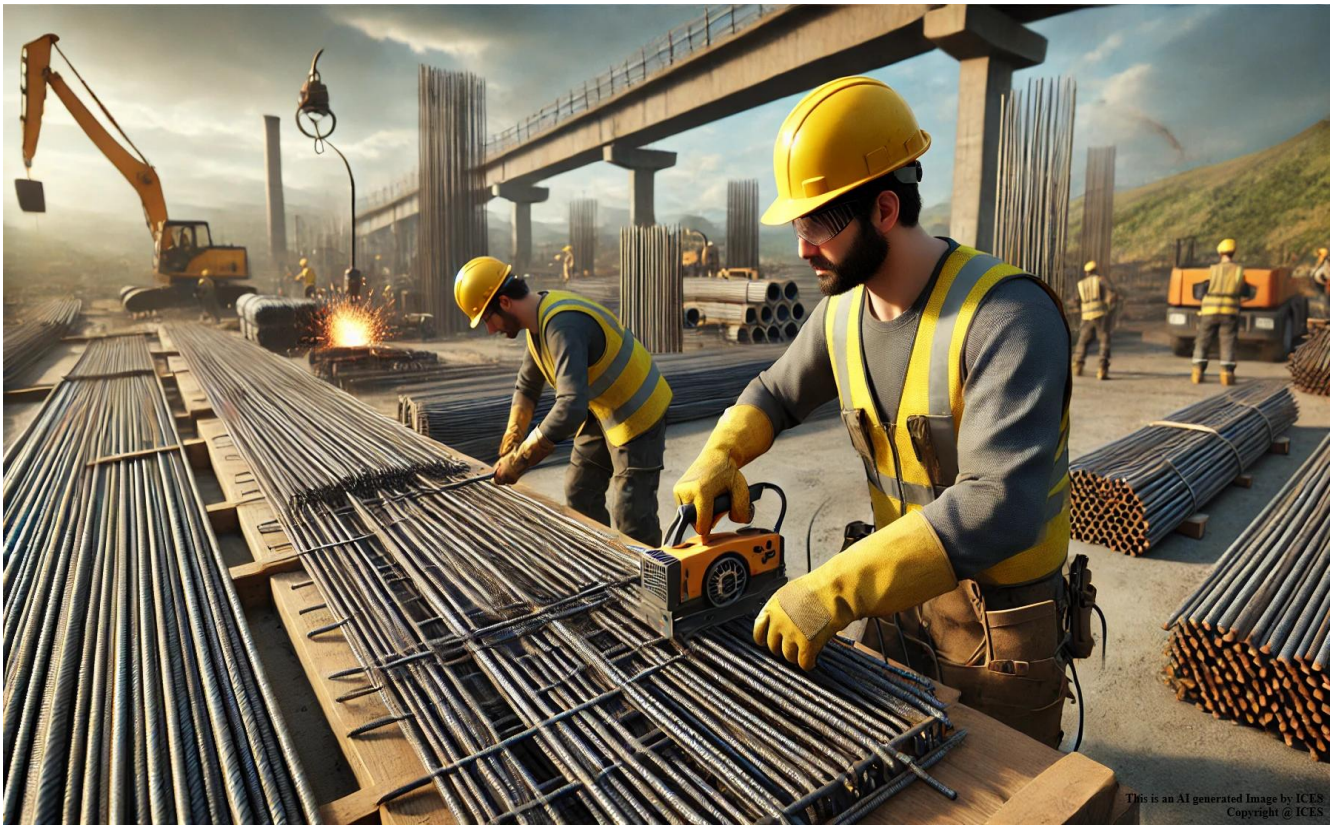

Model Curriculum

QP Name:	**Assistant Bar Bender and Steel Fixer**
QP Code:	**ICE/CON/Q0202**
Version:	**4.0**
NSQF Level:	**3**
Model Curriculum Version:	**4.0**

The Institution of Civil Engineers Society (ICES)
301-303, Suncity Trade Tower, Sector-21, Gurugram, Haryana || Email: ceo@iceskills.in

