



Model Curriculum

Foreman-Reinforcement

SECTOR: Construction
SUB-SECTOR: Real Estate and Infrastructure Construction
OCCUPATION: Bar Bending and Fixing
REF ID: CON/Q0205, V1.0
NSQF LEVEL: 5





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Foreman-Reinforcement

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Foreman-Reinforcement”, in the “Construction” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Foreman-Reinforcement		
Qualification Pack Name & Reference ID. ID	CON/Q0205, v1.0		
Version No.	1.0	Version Update Date	23-03-2017
Pre-requisites to Training	Preferably 10th Standard with 12 years site experience in same occupation for Non trained worker/ 3 years site experience as a certified Reinforcement Fitter for Trained worker:		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Read and interpret drawings, reinforcement specification, standards and prepare Bar Bending Schedule:- Read drawings specification, standards and prepare Bar Bending schedule • Monitor reinforcement works at reinforcement yard:- Carry out reinforcement and related monitoring works at reinforcement yard • Ensure fabrication, placing and fixing of rebars as per Drawing, Bar Bending Schedule and specification:- Ensure completion of surveying, marking and other preparatory arrangement and extract work as per approved prepared BBS and drawing • Inspect and check the quality of reinforcement work:-Quality of reinforcement work and Mechanical connections of rebar pre-fabricated reinforcement cage & erection process • Plan, arrange and manage resources for execution of relevant work:-Arrange and manage manpower allocate and manage tools, material and equipment • Work effectively in a team to deliver desired results at the workplace:-Interact,communicate,support co-workers, superiors and sub-ordinates across different teams to ensure effective execution of assigned task • Plan and organize work to meet expected outcomes:- Prioritize work activities to achieve desired results and Organize desired resources prior to commencement of work • Supervise, monitor and evaluate performance of subordinates at workplace:-Monitor all construction work activities performed by subordinates and evaluate their performance • Manage workplace for safe and healthy work environment:-Ensure effective implementation of health, safety and environment policies and procedures 		

This course encompasses 9 out of 9 National Occupational Standards (NOS) of “Foreman-Reinforcement” Qualification Pack issued by “Construction Skill Development Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Introduction</p> <p>Theory Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding NOS Code Bridge Module</p>	<p>Theory:</p> <ul style="list-style-type: none"> • Overview of construction sector and Bar Bending and Fixing occupation • Role description/ functions of the foreman-Reinforcement • Expected personal attributes of foreman-Reinforcement • Brief description about course content, mode of learning and duration of course • Future possible progression and career development provisions on completion of the course 	<p>Classroom Requirement</p> <ol style="list-style-type: none"> 1. Classroom of 30 students capacity 2. Black/White board 3. Projector/LED Monitor 4. Computer 5. Trade specific charts and other teaching aids
2	<p>Read and interpret drawings, reinforcement specification, standards and prepare Bar Bending Schedule</p> <p>Theory Duration (hh:mm) 24:00</p> <p>Practical Duration (hh:mm) 44:00</p> <p>Corresponding NOS Code CON/N0210</p>	<p>Theory:</p> <ul style="list-style-type: none"> • Methodology of reading and understanding of civil structural drawings • Principles involved in reading and understanding various related drawings use of schedules including applicable code shapes and associated calculations • Methodology and principals involved of reading of general arrangement drawing and RCC Drawing • Bar bending schedule and its applications • Knowledge of basic IS/International Codes for Reinforcement • Methodology of simplified sketch preparation from the drawing • How to read plan, elevation and sectional drawing • Basic principle of measurement, arithmetic and geometric calculations terminology used in reinforcement works • Components, materials and tools used in reinforcement works • Insertion and fixing procedure for various types of structure • Units weight of reinforcement steel of different diameter • Electrical safety of power tools for reinforcement works • Computer basics, auto-cad software application for 2D drawings <p>Demonstration/ Practical :-</p> <ul style="list-style-type: none"> • Interpret details from R.C.C drawing and other relevant drawings 	<p>Drawings/Sketches</p> <ol style="list-style-type: none"> 1. Drawings of various types of structures and structural elements 2. Bar bending schedule sample 3. Is codes relevant to reinforcement work 4. Civil structural drawing, reinforcement drawing

