

MASON (BUILDING CONSTRUCTOR)

COMPETENCY BASED CURRICULUM

(Duration: 2 Yrs.)

APPRENTICESHIP TRAINING SCHEME (ATS)

NSQF LEVEL- 4



India
कौशल भारत - कुशल भारत
SECTOR – CONSTRUCTION



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

MASON (BUILDING CONSTRUCTOR)

(Revised in 2018)

APPRENTICESHIP TRAINING SCHEME (ATS)



NSQF LEVEL - 4

Skill India
कौशल भारत - कुशल भारत

Developed By

Ministry of Skill Development and Entrepreneurship
Directorate General of Training
CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE
EN-81, Sector-V, Salt Lake City,
Kolkata – 700 091

The DGT sincerely expresses appreciation for the contribution of the Industry, State Directorate, Trade Experts and all others who contributed in revising the curriculum. Special acknowledgement to the following industries/organizations who have contributed valuable inputs in revising the curricula through their expert members:

1. Central Staff Training & Research Institute, Kolkata

Special acknowledgement is expended by DGT to the following expert members who had contributed immensely in this curriculum.

Co-ordinator for the course : R.N.MANNA, Training Officer, CSTARI, Kolkata

Sl. No.	Name & Designation Sh./Mr./Ms.	Organization	Expert Group Designation
1.	Nirmalya Nath, Asstt. Director of Trg.	CSTARI, Kolkata	Expert
2.	R.N.MANNA, Training Officer	CSTARI, Kolkata	Expert

Skill India
कौशल भारत - कुशल भारत

Sl. No.	Topics	Page No.
1.	Background	1-2
2.	Training System	3-7
3.	Job Role	8
4.	NSQF Level Compliance	9
5.	General Information	10
6.	Learning Outcome	11-13
7.	Learning Outcome with Assessment Criteria	14-16
8.	Syllabus	17-22
9.	Syllabus - Core Skill	
	9.1 Core Skill – Workshop Calculation & Science and Engineering Drawing	23-29
	9.2 Core Skill – Employability Skill	
10.	Details of Competencies (On-Job Training)	30-31
11.	List of Trade Tools & Equipment Basic Training - Annexure I	32-36
12.	Format for Internal Assessment -Annexure II	37

1. BACKGROUND

1.1 Apprenticeship Training Scheme under Apprentice Act 1961

The Apprentices Act, 1961 was enacted with the objective of regulating the programme of training of apprentices in the industry by utilizing the facilities available therein for imparting on-the-job training. The Act makes it obligatory for employers in specified industries to engage apprentices in designated trades to impart Apprenticeship Training on the job in industry to school leavers and person having National Trade Certificate (ITI pass-outs) issued by National Council for Vocational Training (NCVT) to develop skilled manpower for the industry. There are four categories of apprentices namely; **trade apprentice, graduate, technician and technician (vocational) apprentices.**

Qualifications and period of apprenticeship training of **trade apprentices** vary from trade to trade. The apprenticeship training for trade apprentices consists of basic training followed by practical training. At the end of the training, the apprentices are required to appear in a trade test conducted by NCVT and those successful in the trade tests are awarded the National Apprenticeship Certificate.

The period of apprenticeship training for graduate (engineers), technician (diploma holders and technician (vocational) apprentices is one year. Certificates are awarded on completion of training by the Department of Education, Ministry of Human Resource Development.

1.2 Changes in Industrial Scenario

Recently we have seen huge changes in the Indian industry. The Indian Industry registered an impressive growth during the last decade and half. The number of industries in India have increased manifold in the last fifteen years especially in services and manufacturing sectors. It has been realized that India would become a prosperous and a modern state by raising skill levels, including by engaging a larger proportion of apprentices, will be critical to success; as will stronger collaboration between industry and the trainees to ensure the supply of skilled workforce and drive development through employment. Various initiatives to build up an adequate infrastructure for rapid industrialization and improve the industrial scenario in India have been taken.

1.3 Reformation

The Apprentices Act, 1961 has been amended and brought into effect from 22nd December, 2014 to make it more responsive to industry and youth. Key amendments are as given below:

- Prescription of number of apprentices to be engaged at establishment level instead of trade-wise.
- Establishment can also engage apprentices in optional trades which are not designated, with the discretion of entry level qualification and syllabus.
- Scope has been extended also to non-engineering occupations.
- Establishments have been permitted to outsource basic training in an institute of their choice.
- The burden of compliance on industry has been reduced significantly.



Skill India
कौशल भारत - कुशल भारत

2.1 GENERAL

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

Mason (Building Constructor) trade under ATS is one of the most popular courses delivered nationwide through different industries. The course is of two years (02 Blocks) duration. It mainly consists of Domain area and Core area. In the Domain area Trade Theory & Practical impart professional - skills and knowledge, while Core area - Workshop Calculation and science, Engineering Drawing and Employability Skills imparts requisite core skills & knowledge and life skills. After passing out the training programme, the trainee is being awarded National Apprenticeship Certificate (NAC) by NCVT having worldwide recognition.

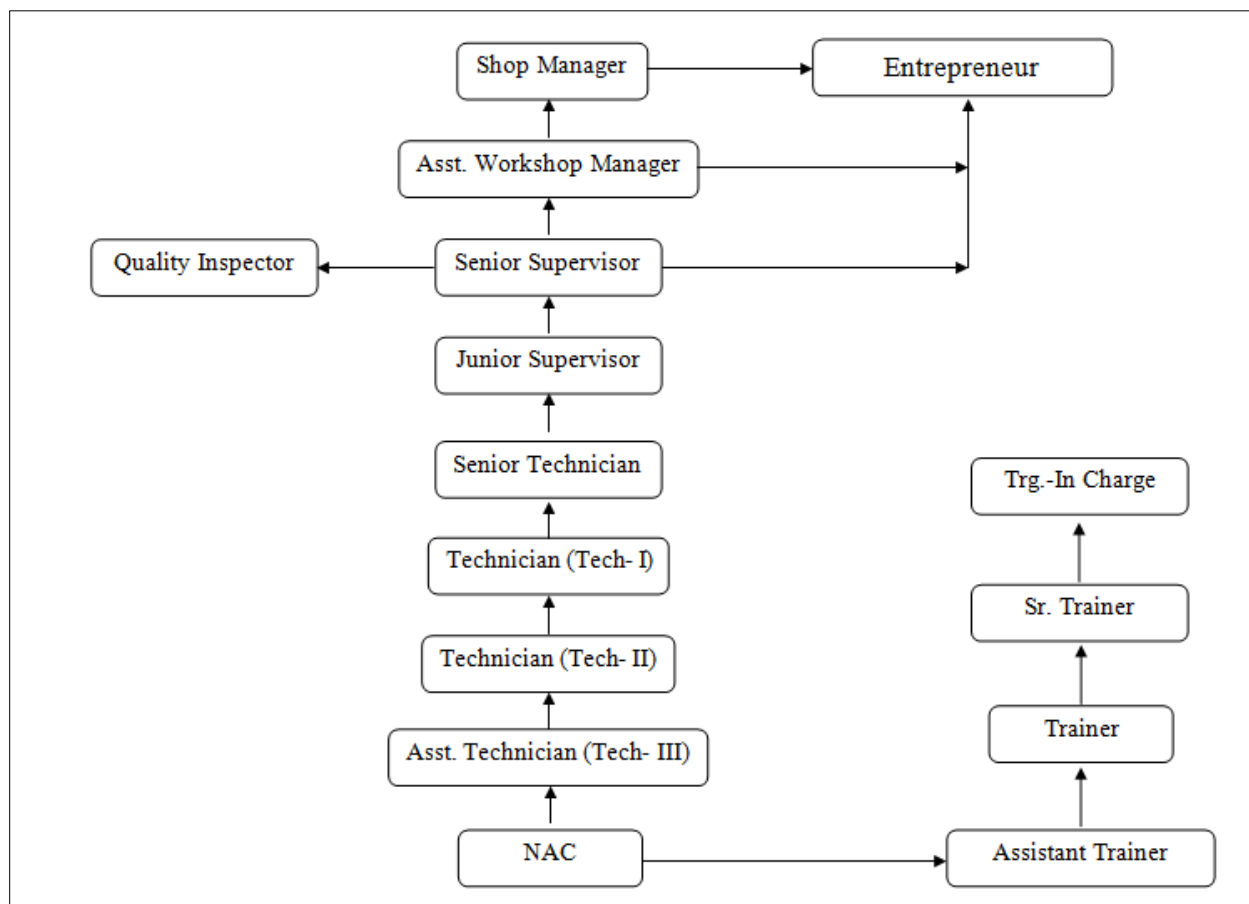
Broadly candidates need to demonstrate that they are able to:

- 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 and solve problem during execution.
- Check the job/finishing and assembly as per drawing for functioning, identify and rectify errors in job/assembly.
- Document the technical parameters related to the task undertaken.

Mason (Building Constructor)

2.2 CAREER PROGRESSION PATHWAYS:

- Indicative pathways for vertical mobility.



2.3 COURSE STRUCTURE:

Table below depicts the distribution of training hours across various course elements during a period of two years (*Basic Training and On-Job Training*): -

Total training duration details: -

Time (in months)	1-3	4-12	13-15	16-24
Basic Training	Block– I	-----	Block – II	-----
Practical Training (On - job training)	----	Block – I	-----	Block – II

A. Basic Training

For 02 yrs. course (Engg.) :-(**Total 06 months:** 03 months in 1styr. + 03 months in 2nd yr.)

Mason (Building Constructor)

For 01 yr. course (Engg.) :-(**Total 03 months:** 03 months in 1st yr.)

S No.	Course Element	Total Notional Training Hours	
		For 02 Yrs. course	For 01 Yr. course
1.	Professional Skill (Trade Practical)	550	275
2.	Professional Knowledge (Trade Theory)	240	120
3.	Workshop Calculation & Science	40	20
4.	Engineering Drawing	60	30
5.	Employability Skills	110	55
	Total (Including internal assessment)	1000	500

B. On-Job Training:-

For 02 yrs. Course (Engg.) :-(**Total 18 months:** 09 months in 1st yr. + 09 months in 2nd yr.)

Notional Training Hours for On-Job Training: 3120 Hrs.

For 01 yr. course (Engg.) :-(**Total 12 months**)

Notional Training Hours for On-Job Training: 2080 Hrs.

C. Total training hours:-

Duration	Basic Training	On-Job Training	Total
For 02 yrs. course (Engg.)	1000 hrs.	3120 hrs.	4120 hrs.
For 01 yr. course (Engg.)	500 hrs.	2080 hrs.	2580 hrs.

2.4 ASSESSMENT & CERTIFICATION:

The trainee will be tested for his skill, knowledge and attitude during the period of course and at the end of the training programme as notified by Govt of India from time to time. The Employability skills will be tested in first two semesters only.

a) The **Internal assessment** during the period of training will be done by **Formative assessment method** by testing for assessment criteria listed against learning outcomes. The training

Mason (Building Constructor)

institute have to maintain individual *trainee portfolio* as detailed in assessment guideline (section-2.4.2). The marks of internal assessment will be as per the template (Annexure – II).

b) The final assessment will be in the form of summative assessment method. The All India Trade Test for awarding NAC will be conducted by NCVT on completion of course as per guideline of Govt of India. The pattern and marking structure is being notified by govt of India from time to time. **The learning outcome and assessment criteria will be basis for setting question papers for final assessment. The examiner during final examination will also check individual trainee's profile as detailed in assessment guideline (section-2.4.2) before giving marks for practical examination.**

2.4.1 PASS REGULATION

The minimum pass percent for Practical is 60% & minimum pass percent for Theory subjects 40%. The candidate pass in each subject conducted under all India trade test.

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 assessment. Due consideration should be given while assessing for team work, avoidance/reduction of scrap/wastage and disposal of scarp/wastage as per procedure, behavioral attitude, sensitivity to 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 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

Evidences of internal assessments are to be preserved until forthcoming semester examination for audit and verification by examination body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
(a) Weightage in the range of 60 -75% to be allotted during assessment	
For performance in this grade, the	• Demonstration of good skill in the use of

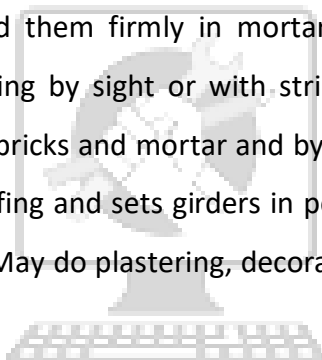
Mason (Building Constructor)

candidate with occasional guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of an acceptable standard of craftsmanship.	hand tools, machine tools and workshop equipment • Below 70% tolerance dimension/accuracy achieved while undertaking different work with those demanded by the component/job/set standards. • A fairly good level of neatness and consistency in the finish • Occasional support in completing the project/job.
(b) Weightage in the range of above 75% - 90% to be allotted during assessment	
For this grade, the candidate, with little guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of a reasonable standard of craftsmanship.	• Good skill levels in the use of hand tools, machine tools and workshop equipment • 70-80% tolerance dimension/accuracy achieved while undertaking different work with those demanded by the component/job/set standards. • A good level of neatness and consistency in the finish • Little support in completing the project/job
(c) Weightage in the range of above 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% tolerance dimension/accuracy achieved while undertaking different work with those demanded by the component/job/set standards. • A high level of neatness and consistency in the finish. • Minimal or no support in completing the project.

Brief description of Job roles:

Bricklayer, Construction; Brick Mason lays brick with mortar, and other construction material to construct and repair building-walls, arches, floors, pillars and other structures. Receives instructions regarding nature and type of work to be done. Directs Laborers 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 as 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.