Table of Contents

Training Parameters

Sector	Construction
Sub-Sector	Real Estate and Infrastructure Construction
Occupation	Bar Bending and Fixing
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7214.1101
Minimum Educational Qualification and Experience	Grade 10 Pass OR Grade 8 pass with 2-year of (NTC/ NAC) after 8th OR 9th grade pass with 1-year relevant experience OR 8th grade pass with 2-year relevant experience OR 5th grade pass with 5-year relevant experience OR Previous relevant Qualification of NSQF Level 2 with 3-year relevant experience OR Previous relevant qualification of NSQF Level 2.5 with 1.5 relevant experience
Pre-Requisite License or Training	Not Applicable
Minimum Job Entry Age	As per Govt. Norms
Last Reviewed On	31-08-2023
Next Review Date	31-08-2026
NSQC Approval Date (Original)	31-08-2023
Adoption Date	07-10-2025
Adoption Valid Till	31-08-2026
QP Version	4.0
Model Curriculum Creation Date	31-08-2023
Model Curriculum Valid Up to Date	31-08-2026
Model Curriculum Version	4.0
Minimum Duration of the Course	360 Hours
Maximum Duration of the Course	360 Hours

Program Overview

This section summarizes 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:

- Explain the process of handling the structural steel fabrication materials, tools, tackles and consumables.
- Explain the process of assisting in the fabrication activities.
- Describe the use of relevant tools and tackles to handle heavy materials used in fit-up of fabricated components.
- Explain the process of assisting in preparatory activities, edge reparation and positioning of steel sections for fit-up.
- Describe the process of carrying out marking on structural steel elements for fit-up.
- Describe the process of performing the fit-up of assemblies.
- Describe the process of performing tack welding operations on structural steel elements.
- Describe the process of carrying out preheating of materials before cutting and welding.
- Explain the importance of working effectively in a team to deliver desired results at the workplace.
- Elucidate ways to work according to personal health, safety and environment protocols at construction site.

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/N0214: Read and understand the reinforcement bar details **NOS Version- 5.0** **NSQF Level- 3**	**15:00**	**15:00**	**30:00**	**00:00**	**60:00**
Module 1: Introduction to the role of a Assistant Bar Bender and Steel Fixer	05:00	00:00	00:00	00:00	05:00
Module 2: Process of reading and understanding the reinforcement bar details	10:00	15:00	30:00	00:00	55:00
CON/N0215: Use and maintain reinforcement related materials, tools and equipment **NOS Version- 4.0** **NSQF Level- 3**	**20:00**	**40:00**	**0:00**	**00:00**	**60:00**

Module 3: Process of using and maintaining reinforcement related materials, tools and equipment	20:00	40:00	00:00	00:00	60:00
CON/N0216: Perform cutting and manual bending of rebar in simple shapes **NOS Version- 4.0** **NSQF Level- 3**	**15:00**	**15:00**	**30:00**	**00:00**	**60:00**
Module 4: Process of performing cutting and manual bending of rebar in simple shapes	15:00	15:00	30:00	00:00	60:00
CON/N0217: Assist in fabricating, placing and fixing rebar **NOS Version- 4.0** **NSQF Level- 3**	**15:00**	**15:00**	**00:00**	**00:00**	**30:00**
Module 5: Process of assisting in fabricating, placing and fixing rebar	15:00	15:00	00:00	00:00	30:00
CON/N0101: Erect and dismantle temporary scaffold up to 3.6 - meter height **NOS Version- 7.0** **NSQF Level- 3**	**15:00**	**45:00**	**00:00**	**00:00**	**60:00**
Module 6: Process of erecting and dismantling temporary scaffold up to 3.6 meter height	15:00	45:00	0:00	00:00	60:00
CON/N8001: Work effectively in a team to deliver desired results at the workplace **NOS Version- 12.0** **NSQF Level- 4**	**05:00**	**25:00**	**00:00**	**00:00**	**30:00**
Module 7: Work according to personal health, safety and environment protocols at construction site	05:00	25:00	0:00	00:00	30:00
CON/N9001: Work according to personal health, safety and environment protocols at construction site **NOS Version- 10.0** **NSQF Level- 4**	**05:00**	**25:00**	**00:00**	**00:00**	**30:00**

Module 8: Follow safety norms as defined by organization, adopt healthy and safe work practices	05:00	25:00	00:00	00:00	30:00
DGT/VSQ/N0101: Employability Skills NOS Version- 1.0 NSQF Level- 2	**30:00**	**00:00**	**00:00**	**00:00**	**30:00**
Module 9: Employability Skills	30:00	00:00	00:00	00:00	30:00
Total Duration	**120:00**	**180:00**	**60:00**	**00:00**	**360:00**

Module Details

Module 1: Introduction to the role of an Assistant Bar Bender and Steel Fixer

Mapped to CON/N0214 v5.0

Terminal Outcomes:

- Discuss the job role of an Assistant Bar Bender and Steel Fixer.