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> • Interpret details from Bar bending schedule • Interpret specification and standards provided and apply it for fabrication and fixing of reinforcement • Interpret schedule provided for completion of reinforcement work • Interpret and apply method statement for execution of reinforcement work • Interpret and follow manufactures specification for fixing of mechanical coupler • Follow manufactures specification for operation of power tools and CNC machine for cutting and bending • Carryout calculation of BOQ quantity co-relate R.C.C detail drawing with respect to general arrangement drawing • Prepare the BBS for cutting and bending of rebars and plan fixing of reinforcement • Ensure BBS includes all specifications of rebars for R.C.C work including diameter, shape, cutting length, number, length of each bent and straight portion, angle, and description of rebars • Prepare schedules from given part of BBS, interpreting codes and key shapes 	
3	<p>Monitor reinforcement works at reinforcement yard</p> <p>Theory Duration (hh:mm) 92:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>OJT (hh:mm) 144:00</p> <p>Corresponding NOS Code CON/N0211</p>	<p>Theory:-</p> <ul style="list-style-type: none"> • Procedures of stacking of reinforcement • Basic knowledge of various types of steel such as Mild Steel , TOR steel & TMT steel • Method to prevent reinforcement against rusting, and weathering effect • Method of bundling and tagging of rebars • Visual quality check for reinforcement • Method of segregation of reinforcement on basis of cutting length and dia to minimize wastage • use of PPE during operations of power tools /CNC machines • procedure of operation hand tools, power tools, CNC machine for their respective applications in reinforcement work • Types of mechanical couplers and manufacturer’s instructions for their installations 	<p>Hand Tools</p> <ol style="list-style-type: none"> 1. Chisel 2. Hammer 3. Bar tying hook 4. Bending lever 5. Gauge measure 6. Podger Spanner 7. Hack saw blade and frame 8. Wrench <p>Measuring Instruments</p> <ol style="list-style-type: none"> 9. Steel scale 10. Try Scale 11. Spirit level 12. Plumb bob 13. Measurement tape <p>Power Tools</p> <ol style="list-style-type: none"> 14. Cutting machine

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> • Shapes and codes provided in the BBS <p>Demonstration/ Practical :-</p> <ul style="list-style-type: none"> • Inspect incoming / outgoing material at reinforcement yard • carry out weighing of steel reinforcement before unloading at site in coordination with the stores • Carryout visually checking for quality of reinforcement steel against rusting • Ensure appropriate protection measures rebars • Ensure standard practices for storing and stacking of reinforcement steel at the yard • Monitor all rebars cutting and bending activity at yard • Monitor threading activity ensure protection of threaded end part with plastic caps • Perform basic troubleshooting for operation of CNC machine • Ensure bundling/tagging and stacking of cut & bent bars as per bar marking the BBS • Ensure to prevent distortion of fabricated bars during handling • Ensure proper use of slings, belts, hook for lifting of rebars using crane • Ensure maximum use of cut length & minimize wastage • coordinate with seniors and stores, to ensure smooth operations of work at reinforcement yard • coordinate with site to meet demand requirement at site on priority basis 	15. Bending machine 16. Threading machine 17. Forging machine <u>General requirement</u> 18. Reinforcement steel bar 19. Binding wires 20. Cover blocks 21. Wooden planks 22. Rebar tying machine 23. Lifting appliance (Sling, Shackle, Belts) 24. Thread protection cap 25. Different types of mechanical coupler (threaded coupler, taper threaded coupler, grout filled coupler, combo grout filled/threaded filled coupler etc.) <u>PPEs</u> 26. Safety Helmet 27. Safety goggles 28. Safety shoes 29. Safety belt 30. Cotton gloves 31. Ear plugs 32. Reflective jackets 33. Dust mask 34. Fire Prevention kit
4	<p>Ensure fabrication, placing and fixing of rebars as per Drawing, Bar Bending Schedule and specification</p> <p>Theory Duration (hh:mm) 120:00</p>	<p>Theory</p> <ul style="list-style-type: none"> • Sequence of inserting bars to fix reinforcement for various types of structures • Reinforcement patterns for any special structures / patterns • Lap length required for rebars based on diameter • Application of anchor grouting material 	<p>Hand Tools</p> <ol style="list-style-type: none"> 1. Chisel 2. Hammer 3. Bar tying hook 4. Bending lever 5. Gauge measure 6. Podger Spanner

