Model Curriculum

1. Chargehand Scaffolder - System

SECTOR: Construction
SUB-SECTOR: Real Estate and Infrastructure Construction
OCCUPATION: Scaffolding
REF ID: CON/Q0305, V1.0
NSQF LEVEL: 4

Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

CONSTRUCTION SECTOR SKILLS COUNCIL

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Chargehand Scaffolder- System' QP No. 'CON/Q 0307 NSQF Level 4'

Date of Issuance: January 31st, 2017

Valid up to: May 23rd, 2017

* Valid up to the next review date of the Qualification Pack

Authorised Signatory
(Construction Skill Development Council)

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Chargehand Scaffolder- System

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Chargehand Scaffolder- System", in the "Construction" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	**Chargehand Scaffolder- System**		
Qualification Pack Name & Reference ID. ID	CON/Q0307, v1.0		
Version No.	1.0	**Version Update Date**	16-03-2016
Pre-requisites to Training	Preferably 8th Standard		
Training Outcomes	**After completing this programme, participants will be able to:** • **Erect and dismantle outrigger / cantilever scaffolds**:-Procedure for erecting and dismantling outrigger/cantilever scaffold. • **Erect and dismantle scaffolds for complex structure and at complex location: -** Procedure for erecting and dismantling scaffolds for complex structure and at complex location. • **Work effectively in a team to deliver desired results at the workplace:-** Organise working procedure within a team at site . • **Plan and organize work to meet expected outcomes: -** Prioritizing activities and organising resources to meet desired outcome. • **Work according to personal health, safety and environment protocol at construction site: -** Importance of Health & Safety aspects & measures to be followed while working.		

This course encompasses 5 out of 5 National Occupational Standards (NOS) of "Chargehand Scaffolder- System" Qualification Pack issued by "Construction Skill Development Council of India".

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Introduction** **Theory Duration** (hh:mm) 08:00 **Practical Duration** (hh:mm) 00:00	• Role description/ functions of the job role • Expected personal attributes from the job role • Brief description about course content, mode of learning and duration of course • Future possible progression and career development provisions on completion of the course on completion of the course	Classroom Requirement 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	**Erect and dismantle outrigger / cantilever scaffolds** **Theory Duration** (hh:mm) 80:00 **Practical Duration** (hh:mm) 176:00 **Corresponding NOS Code** CON/N0358	**Theory:-** • Numeration/general arrangement drawings, schematic working drawing for scaffolding • Understanding of plan, elevation and section • Selection and sorting of scaffold material • Storing, Stacking and Repairing of scaffold components • Use of lifting gears and devices for shifting of scaffold material • Types of scaffold (Frame/Fabricated, Tube & Coupler, Outrigger Scaffold) • Load carrying capacity of various type of scaffold • Various hand tools used in scaffold erection • Visual checking for ground compaction • Introduction to outrigger/cantilever scaffold • PPE's and Safety related to scaffolding work • Hazards associated with scaffolding work (Fall hazards, Electrical hazards) • Sequential process for erection and dismantling of outrigger/ cantilever scaffolds • Support to erected scaffold with permanent structure • Checking of erected scaffold for missing planks, missing components, plumb, rigidity, stability and support • Standard tolerance for scaffolding work	Hand tools 1. Hammer 2. Ring spanner (set) 3. Open end spanner 4. Double end spanner 5. Wrench 6. Pulley 7. Rope 8. Nuts and bolts 9. Hack saw frame with blade 10. Drilling machine with bits Measuring Instruments 11. Measuring tape 12. Spirit level 13. Plumb-bob 14. Mason's line 15. Water level tube Materials 16. Cup-lock scaffolding components (set)/Frame scaffold/outrigger scaffold components 17. 40 NB pipes 18. Swivel coupler 19. Fixed clamp 20. Steel walkways 21. Aluminium/ GI ladder