Duration: 05:00	**Duration**: 0:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size and scope of the Construction industry and its sub-sectors. • Discuss the role and responsibilities of an Assistant Bar Bender and Steel Fixer. • Identify various employment opportunities for an Assistant Bar Bender and Steel Fixer.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Process of reading and understanding the reinforcement bar details

Mapped to CON/N0214 v5.0

Terminal Outcomes:

- Explain the process of reading and understanding rebar (reinforcement bars) details from hand sketches.

Duration: 10:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the safety rules and regulations for handling and storing reinforcement tools, materials and components. • Explain the units of measurement and conversion of linear units. • Explain the use of measurements and marking tools. • Explain different types of rebar, their grade and standard size. • Explain different types and thickness of binding wire. • Describe the methods to protect steel from rusting. • Explain how to perform simple arithmetic calculations. • Explain how to calculate the cutting length for simple shapes, stirrups, chairs etc. • State the unit weight of steel. • Explain the importance of scale given in drawings. • Explain how to make stirrups of different shapes. • Explain the use of stirrups, hanger bars, chairs and spacer bar. • Describe the method of inserting, placing and fixing of rebar for different structural elements.	• Demonstrate ways to determine the diameter, cutting length, number and shape of rebar details from the relevant hand sketches. • Demonstrate ways to determine the spacing detail for stirrups, main and secondary rebar, bar chairs, and spacer bar. • Show how to calculate the cutting length of rebar for simple shapes, stirrups, hanger bar and chairs.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Chisel, Hammer, Bar Tying Hook, Bending Lever, Guage Measure, Podger Spanner, Hack Saw Blade, Hack Saw Frame, Steel Scale, Try Scale, Spirit Level, Plumb Bob, Measurement Tape, Cutting Machine, Bending Machine, M.S, TOR Steel Bar, TMT Steel Binding Wires, Cover Blocks, Wooden Planks, Reinforcement Bar Tying Machine, Lifting Appliance (Sling, Shackle, Belts), Safety Helmet, Safety Goggles, Safety Shoes, Safety Belt, Cotton Gloves, Ear Plugs, Reflective Jackets, Dust Mask, Fire Prevention Kit, Rail Piece, Pointed Chisel, Sledge Hammer, Bending Lever, Pin Plate, Working Bench, Binding Hook, Chalk Piece, Steel Cutting Blade, Mechanical Coupler, Spanner (Set), Wrench, Pulley, Rope, Nuts and Bolts, Mason's Line, Swivel Coupler, Fixed Clamp, Steel Walers, Steel Walkways, Aluminum/ GI Ladder, 40 NB Pipes, Cup-Lock Scaffolding, Components (Set), Tools Bag, Face Mask, Operator - Leather Apron, Ear Muff, Safety Message Board/ Safety Notice Board, Fire Extinguisher, Sand Buckets	

Module 3: Process of using and maintaining reinforcement related materials, tools and equipment

Mapped to CON/N0215, v 4.0

Terminal Outcomes:

- Elucidate ways to use and maintain materials, tools and equipment relevant to reinforcement works.

