



Model Curriculum

QP Name: Helper Fabrication

QP Code: CON/Q1201

Version: 3.0

NSQF Level: 2.0

Model Curriculum Version: 3.0

Construction Skill Development Council of India | | Tower 4B, DLF Corporate Park, 201&, 202 4B, Mehrauli-Gurgaon Rd, DLF Phase 3, Gurugram, Haryana 122002



Table of Contents

Contents

Training Parameters.....	3
Program Overview	Error! Bookmark not defined.
Training Outcomes.....	4
Compulsory Modules.....	4
Module 1: Introduction to the role of Helper Fabrication.....	6
Module 2: Handling of structural steel fabrication materials, tools, tackles and consumables.....	7
Module 3: Assisting in the fabrication activities.....	9
Module 4: Work according to personal health, safety and environment protocols at construction site	11
Module 5: Employability Skills	13
Module 6: On-the-Job Training.....	14
Annexure.....	15
Trainer Requirements	15
Assessor Requirements.....	16
Assessment Strategy.....	17
Assessment System Overview.....	Error! Bookmark not defined.
Testing Environment.....	Error! Bookmark not defined.
Assessment Quality Assurance Framework.....	Error! Bookmark not defined.
Methods of Validation	Error! Bookmark not defined.
Method of assessment documentation and access	Error! Bookmark not defined.
Acronyms and Abbreviations.....	20



Training Parameters

Sector	Construction
Sub-Sector	Real Estate and Infrastructure Construction
Occupation	Fabrication
Country	India
NSQF Level	2.0
Aligned to NCO/ISCO/ISIC Code	NCO-2015/9313.9900
Minimum Educational Qualification and Experience	No formal education prescribed OR May require the ability to read and write for some qualifications
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	31/08/2023
Next Review Date	31/08/2026
NSQC Approval Date	31/08/2023
QP Version	3.0
Model Curriculum Creation Date	31/08/2023
Model Curriculum Valid Up to Date	31/08/2026
Model Curriculum Version	3.0
Minimum Duration of the Course	240 Hours
Maximum Duration of the Course	240 Hours



Program Overview

This section summarises the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Demonstrate the safe handling of structural steel fabrication materials, tools, tackles and consumables.
- Demonstrate how to perform various fabrication activities, such as welding, gas cutting and grinding.
- Show how to fit component assemblies before their erection.
- Demonstrate the bolting of components using the appropriate tools.
- Explain the applicable measures to ensure health and safety at construction sites.
- Explain the appropriate employability skills.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
CON/N1201: Handle the structural steel fabrication materials, tools, tackles and consumables NOS Version- 3.0 NSQF Level- 2.0	30:00	60:00	00:00	00:00	90:00
Module 1: Introduction to the role of Helper Fabrication	05:00	00:00	0:00	00:00	05:00
Module 2: Handling of structural steel fabrication materials, tools, tackles and consumables	25:00	60:00	00:00	00:00	85:00
CON/N1202: Assist in the fabrication activities NOS Version- 3.0 NSQF Level- 2.0	25:00	35:00	30:00	00:00	90:00
Module 3: Assisting in the fabrication activities	25:00	35:00	30:00	00:00	90:00
CON/N9001: Work according to personal health, safety and	05:00	25:00	0:00	00:00	30:00



environment protocols at construction site NOS Version- 10.0 NSQF Level- 4					
Module 4: Work according to personal health, safety and environment protocols at construction site	05:00	25:00	0:00	00:00	30:00
DGT/VSQ/N0101: Employability Skills NOS Version- 1.0 NSQF Level- 2	30:00	00:00	0:00	00:00	30:00
Module 5: Employability Skills	30:00	00:00	0:00	00:00	30:00
Total Duration	90:00	120:00	30:00	00:00	240:00



Module Details

Module 1: Introduction to the role of Helper Fabrication

Mapped to CON/N1201 v3.0

Terminal Outcomes:

- Discuss the job role of a Helper Fabrication.