Reference NCO 2015: 7112.0200 - Bricklayer, Construction

Skill India
कौशल भारत - कुशल भारत

4. NSQF LEVEL COMPLIANCE

NSQF level for Mason (Building Constructor) trade under ATS: **Level 4**

As per notification issued by Govt. of India dated- 27.12.2013 on National Skill Qualification Framework total 10 (Ten) Levels are defined.

Each level of the NSQF is associated with a set of descriptors made up of five outcome statements, which describe in general terms, the minimum knowledge, skills and attributes that a learner needs to acquire in order to be certified for that level.

Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are:

- a. Process
- b. professional knowledge,
- c. professional skill,
- d. core skill and
- e. Responsibility.



The Broad Learning outcome of Mason (Building Constructor) trade under ATS mostly matches with the Level descriptor at Level- 4.

The NSQF level-4 descriptor is given below:

Level	Process Required	Professional Knowledge	Professional Skill	Core Skill	Responsibility
Level 4	Work in familiar, predictable, routine, situation of clear choice.	Factual knowledge of field of knowledge or study	Recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts	Language to Communicate written or oral, with required clarity, skill to basic Arithmetic and algebraic principles, basic understanding of social political and natural environment.	Responsibility for own work and learning.

5. GENERAL INFORMATION

Name of the Trade	Mason (Building Constructor)
NCO-2015	7112.0200
NSQF Level	Level – 4
Duration of Apprenticeship Training (Basic Training + On-Job Training)	Two years (02 Blocks each of one year duration).
Duration of Basic Training	a) Block –I : 3 months b) Block – II : 3 months Total duration of Basic Training: 6 months
Duration of On-Job Training	a) Block–I: 9 months b) Block–II : 9 months Total duration of Practical Training: 18 months
Entry Qualification	Passed 8th class examination under 10+2 system of education or its equivalent.
Selection of Apprentices	The apprentices will be selected as per Apprenticeship Act amended time to time.
Instructors Qualification for Basic Training	As per ITI instructors qualifications as amended time to time for the specific trade.
Infrastructure for Basic Training	As per related trades of ITI
Examination	The internal examination/ assessment will be held on completion of each block. Final examination for all subjects will be held at the end of course and same will be conducted by NCVT.
Rebate to Ex-ITI Trainees	01 year
CTS trades eligible for Mason (Building Constructor) Apprenticeship	Mason (Building Constructor)

Note:

- Industry may impart training as per above time schedule for different block, however this is not fixed. The industry may adjust the duration of training considering the fact that all the components under the syllabus must be covered. However the flexibility should be given keeping in view that no safety aspects is compromised.
- For imparting Basic Training the industry to tie-up with ITIs having such specific trade and affiliated to NCVT.

6.1 GENERIC LEARNING OUTCOME

The following are minimum broad Common Occupational Skills/ Generic Learning Outcome after completion of the Mason (Building Constructor) course of 02 years duration under ATS.

Block I & II:-

1. Recognize & comply safe working practices, environment regulation and housekeeping.
2. Understand and explain different mathematical calculation & science in the field of study including basic electrical. *[Different mathematical calculation & science -Work, Power & Energy, Algebra, Geometry & Mensuration, Trigonometry, Heat & Temperature, Levers & Simple machine, graph, Statistics, Centre of gravity, Power transmission, Pressure]*
3. Interpret specifications, different engineering drawing and apply for different application in the field of work. *[Different engineering drawing-Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, scales, Different Projections, Machined components & different thread forms, Assembly drawing, Sectional views, Estimation of material, Electrical & electronic symbol]*
4. Select and ascertain measuring instrument and measure dimension of components and record data.
5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.
6. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.
8. Plan and organize the work related to the occupation.

6.2 SPECIFIC LEARNING OUTCOME

Block – I

1. Construct straight wall with one end stepped and the other raked back.
2. Build quoin wall with one end stepped and the other raked back and use plumb rule.
3. Construct brick wall junctions in English & Flemish bonds. Carry out racking out the joints with flush finish.
4. Carry out pointing work of various types. Construct thick brick walls in English & Flemish garden wall bonds.

Mason (Building Constructor)

5. Build Forming door opening in a wall of English bond. Bonding of jambs & reveals.
6. Carry out forming window opening in a wall in English bond. Construct sill with over sailing courses. Use of gauge rod. Fix door & window frames.
7. Build spanning of opening with a semicircular arch, making centering, cutting of templates for voussoirs & preparing voussoirs, setting uprights of arch. Construct arch & removing centering.
8. Build pre-casting a lintel-compacting, curing & setting the same in position. Check for equal bearing.
9. Carry out spanning of opening by casting a lintel in site. Construct shuttering & supports with uprights and wedges. Make bending bars & placing reinforcement. Mix, place & compact the concrete.
10. Construct detached pillars with footings-square & rectangular types.
11. Construct cavity walls, setting out both leaves with provision of wall ties and by use of cavity rods.
12. Setting out a building: Obtaining first, second, third & fourth lines, marking diagonals, setting out cross walls & offsets. Marking excavation lines & fixing of plinth & floor levels.
13. Carry out plastering of walls and setting of spots by applying mortar and use of screeds & floats.
14. Fix screeds to soffits of door & window opening by reversing the screeds & squaring.
15. Carry out plastering of ceiling and application of mortar, strengthening and finishing
16. Carry out flooring by formation of slope, application of slurry for finishing, setting out of skirting, formation of spots for skirting, use of screeds, formation of curve at the junction of skirting & floor.

Block – II

17. Set up a drainage line including position of manhole & gully trap.
18. Lay drainage to required gradients with the help of dumpy level and/or boning rod and laying its surface with bricks.
19. Carry out laying of concrete foundation for drainage pipes and jointing. Check for alignment. Cut the pipe to the required length. Cover drain pipe with concrete as per specification.
20. Perform laying out foundation concrete and construction of manhole with specified method of providing footrests, forming of drain and benching.
21. Fix brackets for washbasin and flushing cistern.
22. Fix WC pan, kitchen & bathroom traps , sinks, etc. and fix vent pipe to walls.
23. Carry out stonework, by specified method of cutting stone in required size from a block. Practice selection of face & bed.

Mason (Building Constructor)

24. Construct brick/stone wall.
25. Carry out masonry work for brick/stone work
26. Perform flooring and roof finishing.
27. Cut sheet metal profile for architectural moulding by applying the sheet metal mould in forming the mould in stone.
28. Construct a rubble masonry wall.
29. Carry out marble work by specified method of cutting and setting on stair, floor, wall & pillar.
30. Construct compound wall with attached piers and coping.
31. Construct circular brick wall.
32. Construct circular gate pillars with brick/stone/tile/concrete.
33. Construct hollow block walls
34. Construct roof with prefabricated hollow blocks of beams and slabs.
35. Carry out external/internal finishing. Practice fixing cement concrete jelly.
36. Carry out flooring of mosaic, terrazzo, and tile, by laying out a stair on the ground.
37. Lay glazed tiles, fix the thread, fill between ends, carry out plumbing, setting out a jamb, bonding, marking & cutting tiles.