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>Practical Duration (hh:mm) 00:00</p> <p>OJT (hh:mm) 180:00</p> <p>Corresponding NOS Code CON/N0212</p>	<ul style="list-style-type: none"> • Allowance of hook length • how to calculate number & spacing of rebar in case of different diameter rebar used • Importance about providing cover block • Importance of lap length & staggering of reinforcement • Types and optimum use of binding wire • Common terminology used in reinforcement works • Corrective measure for reinforcement • Method of fixing of mechanical coupler • Method to prevent reinforcement from rust • Max allowable wastage of rebars • Basic reconciliation of reinforcement • Rolling marking of reinforcement <p>Demonstration/ Practical :-</p> <ul style="list-style-type: none"> • Ensure completion of survey works to provide required level & reference points for reinforcement work • Check and ensure completion of relevant marking as per drawing • Check and ensure that cutting, filling, levelling and compaction of earth if required prior to commencement of work • Ensure all tools, tackles, consumables, materials and Equipments are available before commencement of work • Ensure completion of scaffold as per required specified heights • check and ensure only approved BBS is used for execution of reinforcement work • Plan sequence of insertion and fixing of rebars for different types of structures • correlate the sequence of reinforcement placing with fixing of inserts, sleeves, conduits and anchors • Ensure completion of work as per agreed time schedule and quality • Maintain productivity report for executed work Requirements, method, load carrying capacity, etc. • Ensure working platforms and access stairs are safe for working 	<ol style="list-style-type: none"> 7. Hack saw blade and frame 8. Wrench <p><u>Measuring Instruments</u></p> <ol style="list-style-type: none"> 9. Steel scale 10. Try Scale 11. Spirit level 12. Plumb bob 13. Measurement tape <p><u>Power Tools</u></p> <ol style="list-style-type: none"> 14. Cutting machine 15. Bending machine 16. Threading machine 17. Forging machine <p><u>General requirement</u></p> <ol style="list-style-type: none"> 18. Reinforcement steel bar 19. Binding wires 20. Cover blocks 21. Wooden planks 22. Rebar tying machine 23. Lifting appliance (Sling, Shackle, Belts) 24. Thread protection cap 25. Different types of mechanical coupler (threaded coupler, taper threaded coupler, grout filled coupler, combo grout filled/threaded filled coupler etc.) <p><u>Safety Equipments</u></p> <ol style="list-style-type: none"> 1. Safety Helmet 2. Safety goggles 3. Safety shoes 4. Safety belt 5. Cotton gloves 6. Ear plugs

Sr. No.	Module	Key Learning Outcomes	Equipment Required
			7. Reflective jackets 8. Dust mask 9. Fire Prevention kit
5	<p>Inspect and check the quality of reinforcement work</p> <p>Theory Duration (hh:mm) 16:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>OJT (hh:mm) 24:00</p> <p>Corresponding NOS Code CON/N0213</p>	<p>Theory</p> <ul style="list-style-type: none"> • Procedure for reinforcement works • Bar Bending Schedule, relevant drawings, sketches and BBS • Precautions and measures that may be required while checking reinforcement work • Tolerance limits for various types of reinforcement works as per Indian/International codes • Importance of reinforcement in precast RCC works • Types of mechanical couplers and manufacturer's instructions for their installations • Operation of hand tools, power tools, CNC machine for their respective Applications in reinforcement work • Reinforcement insertion procedures for special structures like arches, domes, etc. • PPE for steel fixing and bar bending work <p>Demonstration/ Practical :-</p> <ul style="list-style-type: none"> • check & ensure marking of rebars for spacing before commencement of work • check for bend, cutting length before fabrication & placing of reinforcement • check for visual quality & length of binding wire used for tying of reinforcement • check reinforcement is free from rust before fabrication • Ensure cutting of bars as per appropriate markings • Ensure uniform spacing between the bars, stirrups, hooks, etc. as per BBS drawing • Ensure more than 50% of splicing is avoided at a location • check location and position of reinforcement and fix ties to reinforcement as per requirement • Ensure use of spacers, cover blocks, hanger bars, chairs as per specification • point out errors to workers and suggest remedial action and ensure repair work is done as instructed 	<p>Hand Tools</p> <p>Chisel</p> <ol style="list-style-type: none"> 1. Hammer 2. Bar tying hook 3. Bending lever 4. Gauge measure 5. Podger 6. Hack saw blade and frame 7. Wrench <p>Measuring Instruments</p> <ol style="list-style-type: none"> 8. Steel scale 9. Try Scale 10. Spirit level 11. Plumb bob 12. Measurement tape <p>Power Tools</p> <ol style="list-style-type: none"> 13. Cutting machine 14. Bending machine 15. Threading machine 16. Forging machine <p>General requirement</p> <ol style="list-style-type: none"> 17. Reinforcement steel bar 18. Binding wires 19. Cover blocks 20. Wooden planks 21. Rebar tying machine 22. Lifting appliance (Sling, Shackle, Belts) 23. Thread protection cap 24. Different types of mechanical coupler (threaded coupler, taper threaded)

