sector of circle, hexagon and ellipse Surface area and volume of solids - cube, cuboid, cylinder, sphere and hollow cylinder Finding the lateral surface area, total surface area and

		capacity in litres of hexagonal, conical and cylindrical shaped vessels **Trigonometry** Measurement of angles Trigonometrical ratios
<u>In plant training/ Project work</u> **Broad areas:** a) Install a W.C. pan. b) Construct of a circular brick wall c) Construct a manhole. d) Set glazed tiles on wall.		

SYLLABUS FOR CORE SKILLS
1. Employability Skills (Common for all CTS trades) (120 Hrs.)

Learning outcomes, assessment criteria, syllabus and Tool List of Core Skills subjects which is common for a group of trades, provided separately in www.bharatskills.gov.in/ www.dgt.gov.in

ANNEXURE-I

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List of Tools and Equipment			
MASON (Building Constructor) (For batch of 24 Candidates)			
S No.	**Name of the Tools& Equipment**	**Specification**	**Quantity**
A. TRAINEES TOOL KIT			
1	Bolster	4" (100mm)	24+1 Nos.
2	Pitching tool (mason)		24+1 Nos.
3	Chisel (mason) Hammer headed punch		24+1 Nos.
4	-do-	$\frac{1}{2}$" (12mm)	24+1 Nos.
5	-do-	1" (25mm)	24+1 Nos.
6	-do-	Cross cut type	24+1 Nos.
7	-do-	$\frac{3}{4}$" (18mm)	24+1 Nos.
8	-do-	$1\frac{1}{2}$" (35mm)	24+1 Nos.
9	Club hammer	$1\frac{1}{2}$" / 1pbs.	24+1 Nos.
10	Hammer (mason) brick	(600-800gm)	24+1 Nos.
11	Helmet		24+1 Nos.
12	Leather gloves		24+1 Nos.
13	Goggles		24+1 Nos.
14	Plumb level	36" (1m)	24+1 Nos.
15	Pins (Line)		24+1 Nos.
16	Plumb bob		24+1 Nos.
17	Steel square		24+1 Nos.
18	Plastering trowel-double		24+1 Nos.
19	Wooden float		24+1 Nos.
20	Trowel-brick	10" (25cm) long	24+1 Nos.
21	Trowel-pointing	6" (15cm)	24+1 Nos.
22	Tasla (tin) pan		24+1 Nos.
23	Wooden straight edge	4'	24+1 Nos.
24	Bucket		24+1 Nos.
B. TOOLS, MEASURING INSTRUMENTS AND GENERAL SHOP OUTFIT			
25.	Spade		12Nos.

26.	Shovel		12Nos.
27.	Measuring steel tape	15m	3Nos.
28.	Measuring tape	30m	2Nos.
29.	Ladder	2-4m	3Nos.
30.	Sledge hammer	4kg	3Nos.
31.	Drum	45gallons	3Nos.
32.	G.I. pipe	1" (25mm) dia.	200Nos.
33.	Hose pipe		60m
34.	G.I. pipe	$\frac{1}{2}$" (12mm) dia.	200Nos.
35.	Cellotax board		3Nos.
36.	Spirit level	6" (15cm)	24 Nos.
37.	Chop saw machine	200 watt	2 sets
38.	Spirit level	12" (30cm)	6 Nos.
39.	Screw driver		6 Nos.
40.	Pocket steel tape	6' long	20Nos.
41.	Pickaxe		6 Nos.
42.	Crowbar	1.5m long	3Nos.
43.	Scrapper		24 Nos.
44.	Snip straight	10" (25cm)	6 Nos.
45.	Carpenter tool kit of 20 sets		
	(a) Handsaw		1No.
	(b) Mortise chisel		1No.
	(c) Tenion saw		1No.
	(d) Firmer chisel		1No.
	(e) Mallet		1No.
	(f) Carpenter claw hammer		1No.
	(g) Hand brace with bits		1No.
	(h) Plane		1No.
46.	Wheel barrow		5Nos.
47.	Tubular scaffolding		As required
48.	Steel measuring boxes	(0.6 cft & 1.2 cft)	4 each
49.	Adjustable steel props		30Nos.
50.	Bending rods		3Nos.
51.	Bar bending die	one end 6mm and other 8mm	6 Nos.
52.	- Do -	one end 10mm and other 12mm	6 Nos.
53.	Dumpy level with stand & staff		3Nos.