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

Skill India
कौशल भारत - कुशल भारत

7. LEARNING OUTCOME WITH ASSESSMENT CRITERIA

GENERIC LEARNING OUTCOME	
LEARNING OUTCOMES	ASSESSMENT CRITERIA
1. Recognize & comply safe working practices, environment regulation and housekeeping.	1. 1. Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements.
	1. 2. Recognize and report all unsafe situations according to site policy.
	1. 3. Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
	1. 4. Identify, handle and store / dispose off dangerous/unsalvageable goods and substances according to site policy and procedures following safety regulations and requirements.
	1. 5. Identify and observe site policies and procedures in regard to illness or accident.
	1. 6. Identify safety alarms accurately.
	1. 7. Report supervisor/ Competent of authority in the event of accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.
	1. 8. Identify and observe site evacuation procedures according to site policy.
	1. 9. Identify Personal Productive Equipment (PPE) and use the same as per related working environment.
	1. 10. Identify basic first aid and use them under different circumstances.
	1. 11. Identify different fire extinguisher and use the same as per requirement.
	1. 12. Identify environmental pollution & contribute to avoidance of same.
	1. 13. Take opportunities to use energy and materials in an environmentally friendly manner
	1. 14. Avoid waste and dispose waste as per procedure
	1. 15. Recognize different components of 5S and apply the same in the working environment.
2. Understand, explain different mathematical calculation & science in the field of study including basic	2.1 Explain concept of basic science related to the field such as Material science, Mass, weight, density, speed, velocity, heat & temperature, force, motion, pressure, heat treatment, centre of gravity, friction.

Mason (Building Constructor)

electrical and	
apply in day to day work. <i>[Different mathematical calculation & science -Work, Power & Energy, Algebra, Geometry & Mensuration, Trigonometry, Heat & Temperature, Levers & Simple machine, graph, Statistics, Centre of gravity, Power transmission, Pressure]</i>	2.2 Measure dimensions as per drawing
	2.3 Use scale/ tapes to measure for fitting to specification.
	2.4 Comply given tolerance.
	2.5 Prepare list of appropriate materials by interpreting detail drawings and determine quantities of such materials.
	2.6 Ensure dimensional accuracy of assembly by using different instruments/gauges.
	2.7 Explain basic electricity, insulation & earthing.
3. Interpret specifications, different engineering drawing and apply for different application in the field of work. <i>[Different engineering drawing-Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, scales, Different Projections, Machined components & different thread forms, Assembly drawing, Sectional views, Estimation of material, Electrical & electronic symbol]</i>	3. 1. Read & interpret the information on drawings and apply in executing practical work.
	3. 2. Read & analyse the specification to ascertain the material requirement, tools, and machining /assembly /maintenance parameters.
	3. 3. Encounter drawings with missing/unspecified key information and make own calculations to fill in missing dimension/parameters to carry out the work.
4. Select and ascertain measuring instrument and measure dimension of components and record data.	4.1 Select appropriate measuring instruments such as micrometers, Vernier calipers, dial gauge, bevel protector and height gauge (as per tool list).
	4.2 Ascertain the functionality & correctness of the instrument.
	4.3 Measure dimension of the components & record data to analyse the with given drawing/measurement.
5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.	5.1 Explain the concept of productivity and quality tools and apply during execution of job.
	5.2 Understand the basic concept of labour welfare legislation and adhere to responsibilities and remain sensitive towards such laws.
	5.3 Knows benefits guaranteed under various acts

Mason (Building Constructor)

6. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	6.1 Explain the concept of energy conservation, global warming, pollution and utilize the available recourses optimally & remain sensitive to avoid environment pollution.
	6.2 Dispose waste following standard procedure.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	7. 1. Explain personnel finance and entrepreneurship.
	7. 2. Explain role of Various Schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non financing support agencies to familiarizes with the Policies /Programmes & procedure & the available scheme.
	7. 3. Prepare Project report to become an entrepreneur for submission to financial institutions.
8. Plan and organize the work related to the occupation.	8. 1. Use documents, drawings and recognize hazards in the work site.
	8. 2. Plan workplace/ assembly location with due consideration to operational stipulation
	8. 3. Communicate effectively with others and plan project tasks
	8. 4. Assign roles and responsibilities of the co-trainees for execution of the task effectively and monitor the same.
SPECIFIC OUTCOME	
Block-I & II (Section:10 in the competency based curriculum)	
<i>Assessment Criteria i.e. the standard of performance, for each specific learning outcome mentioned under block – I (section: 10) must ensure that the trainee works in familiar surroundings where nature of job is routine type, situation of clear choice & predictable. Assessment criteria should broadly cover the aspect of Planning (Identify, ascertain, etc.); Execution (apply factual knowledge of field of knowledge, recall and demonstrate practical skill during performing the work in routine and repetitive in narrow range of application, using appropriate rule and tool, complying basic arithmetic and algebraic principles and language to communicate in written or oral with required clarity; Checking/ Testing to ensure functionality during the assessment of each outcome. The assessments parameters must also ascertain that the candidate is responsible for his/her own work and learning.</i>	

BASIC TRAINING (Block – I)

Duration: (03) Three Months

Week No.	Professional Skills	Professional Knowledge
01	- Importance of Trade training, instruments & equipments used, nature of job done by Masons. - Marking out for carpentry work. Use of carpenter's hand tools for simple operations like sawing, planing, chiseling, drilling, etc. grinding of tools.	Importance of safety, general safety precautions-Introduction to Trade-its importance & scope. Uses of different tools & equipments used for masonry work and their types. Carpenter's hand tools, their names and uses. Grinding of tools & precautions to be taken.
02	Making centering & form work. Turning a brick for stretcher & header faces. Shaping mortar -spreading on the bed-jointing bricks.	Purpose of arch centering & form work. Different types of bricks & their sizes. Sizes of mortar joints for different works. Stretcher & header.
03	- Building a 4 ½ "straight wall about 6 courses high with one end stepped and the other raked back. Preparation of various types of mortars. - Building a 4 ½ "quoin wall with one end stepped and the other raked back. Use of plumb rule.	Technical terms used in brick masonry. Necessity of bonding bricks. Types of mortars, different grades of sand for brick work & plastering. Grades of cement. Characteristics of good bricks. Tiles for roofing & flooring. Purpose of wetting bricks & tiles before use.
04	- Construction of 1 & 1 ½ brick wall junctions in English & Flemish bonds. Racking out the joints & finishing it flush. - Pointing work-different types. Construction of 1 brick thick walls in English & Flemish garden wall bonds.	Brickwork-racking back & toothing. Differences between English & Flemish bonds. Details of English & Flemish bond for 1 and 1 ½ 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.
05	Forming a door opening in a wall of	Types of cement, sand & lime. English &