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		Demonstration/ Practical :- • Reading of Numeration/ General arrangement drawing • Calculate quantity of scaffolding work from drawing • Estimate the manpower requirement based on productivity for scaffolding work • Demonstrate erection and dismantling of cantilever/outrigger scaffold • Demonstrate fixing of guard rail, safety net • Demonstrate inspection of erected scaffold	22. Safety net 23. counter weights 24.Anchor bolts PPEs & safety equipment's 24. Helmet 25. Safety shoes 26. Safety belt 27. Cotton hand gloves 28. Goggles 29. Reflective jackets 30. Safety message boards 31. Barricade Tape
3	**Erect and dismantle scaffolds for complex structure and at complex location** **Theory Duration** (hh:mm) 80:00 **Practical Duration** (hh:mm) 192:00 **Corresponding NOS Code** CON/N0359	**Theory:-** Introduction • Numeration/general arrangement drawings, schematic working drawing for scaffolding • Understanding of plan, elevation and section • Selection and sorting of scaffold material • Storing, Stacking and Repairing of scaffold components • Use of lifting gears and devices for shifting of scaffold material • PPE's and Safety related to scaffolding work • Types of scaffold (Frame/Fabricated, Tube & Coupler, Outrigger Scaffold) • Limitations of different types of scaffold • Suitability of scaffold for high rise structures, complex architecture structures, confined area and in opening • Load carrying capacity of various type of scaffold • Understanding of loading concept • Hazards associated with scaffolding work (Fall hazards, Electrical hazards) • Preparatory works for scaffolding erection	Hand tools 1. Hammer 2. Ring spanner (set) 3. Open end spanner 4. Double end spanner 5. Wrench 6. Pulley 7. Rope 8. Nuts and bolts 9. Hack saw frame with blade 10. Drilling Machine with bits Measuring Instruments 11. Measuring tape 12. Spirit level 13. Plumb-bob 14. Mason's line/chalk line 15. Water level tube Materials 16. Cup-lock scaffolding components (set)/Frame scaffold /outrigger

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Erection of scaffolds in large opening areas • Tagging of scaffold • Do's and Don'ts for scaffolding works • Scaffold fall protection • Respond to emergencies such as heavy rain, storm, lightening • Sequential process for erection and dismantling of scaffold for complex structure • Support to erected scaffold with permanent structure • Checking of erected scaffold for missing planks, missing components, plumb, rigidity, stability and support • Standard tolerance for scaffolding work **Demonstration/ Practical :-** • Reading of Numeration/ General arrangement drawing • Calculate quantity of scaffolding work from drawing for different types of work • Calculate quantity of material requirement for scaffolding work • Demonstrate erection and dismantling of scaffold for cantilever/outrigger scaffold • Demonstrate erection and dismantling of complex scaffold (high-rise, • Demonstrate fixing of different fall protection method •	scaffolds components 17. Staircase tower components with fixtures 18. Castor wheels 19. 40 NB pipes 20. Swivel coupler 21. Fixed clamp 22. Steel walkways 23. Aluminium/ GI ladder 24. Safety net 25.counter weight 26.Anchor bolts PPEs & safety equipment's 25. Helmet 26. Safety shoes 27. Safety belt 28. Cotton hand gloves 29. Goggles 30. Reflective jackets 31. Safety message boards
4	**Work effectively in a team to deliver desired results at the workplace** **Theory Duration** (hh:mm) 04:00 **Practical Duration** (hh:mm) 20:00 **Corresponding NOS Code**	**Theory:-** • Method of oral and written communication skills with co-workers, trade seniors while handling and carrying out visual checks on materials, tools and tackles, equipments • How to interpret scope of scaffolding work, material/ tools handling by adhering to instructions or consulting with seniors • Method of providing instruction to subordinates or reporting to seniors clearly and promptly	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	CON/N8001	• Seek necessary support and complete assigned tasks within stipulated time duration • Keep good relation and maintain well behavior with co-workers **Demonstration/ Practical :-** The skills will be developed and practiced while carrying out following trade related activities: • Selection of materials, tools and equipments • Handling scaffolding materials, tools and equipments • Preparation of base area for erection of scaffold • Erection and dismantling of cantilever/outrigger scaffold • Erection and dismantling of complex structure (high-rise, confined space, large opening etc.) • Demonstrate fixing of fall protection system	
5	**Plan and organize work to meet expected outcomes** **Theory Duration** (hh:mm) 04:00 **Practical Duration** (hh:mm) 12:00 **Corresponding NOS Code** CON/N8002	**Theory:-** • Basic concept of productivity, sequence of working and implementation of safety and organizational norms while working • Optimization of resources • To plan scaffolding work within defined scope of work • Upkeep, storing and stacking methods of tools, materials used for domain specific works • Requisition of resources, reporting for requirement of resources orally and in written to concerned authority • Importance of housekeeping, **Demonstration/ Practical :-** The skills will be developed and practiced while carrying out following trade related activities • Selection of materials, tools or devices for defined purpose in an optimum manner • Handling material, tools and equipments relevant to scaffolding works • Prioritize all works/ activities	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Erection and dismantling of common customized system scaffold • Erection and dismantling of staircase tower scaffold • Erection and dismantling of mobile tower scaffold • Optimum use of resources while performing task • Adherence to stipulated timelines for completion of scaffolding work	
6	**Work according to personal health, safety and environment protocol at construction site** **Theory Duration** (hh:mm) 08:00 **Practical Duration** (hh:mm) 16:00 **Corresponding NOS Code** CON/N9001	**Theory:-** • Types of hazards involved in construction sites • Types of hazards involved in scaffolding work • Emergency safety control measures and actions to be taken under emergency situation • Identification of unsafe act and unsafe condition • Concept of :- 1. First Aid process 2. Use of fire extinguisher 3. Classification of fires and fire extinguisher 4. Safety drills 5. Types and use of PPEs required for reinforcement works • Safety protocols and practices • Reporting procedure to the concerned authority in emergency situations • Standard procedure of handling, storing and stacking material • What is safe disposal of waste, type of waste and their disposal • basic ergonomic principles as per applicability **Demonstration/ Practical :-** The skills will be developed and practiced while carrying out following trade related activities: 1. Selection of PPEs and use them appropriately as per working need of scaffolding works, handling, storing, stacking and shifting of scaffolding material, tools and equipments	PPEs 1. Safety Helmet 2. Safety goggles 3. Safety shoes 4. Safety belt 5. Cotton gloves 6. Ear plugs 7. Reflective jackets 8. Dust mask 9. Fire Prevention kit