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> • check and ensure correct ties used for tying of reinforcement • point out errors to workers, suggest & demonstrate remedial action / repair work and ensure corrective action is taken 	coupler, grout filled coupler, combo grout filled/threaded filled coupler etc.)
6	<p>Plan, arrange and manage resources for execution of relevant work</p> <p>Theory Duration (hh:mm) 16:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>OJT (hh:mm) 24:00</p> <p>Corresponding NOS Code CON/N7001</p>	<p>Theory</p> <ul style="list-style-type: none"> • Construction drawing of relevant work • Manpower requirement on the basis of quantum of work and productivity • Priority and critical activity of relevant task • Method and technique on briefing team members about relevant work • Different check to evaluate progress and quality of relevant works • Importance of daily productivity report • Importance of daily attendance register • Standard working practices for relevant works • How to calculate quantum of relevant work • Calculation of tools and material requirement • Optimize use of available resources • Computer basics auto-cad software application for 2D drawing <p>Demonstration/ Practical</p> <ul style="list-style-type: none"> • Determine and estimate the quantum and nature of work under assigned activity • Calculate requirement of manpower for assigned activities • Allocate and extract work as per plan • Demonstrate clarity in instructions to workmen for execution of work • Ensure optimum utilization of manpower resources • Record the daily Labour attendance and daily productivity report • Estimate requirement for material, components and fixtures • Estimate equipment, tools and accessories required • Allocate material , equipment and tools to workmen and extract the work as per plan • provide clear instructions for optimized use of resources 	<p>Hand Tools</p> <ol style="list-style-type: none"> 1. Chisel 2. Hammer 3. Bar tying hook 4. Bending lever 5. Gauge measure 6. Podger Spanner 7. Hack saw blade and frame 7. Wrench <p>Measuring Instruments</p> <ol style="list-style-type: none"> 8. Steel scale 9. Try Scale 10. Spirit level 11. Plumb bob 12. Measurement tape <p>Power Tools</p> <ol style="list-style-type: none"> 13. Cutting machine 14. Bending machine 15. Threading machine 16. Forging machine <p>General requirement</p> <ol style="list-style-type: none"> 17. Reinforcement steel bar 18. Binding wires 19. Cover blocks 20. Wooden planks 21. Rebar tying machine 22. Lifting appliance (Sling, Shackle, Belts) 23. Thread protection cap <p>Different types of mechanical coupler (threaded coupler, taper threaded</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
7	<p>Work effectively in a team to deliver desired results at the workplace</p> <p>Theory Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>OJT (hh:mm) 12:00</p> <p>Corresponding NOS Code CON/N8001</p>	<p>Theory</p> <ul style="list-style-type: none"> • Different modes of communication and process of communication • Effective communication and its benefits. • Importance of effective communication in team work. • Team work and Risks of a failure in teamwork in terms of effects on project outcomes • Importance and need of supporting co-workers facing problems for smooth functioning of work • Importance of creating healthy and cooperative work environment among the gangs of workers <p>Demonstration/ Practical</p> <ul style="list-style-type: none"> • Demonstrate effective communication to Team members for work techniques and Methods. • Demonstrate Effective addressal of problems related to work • Inform co-workers and superiors about any kind of deviations from work • Decide on what information is to be shared with co-workers within the team or from interfacing gang of workers 	
8	<p>Plan and organize work to meet expected outcomes</p> <p>Theory Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 12:00</p> <p>Corresponding NOS Code CON/N8002</p>	<p>Theory:-</p> <ul style="list-style-type: none"> • Importance of proper housekeeping • Policies, procedures and work targets set by superiors • Roles and responsibilities in executing the work for subordinates and self • Standard practices of work to be adopted for assigned task • How to use available resources in a judicious and appropriate manner to minimize wastages or damage <p>Demonstration/ Practical</p> <ul style="list-style-type: none"> • Outline clearly the targets and timelines set by superiors • Plan activities as per schedule and sequence • Plan housekeeping activities prior to and post completion of work list. • Select and employ correct tools, tackles and equipment for completion of desired work • Use resources in an optimum manner to avoid any unnecessary wastage • Use tools, tackles and equipment with care to avoid damage to the same 	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Organize work output, materials used, tools and tackles deployed, processes adopted to be in line with the specified standards and instructions 	
9	<p>Supervise, monitor and evaluate performance of subordinates at workplace</p> <p>Theory Duration (hh:mm) 8:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>OJT (hh:mm) 12:00</p> <p>Corresponding NOS Code CON/N8003</p>	<p>Theory</p> <ul style="list-style-type: none"> Policies, procedures and work targets for performance evaluation and appraisals Organizational policies, procedures and protocol for smooth completion of work at the respective workplace correct use of materials , tools, tackles and equipment <p>Demonstration/ Practical</p> <ul style="list-style-type: none"> Fix expected targets for the respective gang as per site requirements and allocate work to subordinates Establish expected performance standards and expectations for the respective gang of workers to meet the desired outcomes Inspect assigned work to the respected gang of workers through progressive checking observe and verify the work activities performed by the subordinates at the construction site Monitor overall performance of subordinates on the designed measures to ensure quality requirements set by the concerned authority Ensure adherence to the organizational policies and procedures for all relevant construction activities by the workmen subordinations 	
10	<p>Manage workplace for safe and healthy work environment</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>OJT (hh:mm) 28:00</p> <p>Corresponding NOS Code</p>	<p>Theory:-</p> <ul style="list-style-type: none"> The policies, procedures and protocol set up by the EHS Department With respect to Health , Safety and Environment at the respective construction site Reporting procedures in cases of breaches or hazards in site safety, accidents or emergency situations Types of hazards at construction site Hazards involved in bar bending and steel fixing work Safe work practices to be followed while bar bending and steel fixing work Emergency response system The appropriate personal protective 	<p>Safety Equipments</p> <ol style="list-style-type: none"> Safety Helmet Safety goggles Safety shoes Safety belt Cotton gloves Ear plugs Reflective jackets Dust mask Fire Prevention kit