Mason (Building Constructor)

	English bond. Bonding of jambs & reveals.	Flemish garden wall bonds. PWD specification on brickwork. Foundation: Definition, purpose, types, important terms, causes of failure of foundations.
06	Forming a window opening in a wall in English bond. Construction of sill with oversailing courses. Use of gauge rod. Fixing door & window frames.	Construction of sill with oversailing courses-gauge rod-its purpose. Method of fixing door & window frames. Hold fasts & dowels-purpose and method of fixing. PWD specification on the above.
07	Spanning of opening with a semicircular arch, making centering, cutting of templates for voussoirs & preparing voussoirs, setting uprights of arch. Construction of arch & removing centering.	Arches: Purpose, technical terms & types. Setting out an arch. Tummel & template for preparing voussoirs & key bricks. Method of constructing centering for an arch.
08	- Pre-casting a lintel-compacting, curing & setting the same in position. Checking for equal bearing. - Spanning of opening by casting a lintel in site. Construction of shuttering & supports with uprights and wedges. Bending bars & placing reinforcement. Mixing, placing & compacting concrete.	RCC lintels: Materials required, method of construction, precast lintels, method of construction of formwork, details of reinforcement. Hollow blocks: Glazed, sand, lime bricks. Uses, merits & demerits.
09	- Construction of detached pillars with footings-square & rectangular types. - Construction of cavity walls, setting out both leaves, provision of wall ties, use of cavity rods.	Pillars: Necessity, types, relation between cross section & height. Details of reinforcement for square & rectangular pillars. Cavity wall: Technical terms, advantages, constructional details, precautions to be taken at the bottom of cavity, provision of weep holes & ties, special care at junctions & openings. Scaffolding: Definition,, types, parts, PWD specifications.
10	Setting out a building: Obtaining first, second, third & fourth lines, marking	Steps in setting out & marking centre line, excavation line & other lines-use of dead

Mason (Building Constructor)

	diagonals, setting out cross walls & offsets. Marking excavation lines & fixing of plinth & floor levels.	man-checking accuracy & precautions. Windows & ventilators: Including steel windows & ventilators, fixtures & fastenings used.
11	- Plastering of walls-setting of spots-applying mortar-use of screeds & floats. - Fixing of screeds to soffits of door & window openings-reversing the screeds & squaring. - 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. Moulding: Types, purposes, making & using a mould. Architectural terms used in connection with classical mouldings such as architrave, apex, etc. Hand & machine mixing of concrete-laying and curing of concrete. Water-cement ratio. PWD specifications.
12	Flooring practice: Formation of slope, application of slurry for finishing, setting out of skirting, formation of spots for skirting, use of screeds, formation of curve at the junction of skirting & floor.	Floors: Types, constructional details such as consolidation of bed, sand filling, concrete base & finishing. Granolithic flooring. Local Municipal byelaws.
13.	Revision	
	Internal Assessment 03days	

NOTE: - More emphasis to be given on video/real-life pictures during theoretical classes. Some real-life pictures/videos of related industry operations may be shown to the trainees to give a feel of Industry and their future assignment.

BASIC TRAINING (Block – II)

Duration: (03) Three Months

Week No.	Professional Skills	Professional Knowledge
01	• Drainage: Setting out a drainage line including position of manhole & gully trap. • Practice in setting up and reading of dumpy level. • Laying out drainage to required gradients with the help of dumpy level and/or boning rod and laying its surface with bricks.	Different systems of drainage, their advantages & disadvantages, method of collection, carriage & final disposal of wastage, 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.
02	Laying of concrete foundation for drainage pipes and jointing. Checking of alignment. Cutting the pipe to the required length. Covering of drain pipe with concrete as per PWD specification.	Drainage pipes: Types, materials, sizes, gradient for different diameters, method of laying & jointing, importance of water tightness, concrete base and covering.
03	Laying out foundation concrete and construction of manhole. Method of providing footrests, forming of drain and benching.	Manhole: Standard sizes, necessity, details of construction and benching. Provisions of footrests, drops & cover.
04	• Fixing of brackets for washbasin and flushing cistern. • Fixing of WC pan, kitchen & bathroom traps, sinks, etc. fixing of vent pipe to walls.	Septic tank: Purpose, parts and method of construction. Bonding & waterproofing of tank walls. Method of lining field drains with bricks. Shoring for deep trenches. Safety precautions.
05	• Stonework, method of cutting stone in required size from a block. Selection of face & bed. • Construction of stone wall.	Stone masonry: Importance of stone, conversion & dressing. Types of dressing as per ISI specification. Types of stone.
06	• Practice on brick/stone masonry work. • Flooring and roof finishing practice.	Introduction to RCC: Uses, materials, properties and formwork, bending of bars & construction. Reference to ISI code. Reinforced brickwork. Brief description of

Mason (Building Constructor)

		slabs, beams, lintels, stairs, columns, etc. Ashlar masonry. Types of joint used in ashlar such as chamfered, beveled, etc. through stones & bond stones.
07	• Cutting a sheet metal profile for architectural moulding. Applying the sheet metal mould in forming the mould in stone. • Construction of a rubble masonry wall.	Steps in preparing & moulding stone. Preparation of sheet metal mould. Lifting appliances such as lifting tackles, skips, chains, lewis, etc. Precautions in using them.
08	• Marble work: Method of cutting and setting on stair, floor, wall & pillar. • Construction of compound wall with attached piers and coping.	Marble floor: types, constructional details. Construction of attached piers & buttresses.
09	• Construction of a 4 ½"/9" thick circular brick wall. • Construction of circular gate pillars with brick / stone / tile /concrete.	Circular walls: Details of construction. Setting out and construction of circular gate pillars with brick/stone/tile/concrete.
10	Construction of hollow block walls.	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.
11	• Construction of roof with prefabricated hollow blocks of beams and slabs. • External/internal finishes-practice. • Fixing cement concrete jelly.	RCC work: Mixing, laying, compacting, curing, thumb rule for percentage of reinforcement for lintels, slabs, beams & columns. Necessity hook & cranking. Shear reinforcement. Roofs: Classification, parts, trussed roof, covering materials. Types of external & internal finishes such as rough cast, pebble, dash and stucco-materials used & method of finishing-factors to be kept in mind, PWD specification on the above.
12	• Flooring: Mosaic, terrazzo, and tile flooring. 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

Mason (Building Constructor)

	Laying of glazed tiles, fixing the thread, filling between ends, plumbing, setting out a jamb, bonding, marking & cutting tiles.	stairs with precast concrete steps. Formwork & shuttering-their removal-precautions-PWD specifications. Use of glazed tiles for wall facing, steps in fixing, precautions. Construction & expansion joints-method of filling-repair of cracks.
13.	Revision	
	Internal Assessment 03days	

Note: - More emphasis to be given on video/real-life pictures during theoretical classes. Some real-life pictures/videos of related industry operations may be shown to the trainees to give a feel of Industry and their future assignment.