Duration: 20:00	**Duration**: 40:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the safety rules and regulations for handling and storing reinforcement tools, materials and components. • Explain the importance of personal protection and use of Personal Protective Equipment (PPE). • Describe safe working methods concerning bar bending and related activities. • List different types of binding wire. • Explain different types of reinforcement steel, their grade and size. • Describe the process of cutting and bending reinforcement bars using appropriate tools. • Explain the importance of maintaining the correct body posture during bar bending. • Elucidate the types and uses of slings, shackles and lifting belts. • Describe the standard procedure for stacking reinforcement bars. • Explain the importance of being mindful of the position of overhead electrical wires and cables during shifting / lifting of materials. • Describe the process of conducting visual check on the quality of different construction materials including reinforcement bars.	• Demonstrate how to use different types of rebar and materials such as binding wire, bar connecting coupler, thread protection cap, as per the supervisor's instructions. • Demonstrate the use of hand tools, such as lever, hook, measurement tape, gauge, sledge hammer, chisel, pin plate and other relevant tools for reinforcement work. • Demonstrate how to use power tools, such as handheld rebar cutting machine, circular rebar cutting machine and shearing machine for cutting of rebar, following the applicable safety guidelines. • Show how to use threading machine for making threads on rebar as per the supervisor's instructions. • Demonstrate the use of bending machine for rebar bending using different types of bushes and other accessories under supervision. • Demonstrate the use of different types of slings, shackles and lifting belts for lifting and shifting rebars. • Demonstrate the use of appropriate Personal Protective Equipment (PPE), such as safety shoes, gloves, helmets, ear plugs, safety goggles, half body safety harness according to the task being undertaken. • Demonstrate the process of performing the basic maintenance of hand and power tools and coordinate with the supervisor for complex maintenance needs.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Chisel, Hammer, Bar Tying Hook, Bending Lever, Guage Measure, Podger Spanner, Hack Saw Blade, Hack Saw Frame, Steel Scale, Try Scale, Spirit Level, Plumb Bob, Measurement Tape,	

Cutting Machine, Bending Machine, M.S, TOR Steel Bar, TMT Steel Binding Wires, Cover Blocks, Wooden Planks, Reinforcement Bar Tying Machine, Lifting Appliance (Sling, Shackle, Belts), Safety Helmet, Safety Goggles, Safety Shoes, Safety Belt, Cotton Gloves, Ear Plugs, Reflective Jackets, Dust Mask, Fire Prevention Kit, Rail Piece, Pointed Chisel, Sledge Hammer, Bending Lever, Pin Plate, Working Bench, Binding Hook, Chalk Piece, Steel Cutting Blade, Mechanical Coupler, Spanner (Set), Wrench, Pulley, Rope, Nuts and Bolts, Mason's Line, Swivel Coupler, Fixed Clamp, Steel Walers, Steel Walkways, Aluminum/ GI Ladder, 40 NB Pipes, Cup-Lock Scaffolding, Components (Set), Tools Bag, Face Mask, Operator - Leather Apron, Ear Muff, Safety Message Board/ Safety Notice Board, Fire Extinguisher, Sand Buckets

Module 4: Process of performing cutting and manual bending of rebar in simple shapes

Mapped to CON/N0216 v4.0

Terminal Outcomes:

- Elucidate ways to cut and bend rebar in simple shapes.

Duration: 15:00	**Duration**: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the applicable housekeeping and administrative practices. • Explain the use of tools, such as lever, hook, chisel, sledgehammer, measuring tape, bending pipe, etc. • Explain the use of relevant power tools for cutting, threading and bending of rebar. • Explain how to calculate unit weight of steel. • Describe the tagging procedures for rebar basis shape, size and location. • Explain how to carry out simple measurements using metric and imperial systems.	• Demonstrate how to measure the cutting length using a measuring tape and mark it on the rebar as per the given instruction. • Demonstrate how to operate the selected hand or power tool safely to cut rebar, maintaining the correct body posture. • Show how to straighten the rebar using appropriate tools before bending as required. • Show how to create an appropriate mark on the rebar for bending, and bend the rebar using a lever or pipe of suitable diameter. • Show how to create an appropriate mark on the bending bench for making stirrups, chairs, and hanger bars. • Show how to check the bent rebar for the correct shape, angle and length.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Chisel, Hammer, Bar Tying Hook, Bending Lever, Guage Measure, Podger Spanner, Hack Saw Blade, Hack Saw Frame, Steel Scale, Try Scale, Spirit Level, Plumb Bob, Measurement Tape, Cutting Machine, Bending Machine, M.S, TOR Steel Bar, TMT Steel Binding Wires, Cover Blocks, Wooden Planks, Reinforcement Bar Tying Machine, Lifting Appliance (Sling, Shackle, Belts), Safety Helmet, Safety Goggles, Safety Shoes, Safety Belt, Cotton Gloves, Ear Plugs, Reflective Jackets, Dust Mask, Fire Prevention Kit, Rail Piece, Pointed Chisel, Sledge Hammer, Bending Lever, Pin Plate, Working Bench, Binding Hook, Chalk Piece, Steel Cutting Blade, Mechanical Coupler, Spanner (Set), Wrench, Pulley, Rope, Nuts and Bolts, Mason's Line, Swivel Coupler, Fixed Clamp, Steel Walers, Steel Walkways, Aluminum/ GI Ladder, 40 NB Pipes, Cup-Lock Scaffolding, Components (Set), Tools Bag, Face Mask, Operator - Leather Apron, Ear Muff, Safety Message Board/ Safety Notice Board, Fire Extinguisher, Sand Buckets	