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	CON/N9002	<p>equipment to be used based on various working conditions</p> <ul style="list-style-type: none"> • safe manner of using tools and materials specified by site EHS for each level and respective workmen gang <p><u>Demonstration/ Practical</u></p> <ul style="list-style-type: none"> • Identify any hazard in workplace and notify them to appropriate authority Ensure that all safety and protection installation are correctly placed & adequate • Ensure that health and safety plan is followed by all subordinates Demonstrate the use of fire protection Equipments for different type of fire hazard • Follow procedures for accident recording and reporting as per organizational and statutory requirements • Ensure effective adherence to response to emergency procedures / protocols • Ensure proper housekeeping at workplace 	
	<p>Total Duration</p> <p>Theory Duration 320:00</p> <p>Practical Duration 60:00</p>	<p>Unique Equipment Required:</p> <p><u>Classroom Requirement</u> Classroom of 30 students capacity, Black/White board, Projector/LED, Monitor, Computer, Trade specific charts and other teaching aids</p> <p><u>Hand Tools</u> Chisel, Hammer, Bar tying hook, Bending lever, Gauge measure, Podger, Spanner, Hack saw blade and frame, Wrench</p> <p><u>Measuring Instruments</u> Steel scale, Try Scale, Spirit level, Plumb bob, Measurement tape</p> <p><u>Power Tools</u> Cutting machine, Bending machine, Threading machine, Forging machine,</p> <p><u>General requirement</u> Reinforcement steel bar, Binding wires, Cover blocks, Wooden planks, Rebar tying machine, Lifting appliance (Sling, Shackle, Belts), Thread protection cap, Different types of mechanical coupler (threaded coupler, taper threaded coupler, grout filled coupler, combo grout filled/threaded filled coupler etc.)</p> <p><u>PPEs</u> Safety Helmet, Safety goggles, Safety shoes, Safety belt, Cotton gloves, Ear plugs, Reflective jackets, Dust mask, Fire Prevention kit</p>	

Grand Total Course Duration: **800 Hours, 0 Minutes**
{Including Mandatory 420 hours of OJT (project site experience)}

(This syllabus/ curriculum has been approved by **Construction Skill Development Council of India**)



Trainer Prerequisites for Job role: “Foreman Reinforcement” mapped to Qualification Pack: “CON/Q0205, v1.0”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “CON/Q0205”.
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field
3	Minimum Educational Qualifications	ITI/12th
4a	Domain Certification	Trainer/Assessor- 70% in each NOS of Qualification Pack “CON/Q0205” & 80% overall , Lead trainer/Lead Assessors- 70% in each NOS of Qualification Pack “CON/Q0205” & 90% overall
4b	Platform Certification	Trainer/Assessor-80% in each NOS of Qualification Pack “MEP/Q0102” or “MEP/Q0104”, Lead trainer/ Lead Assessors- 90% in each NOS of Qualification Pack “MEP/Q0101” or “MEP/Q0103”and overall 90%
5	Experience	i. Technical Degree holder with minimum three years of Field experience and preferably two years of teaching experience or, ii. In case of a Diploma Holder five years of field experience and preferably two years of teaching experience or, iii. In case of ITI/12 th pass minimum eight years of field experience and preferably two years of teaching Experience.