Skill India
कौशल भारत - कुशल भारत

9.1 WORKSHOP CALCULATION SCIENCE & ENGINEERING DRAWING

Block – I		
Sl. No.	Workshop Calculation and Science (Duration: - 20 hrs.)	Engineering Drawing (Duration : - 30 hrs.)
1.	Addition, subtraction multiplication & division of whole numbers and fractions.	- Free hand Sketching of masonry tools. - Drawing practice and Properties of lines, angles, triangles, Square, circles & polygons.
2.	Decimals: Addition, subtraction, multiplication & division. Conversion of decimal to fraction and vice-versa.	- Freehand sketching of bricks, queen closers, king closers and bats. - Freehand sketches in plan & elevation of 4 ½" wall-Quoins & Junctions.
3.	Metric System: Measurement of length, breadth & height in metric units Measurement of weight in metric system. Unit conversion. Reading of plain scales. Reading of tapes & foot rules.	- Freehand sketches of rat trap bond and other ornamental panels. - Use of drawing instruments-‘T’ square, drawing board, etc. Printing of letters & numbers.
4.	Ratio and proportion: Problems to find out quantities of materials for various mortar & concrete mixes.	- Drawing architectural drawings such as ovolo, cavetto, bolten, scotia, cyma recta, cyma reversa, astragal, etc. - Types of lines & symbols used in building drawings.
5.	Mensuration: Areas & perimeters of rectangles, squares and triangles, circles, sectors, segments, quadrilaterals, trapezium, parallelogram & rhombus , polygons such as pentagons, hexagons & octagons. Volume & surface area of simple geometrical solids such as cubes & prisms. Mensuration applied to area & volume of brickwork. Calculation of cement & sand required.	Simple isometric scaled drawings, isometric views of simple objects such as cubes, cuboids, square & rectangular prism and pyramids, etc.

Mason (Building Constructor)

Block – II		
Sl. No.	Workshop Calculation and Science (Duration: - 20 hrs.)	Engineering Drawing (Duration : - 30 hrs.)
1	Simple cost comparison between facing bricks & common bricks. Cost comparison between walls built in English/Flemish/garden wall bonds/cavity walls. Problems on areas. Allowances for simple rectangular window & other openings.	Isometric views of simple objects such as cubes, cuboids, square & rectangular prisms and pyramids. Projections of solids.
2	Weight of walling supported by lintels and arches-simple problems. Calculation of rise & span for arches.	Drawing to scale: a) 4 ½" stepped wall, b) 4 ½" wall racked back, c) 9" walls in English & Flemish bonds showing stepped end, racking back & toothing. Drawing to scale: a) 4 ½" quoin wall with stepped end & racking back, b) 4 ½" junction wall, c) 9" quoin wall in English & Flemish bonds, d) 9" Flemish bonded wall junction, e) 9" wall in garden wall bond, f) 13 ½" main wall in garden wall bond & 9" cross wall in English/Flemish bond.
3	Volume of brickwork in mass retaining walls. Volume of stonework or concrete work required for a given piece of work.	Drawing to scale: 18" wall in English garden wall bond. Hexagonal & octagonal pillars showing bonds and cavities.
4	Mensuration applied to area of marble works. Calculation of length & weight of steel reinforcement from detailed RCC drawings.	Preparation of drawing showing timbering in trenches Preparation of drawings showing methods of setting out simple segmental, circular & elliptical arches.
5	Calculation of quantities of cement, sand, aggregate & reinforcement for a given RCC work. Calculation of quantities of various materials for brick/tile/cement concrete/terrazzo flooring. Quantities of materials required for skirting.	Drawing of setting out a building showing the centre line, width of excavation, foundation concrete, footings and superstructure. Checking of accuracy. Interpretation of building drawing. Preparation of plan, elevation & section of a simple building.

Mason (Building Constructor)

6	Calculation of length of drainage pipe & materials for foundation & covering concrete. Calculation of materials required for a manhole from given drawing.	Reading of a building plan showing drainage line, position of manhole, etc. Drawing of manhole and inspection chamber with details
7		Constructional details of hollow block roof with precast RCC joints. Stonework: Drawing of random rubble, coursed rubble & ashlar masonry. Layout of stairs. Drawing of stone pillar showing architectural moulding.

9.2 EMPLOYABILITY SKILLS (DURATION: - 110 HRS.)

Block – I (Duration – 55 hrs.)	
1. English Literacy Duration : 20 Hrs. Marks : 09	
Pronunciation	Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech)
Functional Grammar	Transformation of sentences, Voice change, Change of tense, Spellings.
Reading	Reading and understanding simple sentences about self, work and environment
Writing	Construction of simple sentences Writing simple English
Speaking / Spoken English	Speaking with preparation on self, on family, on friends/ classmates, on know, picture reading gain confidence through role-playing and discussions on current happening job description, asking about someone's job habitual actions. Cardinal (fundamental) numbers ordinal numbers. Taking messages, passing messages on and filling in message forms Greeting and introductions office hospitality, Resumes or curriculum vita essential parts, letters of application reference to previous communication.
2. I.T. Literacy Duration : 20 Hrs. Marks : 09	
Basics of Computer	Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of computer.

Mason (Building Constructor)

Computer Operating System	Basics of Operating System, WINDOWS, The user interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc, Use of Common applications.
Word processing and Worksheet	Basic operating of Word Processing, Creating, opening and closing Documents, use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & creation of Tables. Printing document. Basics of Excel worksheet, understanding basic commands, creating simple worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets.
Computer Networking and Internet	Basic of computer Networks (using real life examples), Definitions of Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet (Network of Networks), Meaning of World Wide Web (WWW), Web Browser, Web Site, Web page and Search Engines. Accessing the Internet using Web Browser, Downloading and Printing Web Pages, Opening an email account and use of email. Social media sites and its implication. Information Security and antivirus tools, Do's and Don'ts in Information Security, Awareness of IT - ACT, types of cyber crimes.
3. Communication Skills	
Duration : 15 Hrs. Marks : 07	
Introduction to Communication Skills	Communication and its importance Principles of Effective communication Types of communication - verbal, non verbal, written, email, talking on phone. Non verbal communication -characteristics, components-Para-language Body language Barriers to communication and dealing with barriers. Handling nervousness/ discomfort.
Listening Skills	Listening-hearing and listening, effective listening, barriers to effective listening guidelines for effective listening. Triple- A Listening - Attitude, Attention & Adjustment. Active Listening Skills.
Motivational Training	Characteristics Essential to Achieving Success. The Power of Positive Attitude. Self awareness Importance of Commitment Ethics and Values Ways to Motivate Oneself

Mason (Building Constructor)