Module 5: Process of assisting in fabricating, placing and fixing rebar

Mapped to CON/N0217, v 4.0

Terminal Outcomes:

- Describe the process of fabricating, placing and fixing rebar.

Duration: 15:00	**Duration**: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the sequence for tying rebar for in-situ and prefabricated cages. • Explain the use of chairs, spacer and hanger bars. • State the lapping length for different diameters of rebar. • Explain the importance of distribution rebar. • Explain different types of stirrups used in bar bending. • Explain different types of ties used in bar bending, such as slash tie, ring slash tie, hairpin tie, ring hairpin tie, crown tie, slash tie, etc. • Explain the importance of clear cover while carrying out reinforcement work. • State the standard tolerance limits in reinforcement works. • Explain how to ensure electrical safety while using powers tools and equipment in bar bending. • Explain the types of rebar, their grade and standard length. • Explain the types and use of binding wire such as mild steel, Galvanized Iron (GI) wire. • Explain different types and uses of cover blocks, such as plastic and concrete.	• Show how to place and fix rebar in its position as per the marking and instructions. • Demonstrate how to maintain uniform spacing between the bars, stirrups, links as per the marking and instructions. • Demonstrate ways to position and tie cover blocks at regular intervals. • Demonstrate how to position and fix spacer bars to maintain appropriate gap between double layer rebar as per the given instructions. • Demonstrate how to position and fix chairs at the specified spacing to maintain correct thickness in case of slab reinforcement. • Show how to use binding wire appropriately for tying rebar.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Chisel, Hammer, Bar Tying Hook, Bending Lever, Guage Measure, Podger Spanner, Hack Saw Blade, Hack Saw Frame, Steel Scale, Try Scale, Spirit Level, Plumb Bob, Measurement Tape, Cutting Machine, Bending Machine, M.S, TOR Steel Bar, TMT Steel Binding Wires, Cover Blocks, Wooden Planks, Reinforcement Bar Tying Machine, Lifting Appliance (Sling, Shackle, Belts), Safety Helmet, Safety Goggles, Safety Shoes, Safety Belt, Cotton Gloves, Ear Plugs, Reflective Jackets, Dust Mask, Fire Prevention Kit, Rail Piece, Pointed Chisel, Sledge Hammer, Bending Lever, Pin Plate, Working Bench, Binding Hook, Chalk Piece, Steel Cutting Blade, Mechanical Coupler, Spanner (Set), Wrench, Pulley, Rope, Nuts and Bolts, Mason's Line, Swivel Coupler, Fixed Clamp, Steel Walers, Steel Walkways, Aluminum/ GI Ladder, 40 NB Pipes, Cup-Lock Scaffolding, Components (Set), Tools Bag, Face Mask, Operator - Leather Apron, Ear Muff, Safety Message Board/ Safety Notice Board, Fire Extinguisher, Sand Buckets	

Module 6: Process of erecting and dismantling temporary scaffold up to 3.6-meter height

Mapped to CON/N0101, v 7.0

Terminal Outcomes:

- Explain the process of erecting and dismantling temporary scaffold.