CRITERIA FOR ASSESSMENT OF TRAINEES

<u>Job Role</u>	Foreman Reinforcement
<u>Qualification Pack</u>	CON/Q0205
<u>Sector Skill Council</u>	Construction

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the knowledge part will be based on knowledge bank of questions created by Assessment Bodies subject to approval by SSC
3. Individual assessment agencies will create unique question papers for knowledge/theory part for assessment of candidates as per assessment criteria given below
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on assessment criteria.
5. The passing percentage for each QP will be 70%. To pass the Qualification Pack, every trainee should score a minimum of 70% individually in each NOS.
6. The Assessor shall check the final outcome of the practices while evaluating the steps performed to achieve the final outcome.
7. The trainee shall be provided with a chance to repeat the test to correct his procedures in case of improper performance, with a deduction of marks for each iteration.
8. After the certain number of iteration as decided by SSC the trainee is marked as fail, scoring zero marks for the procedure for the practical activity.
9. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOSs to pass the Qualification Pack within the specified timeframe set by SSC.
10. Minimum duration of Assessment of each QP shall be of 4hrs/trainee.

		Total Mark	Out Of	Marks Allocation	
				Theory	Skills Practical
CON/N0210: Read drawings, specification, standards and prepare Bar Bending Schedule	PC1. read & interpret details from R.C.C drawing and other relevant drawings	100	5	2	3
	PC2. read & interpret details from Bar bending schedule		7.5	3	4.5
	PC3. read and understand specification and standards provided for fabrication and fixing of reinforcement		5	2	3
	PC4. read and understand all specification provided in the relevant drawing		5	2	3
	PC5. read and understand schedule provided for completion of reinforcement work		5	2	3
	PC6. read method statement for execution of reinforcement work		5	2	3
	PC7. read, understand & follow manufactures specification for fixing of mechanical coupler		5	2	3
	PC8. read, understand & follow manufactures specification for operation of power tools and CNC machine for cutting and bending		5	2	3
	PC9. carryout calculation of BOQ quantity		7.5	3	4.5
	PC10. read & co-relate R.C.C detail drawing with respect to general arrangement drawing		7.5	3	4.5
	PC11. prepare the BBS for cutting and bending of rebars and plan fixing of reinforcement		12.5	5	7.5
	PC12. ensure BBS includes all specifications of rebars for R.C.C work including diameter, shape, cutting length, number, length of each bent and straight portion, angle, and description of rebars		12.5	5	7.5
	PC13. prepare schedules from given part of BBS, interpreting codes and key shapes		7.5	3	4.5

	PC14. ensure that prepared BBS is checked and approved by respective engineer in charge		10	4	6
		Total	100	40	60
CON/N0211: Monitor reinforcement works at reinforcement yard	PC1. inspect incoming / outgoing material at reinforcement yard	100	5	2	3
	PC2. carry out weighing of steel reinforcement before unloading at site in coordination with the stores		5	2	3
	PC3. visually check for quality of reinforcement steel against rusting		5	2	3
	PC4. ensure appropriate protection measures rebars		7.5	3	4.5
	PC5. ensure standard practices for storing and stacking of reinforcement steel at the yard		7.5	3	4.5
	PC6. monitor all rebars cutting and bending activity at yard		10	4	6
	PC7. monitor threading activity ensure protection of threaded end part with plastic caps		7.5	3	4.5
	PC8. understand manufacturer specification/instruction for use of CNC machine		2.5	1	1.5
	PC9. understand manufacturer specification/instruction for use of power tools for cutting and bending		2.5	1	1.5
	PC10. perform basic troubleshooting for operation of CNC machine		10	4	6
	PC11. ensure bundling/tagging and stacking of cut & bent bars as per bar marking the BBS		5	2	3
	PC12. ensure to prevent distortion of fabricated bars during handling		7.5	3	4.5
	PC13. ensure proper use of slings, belts, hook for lifting of rebars using crane		5	2	3
	PC14. ensure maximum use of cut length & minimise wastage		10	4	6
	PC15. segregate prime length of steel rods based on diameter of bar		5	2	3
	PC16. coordinate with seniors and stores, to ensure smooth operations of work at reinforcement yard		2.5	1	1.5

	PC17. coordinate with site to meet demand requirement at site on priority basis		2.5	1	1.5
		Total	100	40	60
CON/N0212: Ensure fabrication placing and fixing of rebars as per drawing, bar bending schedule and specification	PC1. ensure survey works are complete so as to provide required level & reference points for reinforcement work	100	5	2	3
	PC2. check and ensure that all relevant marking is complete as per drawing		12.5	5	7.5
	PC3. check and ensure that cutting, filling, levelling and compaction of earth if required prior to commencement of work		10	4	6
	PC4. ensure workplace is clear of construction debris and unwanted material		5	2	3
	PC5. ensure guard rails, kerb boards and safety nets are in place		10	4	6
	PC6. ensure all tools, tackles, consumables, materials and equipments are available before commencement of work		5	2	3
	PC7. ensure scaffolding is complete as per required / specified heights / requirements, method, load carrying capacity, etc.		5	2	3
	PC8. ensure working platforms and access stairs are safe for working		5	2	3
	PC9. check and ensure only approved BBS is used for execution of reinforcement work		5	2	3
	PC10. make use of already available cut steel rods to minimize wastage		7.5	3	4.5
	PC11. plan sequence of insertion and fixing of rebars for different types of structures		5	2	3
	PC12. correlate the sequence of reinforcement placing with fixing of inserts, sleeves, conduits and anchors		10	4	6
	PC13. ensure completion of work as per agreed time schedule and quality		12.5	5	7.5
	PC14. maintain productivity report for executed work		2.5	1	1.5