	Personal Goal setting and Employability Planning.
Facing Interviews	Manners, Etiquettes, Dress code for an interview Do's & Don'ts for an interview.
Behavioral Skills	Problem Solving Confidence Building Attitude
Block – II Duration – 55 hrs.	
4. Entrepreneurship Skills Duration : 15 Hrs. Marks : 06	
Concept of Entrepreneurship	Entrepreneur - Entrepreneurship - Enterprises:-Conceptual issue Entrepreneurship vs. management, Entrepreneurial motivation. Performance & Record, Role & Function of entrepreneurs in relation to the enterprise & relation to the economy, Source of business ideas, Entrepreneurial opportunities, The process of setting up a business.
Project Preparation & Marketing analysis	Qualities of a good Entrepreneur, SWOT and Risk Analysis. Concept & application of PLC, Sales & distribution Management. Different Between Small Scale & Large Scale Business, Market Survey, Method of marketing, Publicity and advertisement, Marketing Mix.
Institutions Support	Preparation of Project. Role of Various Schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non financing support agencies to familiarizes with the Policies /Programmes& procedure & the available scheme.
Investment Procurement	Project formation, Feasibility, Legal formalities i.e., Shop Act, Estimation & Costing, Investment procedure - Loan procurement - Banking Processes.
5. Productivity Duration : 10 Hrs. Marks : 05	
Benefits	Personal / Workman - Incentive, Production linked Bonus, Improvement in living standard.
Affecting Factors	Skills, Working Aids, Automation, Environment, Motivation - How improves or slows down.
Comparison with developed countries	Comparative productivity in developed countries (viz. Germany, Japan and Australia) in selected industries e.g. Manufacturing, Steel, Mining, Construction etc. Living standards of those countries, wages.

Mason (Building Constructor)

Personal Finance Management	Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and Insurance.
6. Occupational Safety, Health and Environment Education	
Duration : 15 Hrs. Marks : 06	
Safety & Health	Introduction to Occupational Safety and Health importance of safety and health at workplace.
Occupational Hazards	Basic Hazards, Chemical Hazards, Vibroacoustic Hazards, Mechanical Hazards, Electrical Hazards, Thermal Hazards. Occupational health, Occupational hygienic, Occupational Diseases/ Disorders & its prevention.
Accident & safety	Basic principles for protective equipment. Accident Prevention techniques - control of accidents and safety measures.
First Aid	Care of injured & Sick at the workplaces, First-Aid & Transportation of sick person.
Basic Provisions	Idea of basic provision legislation of India. safety, health, welfare under legislative of India.
Ecosystem	Introduction to Environment. Relationship between Society and Environment, Ecosystem and Factors causing imbalance.
Pollution	Pollution and pollutants including liquid, gaseous, solid and hazardous waste.
Energy Conservation	Conservation of Energy, re-use and recycle.
Global warming	Global warming, climate change and Ozone layer depletion.
Ground Water	Hydrological cycle, ground and surface water, Conservation and Harvesting of water.
Environment	Right attitude towards environment, Maintenance of in-house environment.
7. Labour Welfare Legislation	
Duration : 05 Hrs. Marks : 03	
Welfare Acts	Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Payment Wages Act, Employees Provident Fund Act, The Workmen's compensation Act.
8. Quality Tools	
Duration : 10 Hrs. Marks : 05	
Quality Consciousness	Meaning of quality, Quality characteristic.
Quality Circles	Definition, Advantage of small group activity, objectives of quality Circle, Roles and function of Quality Circles in Organization, Operation

Mason (Building Constructor)

	of Quality circle. Approaches to starting Quality Circles, Steps for continuation Quality Circles.
Quality Management System	Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.
House Keeping	Purpose of House-keeping, Practice of good Housekeeping.
Quality Tools	Basic quality tools with a few examples.



Skill India
कौशल भारत - कुशल भारत

10. DETAILS OF COMPETENCIES (ON-JOB TRAINING)

BROAD LEARNING TO BE COVERED IN INDUSTRY FOR MASON (BUILDING CONSTRUCTOR) TRADE:

The **competencies/ specific outcomes** on completion of On-Job Training are detailed below: -

Block – I

1. Construct straight wall with one end stepped and the other racked back.
2. Build quoin wall with one end stepped and the other racked back and use plumb rule.
3. Construct brick wall junctions in English & Flemish bonds. Carry out racking out the joints with flush finish.
4. Carry out pointing work of various types. Construct thick brick walls in English & Flemish garden wall bonds.
5. Build Forming door opening in a wall of English bond. Bonding of jambs & reveals.
6. Carry out forming window opening in a wall in English bond. Construct sill with over sailing courses. Use of gauge rod. Fix door & window frames.
7. Build spanning of opening with a semicircular arch, making centering, cutting of templates for voussoirs & preparing voussoirs, setting uprights of arch. Construct arch & removing centering.
8. Build pre-casting a lintel-compacting, curing & setting the same in position. Check for equal bearing.
9. Carry out spanning of opening by casting a lintel in site. Construct shuttering & supports with uprights and wedges. Make bending bars & placing reinforcement. Mix, place & compact the concrete.
10. Construct detached pillars with footings-square & rectangular types.
11. Construct cavity walls, setting out both leaves with provision of wall ties and by use of cavity rods.
12. Setting out a building: Obtaining first, second, third & fourth lines, marking diagonals, setting out cross walls & offsets. Marking excavation lines & fixing of plinth & floor levels.
13. Carry out plastering of walls and setting of spots by applying mortar and use of screeds & floats.
14. Fix screeds to soffits of door & window opening by reversing the screeds & squaring.
15. Carry out plastering of ceiling and application of mortar, strengthening and finishing
16. Carry out flooring by formation of slope, application of slurry for finishing, setting out of skirting, formation of spots for skirting, use of screeds, formation of curve at the junction of skirting & floor.

Block – II

17. Set up a drainage line including position of manhole & gully trap.

Mason (Building Constructor)

18. Lay drainage to required gradients with the help of dumpy level and/or boning rod and laying its surface with bricks.
19. Carry out laying of concrete foundation for drainage pipes and jointing. Check for alignment. Cut the pipe to the required length. Cover drain pipe with concrete as per specification.
20. Perform laying out foundation concrete and construction of manhole with specified method of providing footrests, forming of drain and benching.
21. Fix brackets for washbasin and flushing cistern.
22. Fix WC pan, kitchen & bathroom traps, sinks, etc. and fix vent pipe to walls.
23. Carry out stonework, by specified method of cutting stone in required size from a block. Practice selection of face & bed.
24. Construct brick/stone wall.
25. Carry out masonry work for brick/stone work
26. Perform flooring and roof finishing.
27. Cut sheet metal profile for architectural moulding by applying the sheet metal mould in forming the mould in stone.
28. Construct a rubble masonry wall.
29. Carry out marble work by specified method of cutting and setting on stair, floor, wall & pillar.
30. Construct compound wall with attached piers and coping.
31. Construct circular brick wall.
32. Construct circular gate pillars with brick/stone/tile/concrete.
33. Construct hollow block walls
34. Construct roof with prefabricated hollow blocks of beams and slabs.
35. Carry out external/internal finishing. Practice fixing cement concrete jelly.
36. Carry out flooring of mosaic, terrazzo, and tile, by laying out a stair on the ground.
37. Lay glazed tiles, fix the thread, fill between ends, carry out plumbing, setting out a jamb, bonding, marking & cutting tiles.