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		2. Selection of PPEs and use them appropriately as per working need of erection and dismantling of various types of scaffold. 3. Identification of locations, situations/ circumstances, malpractices which can be hazardous for general or scaffolding works 4. Selection of fire extinguisher based on classification of fire, standard practice of storing & stacking fire-fighting equipments/ materials at work locations 5. Disposal of waste materials as per their nature and effects on weather	
	Total Duration **Theory Duration 184:00** **Practical Duration 416:00**	**Unique Equipment Required:** Classroom Requirement Classroom of 30 students capacity, Black/White board, Projector/LED Monitor, Computer, Trade specific charts and other teaching aids Hand Tools Hammer, Ring spanner (set), Open end spanner, Double end spanner, Wrench, Pulley, Rope, Nuts and bolts, Hack saw frame with blade Measuring Instruments Measuring tape, Spirit level, Water level tube, Plumb-bob, Mason's line General requirement Lifting appliance (Sling, Shackle, Belts) Materials Cup-lock scaffolding components (set)/Frame scaffold components, Staircase tower components with fixtures, Castor wheels , 40 NB pipes, Swivel coupler, Fixed clamp, Steel walkways, Aluminium/ GI ladder, Safety net PPEs Safety Helmet, Safety goggles, Safety shoes, Safety belt, Cotton gloves, Ear plugs , Reflective jackets, Dust mask, Fire Prevention kit	

Grand Total Course Duration: 600 **Hours, 0 Minutes**

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

Trainer Prerequisites for Job role: "Chargehand Scaffolder- System" mapped to Qualification Pack: "CON/Q0307, 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/Q0307".
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**	Trainer/Assessor-50% in each NOS & 80% overall, Lead trainer/ Lead Assessors- 50% in each NOS and overall 90%
4a	**Domain Certification**	Trainer/Assessor-80% in each NOS of Qualification Pack "MEP/Q0102" or "MEP/Q0104" and Lead trainer/Lead Assessors- 90% in each NOS of Qualification Pack "MEP/Q0101" or "MEP/Q0103"
4b	**Platform Certification**	Trainer/Assessor-50% in each NOS of Qualification Pack "MEP/Q0101" or "MEP/Q0103"& 80% overall, Lead trainer/ Lead Assessors- 50% 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/12th pass minimum eight years of field experience and preferably two years of teaching Experience.

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role	Chargehand Scaffolding System
Qualification Pack	CON/Q0307
Sector Skill Council	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 center 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 NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's 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.