Duration: 05:00	Duration: 0:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">● Describe the size and scope of the Construction industry and its sub-sectors.● Discuss the role, responsibilities and personal attributes of a Helper Fabrication.● Identify the employment and career progression opportunities for a Helper Fabrication.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	



Module 2: Handling of structural steel fabrication materials, tools, tackles and consumables

Mapped to CON/N1201 v3.0

Terminal Outcomes:

- Demonstrate the use of different fabrication tools, tackles and consumables.
- Explain the appropriate safety measuring in the handling of different types of fabrication material.

Duration: 25:00	Duration: 60:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> ● List different types of tools used in fabrication activities. ● Explain the storage requirements of fabrication tools to ensure their efficient functioning. ● Explain the importance of stacking full and empty cylinders separately. ● Explain the application of ergonomics of material handling in shifting and stacking lightweight materials. ● Discuss the advantages and disadvantages of different types of welding gas cylinders. ● Elaborate on the difference between gases based on their uses and applications in gas cutting. ● Explain the difference between different types of filler rods used in different welding processes. ● Discuss the difference between different types of grinding wheels. ● List different types of consumables used with different grinding machines. ● Explain the difference between various tools and tackles employed in fit-up operations. ● Discuss the standard practices in fabrication works. ● Explain the safety measures applicable to handling and storing required fabrication tools, equipment and materials. ● Discuss the classification of different types of consumables, based on their size, material and application in the welding process. ● Elaborate on the difference between different types of gases used in fabrication activity. ● Explain the importance of transporting gas cylinders in the upright position. 	<ul style="list-style-type: none"> ● Demonstrate how to coil cables and pipes appropriately. ● Show how to stack cables, pipes and fabrications materials safely to ensure the stability of stacks. ● Demonstrate the appropriate safety measures to be taken while shifting gas cylinders using trolleys or other suitable mechanical means. ● Demonstrate how to perform basic maintenance of hand tools and tackles used in material handling. ● Demonstrate the use of different types of kits for welding. ● Demonstrate the use of different types of grinders, such as fixed grinding machines, angle or portable grinders bend grinders, etc. ● Demonstrate the use of appropriate Personal Protective Equipment (PPE) in fabrication activities. ● Demonstrate different types of welding processes. ● Show how to use different types of kits, tools and tackles in fabrication. ● Demonstrate the stacking and storage of different consumables used in different fabrication processes.



Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Drilling Machine with Bits, Electric Screw Gun, Electric Hexa Saw, Welding Tools and Accessories, Gas Cutting Tools and Accessories, Grinding Tools and Accessories, Files, Pliers, Temperature Gun/Chalk, Clamps and Anchors, Vices, Forklift, Slings, Wire Ropes, Shackles, Spreader Board, Chain Link, Eye Hook, Eye Bolts, Bull Dog Grips, Clamp, Socket, Metric Tape, Line Dori, Scale, Welding Gauge, Hammer, Safety Helmet, Punch, Safety Goggles, Safety Shoes, Safety Belt, Gloves, Ear Plugs, Reflective Jackets, Dust Mask, Fire Prevention Kit, Barricade Tape, Safety Tags, Jacks (Manual and Mechanical), Leather Hand Gloves, Jump Suit, Wire Brush, Hand & Leg Guards, Leather, Nose Mask, Ear Protection, Fire Extinguishers, Sand Buckets, Welding Helmet, Welding Glass



Module 3: Assisting in the fabrication activities

Mapped to CON/N1202 v3.0

Terminal Outcomes:

- Demonstrate how to carry out welding, gas cutting and grinding operations during fabrication.
- Explain the relevant fitting activities in fabrication operations.
- Demonstrate how to carry out bolting of connections.