Duration: 15:00	**Duration**: 45:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the use of different types of scaffolds (e.g. cup-lock, frame scaffold). • Explain the use of tools and tackles in scaffolding, including tools for erecting and dismantling 3.6-meter temporary scaffold. • Elucidate the identification and use of • different scaffolding components. • List the standard size of scaffolding components. • Describe the standard procedure for erecting and dismantling 3.6 m temporary scaffold.	• Demonstrate the process of carrying out levelling in the area where scaffold needs to be erected and check for ground compactness. • Demonstrate how to use appropriate components and follow the standard procedure for erecting temporary scaffold up to 3.6 m in height. • Demonstrate the process of setting up walk-boards, guard rails, toe- boards and other components on the scaffold's working platform. • Show how to clean and stack all components properly after dismantling.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Chisel, Hammer, Bar Tying Hook, Bending Lever, Guage Measure, Podger Spanner, Hack Saw Blade, Hack Saw Frame, Steel Scale, Try Scale, Spirit Level, Plumb Bob, Measurement Tape, Cutting Machine, Bending Machine, M.S, TOR Steel Bar, TMT Steel Binding Wires, Cover Blocks, Wooden Planks, Reinforcement Bar Tying Machine, Lifting Appliance (Sling, Shackle, Belts), Safety Helmet, Safety Goggles, Safety Shoes, Safety Belt, Cotton Gloves, Ear Plugs, Reflective Jackets, Dust Mask, Fire Prevention Kit, Rail Piece, Pointed Chisel, Sledge Hammer, Bending Lever, Pin Plate, Working Bench, Binding Hook, Chalk Piece, Steel Cutting Blade, Mechanical Coupler, Spanner (Set), Wrench, Pulley, Rope, Nuts and Bolts, Mason's Line, Swivel Coupler, Fixed Clamp, Steel Walers, Steel Walkways, Aluminum/ GI Ladder, 40 NB Pipes, Cup-Lock Scaffolding, Components (Set), Tools Bag, Face Mask, Operator - Leather Apron, Ear Muff, Safety Message Board/ Safety Notice Board, Fire Extinguisher, Sand Buckets	

Module 7: Work effectively in a team to deliver desired results at the workplace

Mapped to CON/N8001, v 12.0

Terminal Outcomes:

- Explain the importance of interacting and communicating in an effective manner.
- Elucidate ways to support co-workers to execute the project requirements.
- Elucidate ways to practice inclusion at workplace.

Duration: 05:00	**Duration: 25:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Elucidate own roles and responsibilities. • Explain the importance of effective communication. • Elucidate the consequence of poor teamwork on project outcomes, timelines, safety at the construction site, etc. • Explain different modes of communication used at workplace. • Explain the importance of creating healthy and cooperative work environment among the gangs of workers. • Elucidate applicable techniques of work, properties of materials used, tools and tackles used, safety standards that co-workers might need as per the requirement. • Explain the importance of proper and effective communication and the expected adverse effects in case of failure relating to quality, timeliness, safety, risks at the construction project site. • Explain the importance and need of supporting co-workers facing problems for the smooth functioning of work. • Discuss the fundamental concept of gender equality. • Explain how to recognise and be sensitive to issues of disability, culture and gender. • Discuss legislation, policies, and procedures relating to gender sensitivity and cultural diversity including their impact on the area of operation	• Demonstrate how to pass on work related information/ requirement clearly to the team members. • Show how to report any unresolved problem to the supervisor immediately. • Demonstrate ways to hand over the required material, tools, tackles, equipment and work fronts timely to interfacing teams. • Demonstrate ways to work together with co-workers in a synchronized manner. • Demonstrate effective implementation of gender-neutral practices at workplace. • Demonstrate ways to address discriminatory and offensive behaviour in a professional manner as per organizational policy.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 8: Work according to personal health, safety and environment protocols at construction site

Mapped to NOS CON/N9001, v 10.0

Terminal Outcomes:

- Explain the importance of following safety norms as defined by 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**
• Describe the reporting procedures in cases of breaches or hazards for site safety, accidents and emergency situations 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 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 waste and any other flammable wastes at the appropriate location. • Explain how to use hazardous material in a safe and appropriate manner as per applicability. • 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 task. • Elucidate ways of transmission of	• 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.

infection ● Elucidate 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, Jump suit, 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 9: Employability Skills