Note:

1. Industry must ensure that above mentioned competencies are achieved by the trainees during their on job training.
2. In addition to above competencies/ outcomes industry may impart additional training relevant to the specific industry.

INFRASTRUCTURE FOR PROFESSIONAL SKILL & PROFESSIONAL KNOWLEDGE

MASON (BUILDING CONSTRUCTOR)			
LIST OF TOOLS AND EQUIPMENT for Basic Training (For 20 Apprentices)			
A. TRAINEES TOOL KIT (For each additional unit trainees tool kit Sl. 1-18 is required additionally)			
Sl. no.	Name of the Tool & Equipments	Specification	Quantity
1.	Bolster 4" (100mm)		21 nos.
2.	Pitching tool (mason)		21 nos.
3.	Chisel (mason) Hammer headed punch		21 nos.
4.	-do- ½" (12mm)		21 nos.
5.	-do- 1" (25mm)		21 nos.
6.	-do- Cross cut type		21 nos.
7.	-do- ¾" (18mm)		21 nos.
8.	-do- 1 ½" (35mm)		21 nos.
9.	Club hammer 1 ½"/1pbs		21 nos.
10.	Hammer (mason) brick (600-800gm)		21 nos.
11.	Helmet		21 nos.
12.	Leather gloves		21 nos.
13.	Goggles		21 nos.
14.	Plumb level 36" (1m)		21 nos.
15.	Pins (Line)		21 nos.
16.	Plumb bob		21 nos.
17.	Steel square		21 nos.
18.	Plastering trowel-double		21 nos.
19.	Wooden float		21 nos.
20.	Trowel-brick 10" (25cm) long		21 nos.
21.	Trowel-pointing 6" (15cm)		21 nos.
22.	Tasla (tin) pan		21 nos.
23.	Wooden straight edge 4'		21 nos.

Mason (Building Constructor)

24.	Bucket		21 nos.
B : INSTRUMENTS & GENERAL SHOP OUTFIT			
25.	Spade		12
26.	Shovel		12
27.	Measuring steel tape 15m		3
28.	Measuring tape 30m		2
29.	Ladder 2-4m		3
30.	Sledge hammer 4kg		3
31.	Drum (45gallons)		3
32.	G.I. pipe 1" (25mm) ϕ		200 Mt.
33.	Hose pipe		60 Mt.
34.	G.I. pipe ½" (12mm) ϕ		200 Mt.
35.	Cellotax board		3 nos.
36.	Spirit level 6" (15cm)		20 nos.
37.	Bar bending & cutting tools		02 sets
38.	Spirit level 12" (30cm)		05 nos.
39.	Screw driver		05 nos.
40.	Pocket steel tape 6' long		20 nos.
41.	Four-fold foot rule 2' (60 cm)		
42.	Pickaxe		05 nos.
43.	Crowbar 1.5 m long		03 nos.
44.	Scraper		20 nos.
45.	Snip straight 10" (25cm)		05 nos.
46.	Carpenter tool kit of 20 sets (a) handsaw (b) mortise chisel (c) tenon saw (d) firmer chisel (e) mallet (f) carpenter claw hammer (g) hand brace with bits (h) plane		01 no. 01 no. 01 no. 01 no. 01 no. 01 no. 01 no. 01 no.
47.	Wheel barrow		05 nos.
48.	Tubular scaffolding		As required
49.	Steel measuring boxes (0.6 cft & 1.2 cft)		04 nos. each
50.	Adjustable steel props		30 nos.
51.	Flat 4'x4'x6'		10 nos.

Mason (Building Constructor)

52.	Bending rods		03 nos.
53.	Dumpy level with stand & staff		03 nos.
54.	Spanner set		01 no.
55.	Steel shuttering 400 sqm		02 sets
C : GENERAL MACHINERY INSTALLATIONS			
1.	Bench grinder		02 nos.
2.	Drilling machine		02 nos.



Skill India
कौशल भारत - कुशल भारत

Mason (Building Constructor)

INFRASTRUCTURE FOR WORKSHOP CALCULATION & SCIENCE AND ENGINEERING DRAWING

TRADE: MASON (BUILDING CONSTRUCTOR)

LIST OF TOOLS& EQUIPMENTS FOR -20APPRENTICES

1) **Space Norms** : 45 Sq. m.(For Engineering Drawing)

2) **Infrastructure:**

A : TRAINEES TOOL KIT:-			
Sl. No.	Name of the items	Specification	Quantity
1.	Draughtsman drawing instrument box		20+1 set
2.	Set square celluloid	45° (250 X 1.5 mm)	20+1 set
3.	Set square celluloid	30°-60° (250 X 1.5 mm)	20+1 set
4.	Mini drafter		20+1 set
5.	Drawing board	(700mm x500 mm) IS: 1444	20+1 set
6	Architect's & builder's template		21 set
B : Furniture Required			
Sl. No.	Name of the items	Specification	Quantity
1	Drawing Board		20
2	Models : Solid & cut section		as required
3	Drawing Table for trainees		as required
4	Stool for trainees		as required
5	Cupboard (big)		01
6	White Board	(size: 8ft. x 4ft.)	01
7	Trainer's Table		01
8	Trainer's Chair		01

Mason (Building Constructor)

TOOLS & EQUIPMENTS FOR EMPLOYABILITY SKILLS		
Sl. No.	Name of the Equipment	Quantity
1.	Computer (PC) with latest configurations and Internet connection with standard operating system and standard word processor and worksheet software	10 Nos.
2.	UPS - 500VA	10 Nos.
3.	Scanner cum Printer	1 No.
4.	Computer Tables	10 Nos.
5.	Computer Chairs	20 Nos.
6.	LCD Projector	1 No.
7.	White Board 1200mm x 900mm	1 No.
<i>Note: - Above Tools & Equipments not required, if Computer LAB is available in the institute.</i>		

Skill India
कौशल भारत - कुशल भारत

FORMAT FOR INTERNAL ASSESSMENT

Name & Address of the Assessor :						Year of Enrollment :								
Name & Address of ITI (Govt./Pvt.) :						Date of Assessment :								
Name & Address of the Industry :						Assessment location: Industry / ITI								
Trade Name :			Semester:			Duration of the Trade/course:								
Learning Outcome:														
Sl. No	Maximum Marks (Total 100 Marks)		15	5	10	5	10	10	5	10	15	15	Total internal assessment Marks	Result (Y/N)
	Candidate Name	Father's/Mother's Name	Safety consciousness	Workplace hygiene	Attendance/ Punctuality	Ability to follow Manuals/ Written instructions	Application of Knowledge	Skills to handle tools & equipment	Economical use of materials	Speed in doing work	Quality in workmanship	VIVA		
1														
2														