Duration: 25:00	Duration: 35:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> ● Explain the importance of using clean base material and fabrication platforms free from dust, oil, rust, paint, scrap materials, and debris. ● Discuss the importance of cleaning the components assemblies before their erection. ● Explain how to select the correct bolts and bolt/ group location for fixing. ● Discuss the appropriate health and safety measures that should be taken during welding, proper ventilation and illumination in the welding area. ● Discuss different types of bolts and components of a bolting assembly. ● Explain the common terminology used in welding, gas cutting, bolting and fitting operations. 	<ul style="list-style-type: none"> ● Demonstrate the correct positioning of tools, clamps and arrestors. ● Show how to take and mark the relevant measurements. ● Demonstrate the use of washers and nuts. ● Show how to tighten the bolts appropriately to achieve the required torque. ● Demonstrate how to fix bolts sequentially, taking appropriate precautions to ensure no scratches on the component/ assembly surface. ● Show how to perform basic repair and maintenance of relevant fabrication tools and equipment ● Demonstrate the process of preparing the fabrication platform. ● Show how to use different tools and tackles in the fitting activity. ● Demonstrate the use of relevant tools and tackles in joining assemblies through bolted connections.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Drilling Machine with Bits, Electric Screw Gun, Electric Hexa Saw, Welding Tools and Accessories, Gas Cutting Tools and Accessories, Grinding Tools and Accessories, Files, Pliers, Temperature Gun/Chalk, Clamps and Anchors, Vices, Forklift, Slings, Wire Ropes, Shackles, Spreader Board, Chain Link, Eye Hook, Eye Bolts, Bull Dog Grips, Clamp, Socket, Metric Tape, Line Dori, Scale,	



Welding Gauge, Hammer, Safety Helmet, Punch, Safety Goggles, Safety Shoes, Safety Belt, Gloves, Ear Plugs, Reflective Jackets, Dust Mask, Fire Prevention Kit, Barricade Tape, Safety Tags, Jacks (Manual and Mechanical), Leather Hand Gloves, Jump Suit, Wire Brush, Hand & Leg Guards Leather, Nose Mask, Ear Protection, Fire Extinguishers, Sand Buckets, Welding Helmet, Welding Glass



Module 4: Work according to personal health, safety and environment protocols at construction site

Mapped to NOS CON/N9001 v10.0

Terminal Outcomes:

- Explain the importance of following safety norms as defined by the organization.
- Explain the need to adopt healthy & safe work practices.
- Describe the process of implementing good housekeeping and environment protection process and activities.
- Explain the importance of following infection control guidelines as per applicability.

Duration: 05:00	Duration: 25:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> ● Describe the reporting procedures in cases of breaches or hazards for site safety, accidents, and emergencies as per guidelines. ● Explain different types of safety hazards at construction sites. ● Discuss basic ergonomic principles as per applicability. ● Describe the procedure for responding to accidents and other emergencies at the site. ● Explain the importance of handling tools, equipment, and materials as per applicable norms. ● Explain the effect of construction material on health and environments as per applicability. ● Describe various environmental protection methods as per applicability. ● Explain the storage requirement of waste including non-combustible scrap material and debris, combustible scrap material and debris, general construction waste and trash (non-toxic, non-hazardous), any other hazardous wastes and any other flammable wastes at the appropriate location. ● Explain how to use hazardous material in a safe and appropriate manner as per applicability. 	<ul style="list-style-type: none"> ● Demonstrate how to follow emergency and evacuation procedures in case of accidents, fires, or natural calamities. ● Show how to operate different types of fire extinguishers corresponding to various types of fires as per EHS guidelines. ● Demonstrate the use of appropriate Personal Protective Equipment (PPE) as per work requirements for Head Protection, Ear Protection, Fall Protection, Foot Protection, Face and Eye Protection, Hand and Body Protection, and Respiratory Protection (if required). ● Demonstrate how to check and install all safety equipment as per standard guidelines. ● Show how to collect, segregate and deposit construction waste into appropriate containers based on their toxicity or hazardous nature. ● Show how to clean and disinfect all materials, tools and supplies before and after use.