		Total	100	40	60
CON/N0213: Inspect and check the quality of reinforcement work	PC1. check & ensure marking of rebars for spacing before commencement of work	100	5	2	3
	PC2. check for bend, cutting length before fabrication & placing of reinforcement		2.5	1	1.5
	PC3. check for visual quality & length of binding wire used for tying of reinforcement		5	2	3
	PC4. check reinforcement is free from rust before fabrication		2.5	1	1.5
	PC5. describe sequence for fixing of reinforcement		2.5	1	1.5
	PC6. ensure cutting of bars as per appropriate markings		5	2	3
	PC7. ensure uniform spacing between the bars, stirrups, hooks, etc. as per BBS drawing		2.5	1	1.5
	PC8. ensure more than 50% of splicing is avoided at a location		2.5	1	1.5
	PC9. check location and position of reinforcement and fix ties to reinforcement as per requirement		2.5	1	1.5
	PC10. ensure use of spacers, cover blocks, hanger bars, chairs as per specification		2.5	1	1.5
	PC11. point out errors to workers and suggest remedial action and ensure repair work is done as instructed		2.5	1	1.5
	PC12. check and ensure correct ties used for tying of reinforcement		2.5	1	1.5
	PC13. point out errors to workers, suggest & demonstrate remedial action / repair work and ensure corrective action is taken		2.5	1	1.5
	PC14. ensure that appropriate type of mechanical couplers are installed while fixing reinforcement		2.5	1	1.5
	PC15. ensure that process followed for installing mechanical coupler is as per manufacturer's instruction manual		10	4	6

	PC16. check that mechanical connections have been appropriately tightened and as per requirement		10	4	6
	PC17. check that necessary protectors are in place to prevent damage to the threaded bar ends		5	2	3
	PC18. point out errors to workers, suggest & demonstrate remedial action / repair work and ensure corrective action is taken		2.5	1	1.5
	PC19. check & ensure appropriate method is used for lifting & lowering of reinforcement cage		2.5	1	1.5
	PC20. check & ensure prefabricated reinforcement cage is properly aligned & positioned		5	2	3
	PC21. ensure rebars, cast-in items, corrugated sleeve pipes, recesses, lifting hooks and inserts are correctly positioned and properly secured, within specified tolerance levels		2.5	1	1.5
	PC22. ensure that the joints and edges of the mould, bolts, stoppers, tie rods, side props and rubber seal are intact and properly secured		5	2	3
	PC23. check for stiffening of cage before lifting for stacking/erection		5	2	3
	PC24. ensure insertion/attaching of inserts to the cage including special cover blocks		5	2	3
	PC25. ensure preparation & usage of reference frames/jig for accurate fabrication		2.5	1	1.5
	PC26. point out errors to workers, suggest & demonstrate remedial action / repair work and ensure corrective action is taken		2.5	1	1.5
	Total		100	40	60
CON/N7001: Plan, arrange and manage resources for	PC1. determine quantum and nature of work under assigned activity	100	5	2	3
	PC2. calculate requirement of manpower for assigned activities		7.5	3	4.5

execution of relevant work	PC3. submit manpower requirement to superiors		5	2	3	
	PC4. allocate and extract work as per plan		7.5	3	4.5	
	PC5. provide clear instructions to workmen for execution of work		7.5	3	4.5	
	PC6. ensure optimum utilization of manpower resources		7.5	3	4.5	
	PC7. record the daily labour attendance		7.5	3	4.5	
	PC8. record the daily productivity report		7.5	3	4.5	
	PC9. estimate quantity of assigned work		7.5	3	4.5	
	PC10. estimate requirement for material, components and fixtures		7.5	3	4.5	
	PC11. estimate equipment, tools and accessories required		7.5	3	4.5	
	PC12. submit material, equipment and tool requirement to superiors		7.5	3	4.5	
	PC13. allocate material , equipment and tools to workmen and extract the work as per plan		7.5	3	4.5	
	PC14. provide clear instructions for optimized use of resources		7.5	3	4.5	
	Total		100	40	60	
	CON/N8001: Work effectively in a team to deliver desired results at the workplace		PC1. pass on work related information/ requirement clearly to the team members	100	10	4
PC2. inform co-workers and superiors about any kind of deviations from work		10	4		6	
PC3. address the problems effectively and report if required to immediate supervisor appropriately		20	8		12	
PC4. receive instructions clearly from superiors and respond effectively on same		10	4		6	
PC5. communicate to team members/subordinates for appropriate work technique and method		10	4		6	
PC6. seek clarification and advice as per requirement and applicability		10	4		6	
PC7. hand over the required material, tools tackles, equipment and work fronts timely to interfacing teams		15	6		9	