54.	Spanner set		1No.
55.	Rammer		6 Nos.
56.	Steel shuttering	400 sq. m.	2 sets
57.	Bench grinder		2Nos.
58.	Drilling machine		2Nos.
59.	Steel lockers	with 8 drawers Metal rack (1800x1500x450mm)	3 Nos.
60.	Metal rack	1800X1500X450mm	1 No.
61.	Desk		1No.
62.	Stool		1 No.
63.	Black Board with glass		1 No.
64.	Fire Extinguisher		1 No.
65.	Fire Buckets with stand		1 No.
66.	Steel Almirah (large)		1 No.
67.	Instructor table and chair		1 No.
C. TOOLS & EQUIPMENT FORDRAWING HALL			
68.	Engineering Instrument Box		24+1 Nos.
69.	Protractor	15 cm full circular	24+1 Nos.
70.	Card board/ plastic metric scale set	A to H	24+1 Nos.
71.	Celluloid set square	45° & 60°	24+1 Nos.
72.	Drawing board	1250 x 900 mm	24+1 Nos.
73.	T square	1250 mm/ Mini drafter	24+1 Nos.
74.	Erasing shield small size		24+1 Nos.
75.	Architect's & builder's template		24+1 Nos.
76.	Drawing machine	(Horizontal type	24+1 Nos.
77.	French curve- set of 12		24+1 Nos.

Note:

1. *Internet facility is desired to be provided in the class room.*
2. *Dumpy level need not be provided, if the institute has Surveyor/Draughtsman Civil trade.*
3. *Sl. Nos. 25 to 34 need not be provided, if the institute has Surveyor/ Architecture/ Draughtsman Civil/ Draughtsman Mechanical/ other similar trades.*

ANNEXURE - II

The DGT sincerely acknowledges contributions of the Industries, State Directorates, Trade Experts, Domain Experts, trainers of ITIs, NSTIs, faculties from universities and all otherswho contributed in revising the curriculum. Special acknowledgement is extended by DGT to the following expert members who had contributed immensely in this curriculum.

List of Expert members participated for finalizing the course curriculum of Mason(Building Constructor) trade held at CSTARI, Kolkata			
Sl.No.	**Name & Designation Shri/Mr./Ms.**	**Organization**	**Remarks**
1.	B.V.S.Sesha Chari, Director	CSTARI, Kolkata	Chairman
2.	Parimal Paul, Instructor	Industrial Training Institute, Gariahat, Kolkata, West Bengal	Member
3.	L.K.Mukherjee, Dy. Dir. of Trg.	CSTARI, Kolkata	Member
4.	N. Nath, Astt. Dir. of Trg.	CSTARI, Kolkata	Member
5.	R.N.Manna, Trg. Officer	CSTARI, Kolkata	Member

Sl. No	Name of the members of Sector Mentor Council with Designation and Representing organization	Remarks
1	Mr. G.M. Rao, Chairman GMR Infrastructure IBC Knowledge Park, Phase 2, "D" Block, 9th Floor, 4/1, Bannerghatta Road, Bangalore - 560 029,Karnataka	Nominated by Federation of Indian Chambers of Commerce and Industry (FICCI)
2	Mr. Jasmeet Singh Head-Customer Experience Program JCB India, 23/7 Mathura Road Ballabgarh, Faridabad, Haryana 121004	Nominated by Federation of Indian Chambers of Commerce and Industry (FICCI)
3	Mr. C.S. Gupta, Secretary Indian Plumbing Association E - 117, L.G.F. Greater Kailash - 3 Masjid Moth, NEW DELHI – 110 048	
4	Mr. AjitGulabchand, Chairman HCC Chairman Construction SSC Hindustan Construction Co. Ltd. Hincon House, 247 Park LBS Marg, Vikhroli (W), Mumbai - 400083	
5	Mr. SatishGottipati M/s Precca Solutions India Pvt. Ltd. Plot No 6, D. No. 2-9/5/6	Nominated by Federation of Indian Micro and Small & Medium Enterprises