<ul style="list-style-type: none">● Explain types of fire.● Describe the procedure of operating different types of fire extinguishers.● State safety relevant to tools, tackles, and equipment as per applicability.● List housekeeping activities relevant to the task.● Elucidate ways of transmission of infection● Describe different ways to manage infectious risks at the workplace.● Describe different methods of cleaning, disinfection, sterilization, and sanitization.● List the symptoms of infection like fever, cough, redness, swelling, and inflammation.	
Classroom Aids:	
Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board, registers and other teaching aids	
Tools, Equipment and Other Requirements	
Leather Hand Gloves, Jumpsuit, Wire brush, Hand and Leg guard leather, Safety goggles, Nose mask, Ear protection, Fire extinguishers, Sand buckets Flashback arrestors, Welding helmet, Welding glass, Fire Extinguisher, Fire prevention kit, First Aid box, Safety tags, Safety Notice board	



Module 5: Employability Skills

Mapped to NOS DGT/VSQ/N0101 v1.0

Duration: 30:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 1 Hour

After completing this programme, participants will be able to:

1. Discuss the importance of Employability Skills in meeting the job requirements

Constitutional values - Citizenship Duration: 1 Hour

2. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.
3. Show how to practice different environmentally sustainable practices

Becoming a Professional in the 21st Century Duration: 1 Hours

4. Discuss the 21st century.
5. Display a positive attitude, self-motivation, problem-solving, time management skills and continuous learning mindset in different situations.

Basic English Skills Duration: 2 Hours

6. Use appropriate basic English sentences/phrases while speaking

Communication Skills Duration: 4 Hours

7. Demonstrate how to communicate in a well-mannered way with others.
8. Demonstrate working with others in a team

Diversity & Inclusion Duration: 1 Hour

9. Show how to conduct oneself appropriately with all genders and PwD
10. Discuss the significance of reporting sexual harassment issues in time

Financial and Legal Literacy Duration: 4 Hours

11. Discuss the significance of using financial products and services safely and securely.
12. Explain the importance of managing expenses, income, and savings.
13. Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws

Essential Digital Skills Duration: 3 Hours

14. Show how to operate digital devices and use the associated applications and features, safely and securely
15. Discuss the significance of using the internet for browsing, and accessing social media platforms, safely and securely

Entrepreneurship Duration: 7 Hours

16. Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges

Customer Service Duration: 4 Hours

17. Differentiate between types of customers
18. Explain the significance of identifying customer needs and addressing them
19. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for Apprenticeship & Jobs Duration: 2 Hours

20. Create a biodata
21. Use various sources to search and apply for jobs
22. Discuss the significance of dressing up neatly and maintaining hygiene for an interview
23. Discuss how to search and register for apprenticeship opportunities



Module 6: On-the-Job Training

Mapped to Helper Fabrication

Mandatory Duration: 30:00	Recommended Duration: 00:00
Location: On-Site	
Terminal Outcomes <ul style="list-style-type: none">● Demonstrate the safe handling of structural steel fabrication materials, tools, tackles and consumables.● Demonstrate how to perform various fabrication activities, such as welding, gas cutting and grinding.● Show how to fit component assemblies before their erection.● Demonstrate the bolting of components using the appropriate tools.● Show how to use and maintain the relevant tools and equipment in fabrication activities.● Demonstrate appropriate practices to ensure personal health and safety at construction sites	



Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialisation	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
B. Tech	Civil/Mechanical/ Electrical	0.5	Fabrication	0	-	
Diploma	Civil/Mechanical/ Electrical	1	Fabrication	0	-	
ITI	Civil/Mechanical/ Electrical	2	Fabrication	0	-	
General BA/BSc./ EX-Army/ 12th	Civil/Mechanical/ Electrical	2				

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role “Helper Fabrication”, mapped to QP: “CON/Q1201, v3.0”, the minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: “Trainer (Vet and Skills)”, mapped to the Qualification Pack: “MEP/Q2601, v2.0”. The minimum accepted score as per MEPSC guidelines is 80%.



Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
B. Tech	Civil/Mechanical/ Electrical	1	Fabrication	0	-	
Diploma	Civil/Mechanical/ Electrical	2	Fabrication	0	-	
ITI	Civil/Mechanical/ Electrical	3	Fabrication	0	-	

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role “Helper Fabrication”, mapped to QP: “CON/Q1201, v3.0”, the minimum accepted score is 80%	Recommended that the Assessor is certified for the Job Role: “Assessor (Vet and Skills)”, mapped to the Qualification Pack: “MEP/Q2701, v2.0”, with a minimum score of 80%.



Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SIP
- The batch allocation Matrix prepared for each month based on previous months' performance of AAs, which determines the quantum of Assessment which can be allocated to each AA for a month
- Post allocation of assessment, Assessment agencies send the assessment confirmation to SSC
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC monitors the assessment process.

2. Testing Environment:

- A combination of Theory and practical/demonstration test is deployed to assess knowledge and Skill respectively of Learners.
- Assessment is conducted at Training center in in-person/offline mode
- For Skill assessment, environment is simulated to create a realistic Working Environment that should replicate the key features of the workplace. In job roles, where it is difficult to replicate the same, the OJT assessment is implemented.
- During the practical task, trainees are assessed on their workmanship, quality of finished product, time management, etc., based on the performance criteria (PC), knowledge and understanding and their professional and soft skills as specified in the qualification pack.
- Knowledge assessment is done through closed ended questions up to level 4 and from level 5 onwards, it is mixture of open ended and closed ended questions

3. Assessment Quality Assurance levels/Framework

- Assessment criteria is developed for each QP which acts as a guide for developing question set /banks
- Sample questions aligned with Assessment criteria for each QP are developed by SSC and validated by industry
- Taking reference of Assessment criteria and Sample Questions, AAs create the question bank which is further validated by SSC
- Questions are mapped to the specified assessment criteria
- It is mandatory that Assessor and Trainer must be ToA certified & ToT Certified respectively
- Continuous Monitoring through virtual and In-person mode are conducted to ensure the assessment is conducted as per stipulated process
- Process and Technical audit of assessment batches by quality team are conducted to avoid the errors in assessment process



- A well -defined comprehensive framework of NON-COMPLIANCE MATRIX is defined and implemented to identify the non-compliance made by assessor and AA and punitive actions are taken correspondingly.
- The capacity building sessions are conducted regularly for assessors and assessment agencies to update them about best practices in assessment

4. Types of evidence or evidence-gathering protocol:

- Post Assessment, the evidences are uploaded by Assessor to assessment agency and further assessment agency to SSC as per stipulated TAT
- Evidences are broadly the photographic and video graphic in nature
- Assessment agencies upload the evidence on SIP and detailed evidence on SSC digital platform (ZoHO)
- Evidences are; NOS wise-Geotagged photographs and videos of Theory Test & Practical Tasks, Attendance sheet, result summary sheet, group photographs.

5. Method of verification or validation:

- The process and technical audit of assessment batches are done by SSC
- Attendance of each candidate is verified and it is ensured that only those candidates are assessed by assessors who are meeting the stipulated minimum percentage of attendance
- The result of each candidate is verified, it is verified that that result on SIP are matching with respect to summary sheet submitted by AAs
- Under detailed technical audit for sample of batches, the knowledge and skill assessment results for each candidate is checked in technical aspect.
- All the evidences of batches are preserved on server of SSC digital platform

On the Job:

- On job training (OJT), candidates undergo training and learning at actual workplace for a fixed period of time and a certain weightage of assessment is allocated out of total skill weightage of Qualification Pack for undergoing OJT as stipulated by CSDCI. This OJT score and assessors' end point score are combined to arrive at final Marking/grading of trainees' skill test. The OJT score is determined by Supervisor of company under which candidates undergo on job training.



References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do it upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.



Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
CSDCI	Construction Skill Development Council of India
MCQ	Multiple Choice Question
EHS	Environment Health and Safety
IPS	Indian Patent Stone
VDF	Vacuum Dewatering Flooring