Mapped to NOS DGT/VSQ/N0101, v 1.0

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 21st century skills. 5. Display 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 Hour** 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 internet for browsing, 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

On-the-Job Training

Mapped to Assistant Bar Bender and Steel Fixer

Mandatory Duration: 60:00	Recommended Duration: 00:00
Location: On-Site	

Terminal Outcomes

- Explain the methods to protect steel from rusting.
- Calculate the cutting length of rebar for simple shapes, stirrups, hanger bar and chairs.
- Use different types of rebar and materials such as binding wire, bar connecting coupler, thread protection cap, as per the supervisor's instructions.
- Use of appropriate Personal Protective Equipment (PPE), such as safety shoes, gloves, helmets, ear plugs, safety goggles, half body safety harness according to the task being undertaken.
- Operate the selected hand or power tool safely to cut rebar, maintaining the correct body posture.
- Position and fix spacer bars to maintain appropriate gap between double layer rebar as per the given instructions.
- Use binding wire appropriately for tying rebar.
- Check and install all safety equipment as per standard guidelines.

Annexure

Trainer Requirements

Minimum Educational Qualification	Specialization	Relevant Industry Experience		Preferable Training Experience		Remarks
		Years	*Specialization*	*Years*	*Specialization*	
Graduation	Civil Engineering	1	Site Execution (Civil Work)	1	Site Execution (Civil Work)	
OR						
Diploma	Civil Engineering	2	Site Execution (Civil Work)	1	Site Execution (Civil Work)	
OR						
ITI	Relevant Trade	4	Site Execution (Civil Work)	1	Site Execution (Civil Work)	

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "Assistant Bar Bender and Steel Fixer", mapped to QP: "ICE/CON/Q0202, v4.0", 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

Minimum Educational Qualification	Specialization	Relevant Industry Experience		Preferable Training / Assessment Experience		Remarks
		Years	*Specialization*	*Years*	*Specialization*	
Graduation	Civil Engineering	1	Site Execution (Civil Work)	1	Site Execution (Civil Work)	
OR						
Diploma	Civil Engineering	2	Site Execution (Civil Work)	1	Site Execution (Civil Work)	
OR						
ITI	Relevant Trade	4	Site Execution (Civil Work)	1	Site Execution (Civil Work)	

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "Assistant Bar Bender and Steel Fixer", mapped to QP: "ICE/CON/Q0202 v4.0", Minimum accepted score is 80%	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:**

   Assessment is done through ICES affiliated Assessment Agencies. Assessors are trained & certified by ICES after Training of Assessor (ToA) program. Assessments are conducted to gauge and assess the trainee's skill and knowledge competency in the specified areas.

   The assessment will have both theory, practical and viva components as per ratio specified in each NOS for **Assistant Bar Bender and Steel Fixer** job role.

   During the practical task, trainees are assessed on their workmanship, quality of finished product and time management. They will be graded for all their assessments based on the approved assessment strategy which is signed off by ICES. The Assessor submits an assessment plan to ICES prior to assessments.

   The assessment plan contains the following information:

   - What will be assessed, i.e. the competency based on each NOS based on theory, practical and viva questions
   - How assessment will occur i.e. methods of assessment
   - When the assessment will occur
   - Duration of assessment
   - Where the assessment will take place i.e. context of the assessment (workplace/simulation)
   - The criteria for decision making i.e. those aspects that will guide judgments
   - Where appropriate, any supplementary criteria are used to make a judgment on the level of performance.

ICES will be monitoring thoroughly the complete Assessment process.

2. **Testing Environment:**

   - Training partner shares the batch start date and end date, number of trainees and the job role.
   - Assessment will be fixed for a day after the end date of training. It could be next day or later. Assessment will be conducted at the training venue/test center only.
   - The knowledge/theory assessments are conducted with proper seating arrangements with enough space between the candidates to prevent mal practicing.
   - Question set for Theory and Practical will be distributed to each candidate by the Assessor.
     - Theory testing will include MCQ type questions, pictorial questions etc. which will test the trainee on his theoretical knowledge of the subject.
     - Practical assessments will be conducted in the approved test centers. The training provider will ensure adequate tools and materials are available to conduct the practical test.
     - Viva Testing will be conducted during or post to the practical assessment by the assessor concerned. This Viva Assessment is applicable to understand the outcomes from OJT attended by the concerned candidate.
   - One (1) Assessor is eligible to conduct assessments of a batch of maximum 30 candidates.
   - The assessment must comprise of two components, namely:
     - Knowledge assessment (Theory assessment)