	VenkatSai Gateway, Green Land Colony, Hyderabad-500032	(FISME)
6	Dr. AnjanDutta, Professor Dept. of Civil Engg. Indian Institute of Technology Guwahati Guwahati 781039, Assam, India	Nominated by Indian Institute of Technology, Guwahati
7	Dr. Mahendra Singh, Professor Indian Institute of Technology Roorkee Roorkee, Uttarakhand, India - 247667	Nominated by Indian Institute of Technology, Roorkee
8	Pr. S.C. Dutta, Professor Indian Institute of Technology Bhubaneswar Bhubaneswar-751 013	Nominated by Indian Institute of Technology, Bhubaneswar
9	Dr. Rajesh Deoliya, Principal Scientist, CSIR-CBRI Extension Centre Zone 6, II nd Floor India Habitat Centre, Lodhi Road, New Delhi 110003	Nominated by Central Building Research Institute (CBRI), Roorkee
10	Dr. N. Dhang, Professor, D/o Civil Engineering Indian Institute of Technology Kharagpur Kharagpur , India - 721302	Chairman
11	Dr. P. SitapatiRao, Additional Director General National Academy of Construction NAC Grounds, Cyberabad, Hyderabad-500084, Andhra Pradesh, India	Nominated by National Academy of Construction, Hyderabad
12	Dr. Koshy Varghese, Professor, D/o Civil Engg, Indian Institute of Technology Madras, IIT P.O., Chennai 600 036	Nominated by Indian Institute of Technology, Madras
13	Shri M.C. Sharma, Jt. Director (TTC)	Mentor
14	Shri.R.N. MANNA, TO	Representative of CSTARI
15	Shri. GOPALKRISHNAN, TO	Representative of NIMI
16	Smt. ARPANA SINGH, TO, NVTI NOIDA	Champion Master Trainer
17	Shri. S.RANA, TO, ATI, Kolkata	Member
18	ShriS.R. VHATKAR, TO, ATI, Kolkata	Member
19	Shri T.K. BHATTACHARYA, TO, ATI, Hyd	Member
20	Shri.P.K. MADAVI, TO, CTI, Chennai	Member
21	Smt. SURYA KUMARI, TO, RVTI Kolkata	Member
22	Shri. C.T. SHANTILAL, VI, ATI, Calicut	Member
23	ShriDEVASARIGANESH,TO, RVTI Mumbai	Member
24	Shri K.N. BABU, TO, RVTI, Bangalore	Member
25	Shri. D.K. CHATTOPADHYAY, TO, ATI Kolkata	Member
26	Shri. CHOCKALINGAM, TO, CTI, Chennai	Member
27	Smt. BRAHMESWARi, TO, RVTI(W), Bangalore	Member

28	Shri. K V Suresh, Principal, ITD, Kerala	Member
29	Shri. Musthfa V M, Sr. Instructor, ITD, Kerala	Member
30	Shri. Madhusudhanan C, Sr. Instructor, ITD, Kerala	Member
31	Shri. Suresh S, Sr. Instructor, ITD, Kerala	Member
32	Shri. R Sundar, ATO, Govt. ITI, Channai	Member
33	Smt. Amrutha, VI, RVTI(W), Bangalore	Member
34	Smt. HariChanda Devi, VI, RVTI(W), Panipat	Member
35	Ms. AswathyPrabhakaran, VI, RVTI(W), Bangalore	Member
36	Shri. Sugesh K, Jr. Instructor, ITD, Kerala	Member

ABBREVIATIONS

CTS	Craftsmen Training Scheme
ATS	Apprenticeship Training Scheme
CITS	Craft Instructor Training Scheme
DGT	Directorate General of Training
MSDE	Ministry of Skill Development and Entrepreneurship
NTC	National Trade Certificate
NAC	National Apprenticeship Certificate
NCIC	National Craft Instructor Certificate
LD	Locomotor Disability
CP	Cerebral Palsy
MD	Multiple Disabilities
LV	Low Vision
HH	Hard of Hearing
ID	Intellectual Disabilities
LC	Leprosy Cured
SLD	Specific Learning Disabilities
DW	Dwarfism
MI	Mental Illness
AA	Acid Attack
PwD	Person with disabilities


कौशलं बलम्