	PC8. work together with co-workers in a synchronized manner		15	6	9
		Total	100	40	60
CON/N8002: Plan and organize work to meet expected outcomes	PC1. understand clearly the targets and timelines set by superiors	100	12.5	5	7.5
	PC2. plan activities as per schedule and sequence		10	4	6
	PC3. provide guidance to the subordinates to obtain desired outcome		12.5	5	7.5
	PC4. plan housekeeping activities prior to and post completion of work		7.5	3	4.5
	PC5. list and arrange required resources prior to commencement of work		10	4	6
	PC6. select and employ correct tools, tackles and equipment for completion of desired work		7.5	3	4.5
	PC7. complete the work with allocated resources		7.5	3	4.5
	PC8. engage allocated manpower in an appropriate manner		5	2	3
	PC9. use resources in an optimum manner to avoid any unnecessary wastage		5	2	3
	PC10. employ tools, tackles and equipment with care to avoid damage to the same		5	2	3
	PC11. organize work output, materials used, tools and tackles deployed,		10	4	6
	PC12. processes adopted to be in line with the specified standards and instructions		7.5	3	4.5
			Total	100	40
CON/N8003: Supervise, monitor and evaluate performance of subordinates at workplace	PC1. fix expected targets for the respective gang as per site requirements and allocate work to subordinates	100	15	6	9
	PC2. establish expected performance standards and expectations for the respective gang of workers to meet the desired outcomes		15	6	9
	PC3. inspect assigned work to the respected gang of workers through progressive checking		20	8	12
	PC4. observe and verify the work activities performed by the subordinates at the construction site		20	8	12

	PC5. monitor overall performance of subordinates on the designed measures to ensure quality requirements set by the concerned authority		15	6	9
	PC6. ensure adherence to the organizational policies and procedures for all relevant construction activities by the workmen subordinations		15	6	9
		Total	100	40	60
CON/N9002: Manage workplace for safe and healthy work environment	PC1. Ensure proper housekeeping at workplace		5	2	3
	PC2. Implement safe handling , stacking methods at workplace / store		5	2	3
	PC3. Ensure that health and safety plan is followed by all subordinates		5	2	3
	PC4. Identify any hazard in workplace and notify them to appropriate authority		5	2	3
	PC5. ensure that all safety and protection installation are correctly placed & adequate		5	2	3
	PC6. Ensure safe access is available at work place for movement of workers & materials.		5	2	3
	PC7. Ensure safe use of tools and tackles by the workmen as per applicability		5	2	3
	PC8. ensure appropriate use of following Personal Protective Equipment (PPE) as per applicability:		10	4	6
	<input type="checkbox"/> Head Protection (Helmets)				
	<input type="checkbox"/> Ear Protection				
	<input type="checkbox"/> Fall Protection				
	<input type="checkbox"/> Foot Protection				
	<input type="checkbox"/> Face and Eye Protection,				
	<input type="checkbox"/> Hand &Body Protection				
<input type="checkbox"/> Respiratory Protection					
PC9. Maintain entrances & exit from confined spaces , excavated pits and other location in concurrence with safety parameters or instruction form safety personals.		5	2	3	
PC10. Ensure organizational policies and procedures are followed for health , safety and welfare, in relation to:		10	4	6	

	☐ methods of receiving or sourcing information			
	☐ dealing with accidents and emergencies associated with the work and environment			
	☐ reporting			
	☐ stooping work			
	☐ evacuation			
	☐ fire risks and safe exit procedures			
	PC11. follow procedures for accident recording and reporting as per organizational and statutory requirements	5	2	3
	PC12. ensure effective adherence to response to emergency procedures / protocols	7.5	3	4.5
	PC13. report any case of emergency / risks to the concern people at the construction site	7.5	3	4.5
	PC14. report any perceived risk hazards to the superiors / concerned EHS	7.5	3	4.5
	PC15. demonstrate the use of fire protection equipments for different type of fire hazard	7.5	3	4.5
	PC16. implement control measures to reduce risk & meet legal requirement as per organizational policies	5	2	3
	Total	100	40	60