- Skill assessment (Practical / Hands-on Skill assessment)

3. **Mode of assessment**
   - Demonstration/Practical Performance /Skill Assessment
   - Synoptic multiple-choice question test for Theory Assessment
4. **Performance/skill assessment:**
   - The performance/skill assessment will be conducted through demonstration/practical
   - For the practical test trainees are assessed through a given task, which they have to complete correctly for them to be marked as passed.
   - The assessment is conducted in a simulated working environment. Due to this fact, the assessors must note that the naturally occurring evidence of competence is unavailable or infrequent. Simulation must be undertaken in a Realistic Working Environment which provides an environment that replicates the key characteristics of the workplace in which the skill to be assessed is normally employed.
5. **Knowledge Assessment:**
   - The knowledge assessments are conducted through Theory (written) Test and Viva Test
   - Synoptic test is used for this. It is an MCQ (Multiple Choice Question) test which is prepared externally and externally marked, meaning by agency having no link with training partners.
   - The Viva test will be conducted by the assessor in the oral mode considering the communication and domain understanding of skills of trainees.
   - The assessment strategy, weightage and duration of assessment for **Assistant Bar Bender and Steel Fixer** is summarized below

Assessment Type	Formative or Summative	Strategies	Weightage	Duration (hours)
Knowledge	Summative	MCQ	30	2 hours
Skill	Summative	Structured practical Task	70	6 hours

6. **Assessment Quality Assurance levels/Framework**
   - ICES has developed assessment criteria framework for each Qualification pack as per National Occupational Standards. The criteria framework includes weightages/marks for each criterion under knowledge and skill. The criteria ensure quality assurance as they ensure valid, consistent and fair assessments at all locations. Issued to the affiliated Assessment body. The Assessment Body develops questions based on ICES's approved assessment criteria.
   - The training partner will intimate the time of arrival of the assessor and time of leaving the venue. Random spot checks/audit may be conducted by ICES to monitor assessment.
   - 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 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
7. **Types of evidence or evidence-gathering protocol:**
   - Evidence in the form of answer sheets in case of knowledge assessments (Theory only) is collected.

- For Practical and Viva assessments videos and photographs are prepared as evidence. These are submitted by the assessor to the assessment agency. ICES does random checks of the same with the participant/ trainee's ID and ascertains authenticity and validity of assessments.
- Post Assessment, the evidence are uploaded by Assessor to assessment agency and further assessment agency to ICES as per stipulated TAT
- Evidence are broadly photographic and video graphics in nature (Geo-Tagged)
- Results along with evidence to be submitted to ICES by the concerning Assessment Agency in the prescribed format and on Digital Format and Physical Format (As required)
- Results to be uploaded on SIDH and other relevant portals for collective data management.

8. Method of verification or validation:

- The process and technical audit of assessment batches are done by Awarding Body
- 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 is matched with respect to summary sheet submitted by AAs
- Under detailed technical audit for sample batches, the knowledge and skill assessment results for each candidate are checked in technical aspect.
- All the evidence of batches are preserved on server of Awarding Body digital platform

9. On the Job:

- On job training (OJT), candidates undergo training and leaning 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 ICES. 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 / Engineer / other authorized head of departments of relevant industry under which candidates undergo on job training.
- The Assessment is subject to take place only after submission of OJT data (in case of STT only) approved by concerned industry and training provider.
- The Hard copy of the OJT report (on trainings, outcomes, exposures learnt and feedback certified by Supervisor / Engineer / other authorized head of departments of relevant industry) will be submitted to the Assessor by the concerned candidate on the Assessment date only, failing which the candidate may not be allowed for attending the Assessment.
- As OJT is mandatory for this QP, the TP should ensure the correct submission of all relevant reports pertaining to OJT of each trained candidate. The Assessment agency is responsible for collecting all the relevant information and submit the same to ICES in future (if required).

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 to 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