				Marks Allocation	
Assessment outcomes	Assessment Criteria for outcomes	**Total Mark**	**Out Of**	**Theory**	**Skills Practical**
CON/N0358: Erect and dismantle outrigger / cantilever scaffolds	PC1. check and ensure that area around scaffold on ground has been barricaded to ensure safety	**100**	2	1	1
	PC2. check and ensure that fall protection is in place to ensure safety including guard rails, safety nets, wire mesh, toe boards, etc.		3	1	2
	PC3. read and understand schematic working drawing		4	2	2
	PC4. calculate the number of components required from the drawing		3	1	2
	PC5. understand the fixing and support process for scaffold		4	1	3
	PC6. use right components and follow erection procedure as per work method statement with respect to the types of scaffolds		6	1	5
	PC7. check verticality of scaffold at first level of erection and correct (if required) before moving to the next level		2	1	1
	PC8. check rigidity and stability of scaffold		3	1	2
	PC9. ensure outrigger beams do not extend beyond prescribed length from face of structure		4	1	7
	PC10. ensure beam is securely braced to avoid tipping and movement		4		
	PC11. ensure that in-board and out-board ends of the outrigger beams are of required length		2	1	4
	PC12. ensure that in-board ends of beams are securely anchored or braced		3		
	PC13. ensure that entire supporting structure is securely braced to prevent any horizontal movement		3	1	2
	PC14. ensure that base of scaffold is erected as per requirements and in a safe manner		2	1	1
	PC15. complete work within the allocated time with quality and safety		3	1	2
	PC16. report to superior for completion of work & for checking of scaffolding, do any rework as suggested by engineer in charge or superior, and get it approved		2	1	1
	PC17. ensure standard procedures are followed for dismantling of outrigger /cantilever scaffolds		20	6	14
	PC18. check for rigidity and stability of scaffold before dismantling and maintain during dismantling		8	3	5
	PC19. ensure scaffolds are dismantled using proper tools & tackles		5	2	3
	PC20. lower scaffold material in a safe manner, manually or by using mechanical devices		5	2	3

	PC21. ensure that all the fixtures and small components are staked properly for further use		6	1	5
	PC22. clean and store scaffold components for further use		6	1	5
		Total	**100**	**30**	**70**
CON/N0359: Erect and dismantle scaffolds for complex structure and at complex location	PC1. check and ensure that area on ground has been provided with rigid barricading to ensure safety	**100**	2	1	4
	PC2. check and ensure that fall protection is in place to ensure safety including guard rails, safety nets, wire mesh, toe boards, etc. while working at height		3		
	PC3. close all opening in case of erection of scaffold in lift area		3	1	2
	PC4. check compactness of ground by visual / physical check		2	1	1
	PC5. place base plates and sole boards on ground as per marking		2	1	1
	PC6. select scaffold (pipe & coupler or frame scaffold) on the basis of need and requirement		3	2	6
	PC7. use right components and follow erection procedure as per work method statement with respect to the types of scaffolds		5		
	PC8. erect separate scaffolds with platforms of same height (for large radius curves)		5	1	4
	PC9. check verticality of scaffold at first level of erection and correct (if required) before moving to the next level		2	1	1
	PC10. ensure correct method in case erection of scaffold in confined area or in large opening		3	2	6
	PC11. ensure shifting of scaffold material from ground level to the desired level manually or by using mechanical devices in a safe manner		2		
	PC12. check rigidity and stability of scaffold		3		
	PC13. provide adequate support to the scaffold erected as per standard practice		3	1	5
	PC14. provide and ensure support at every 6 m from permanent structure for high rise structure scaffold		3		
	PC15. ensure height of scaffold erected is within permissible limits and as per instruction		2	1	1
	PC16. fix walk boards, guard rail, toe boards and other components on the walking platform		2	1	1
	PC17. complete work within the allocated time with quality and safety		3	1	2
	PC18. report to superior for completion of work & for checking of scaffold, do any rework as suggested by engineer in charge or superior, and get it approved		2	1	1

	PC19. follow and ensure standards procedure are followed for dismantling of scaffold		20	6	14
	PC20. check for rigidity and stability of scaffold before dismantling and maintain during dismantling		8	3	5
	PC21. remove guard rails, toe boards, walk boards and other components sequentially		4	1	3
	PC22. ensure scaffolds are dismantle using proper tools & tackles		4	1	3
	PC23. lower scaffold material in a safe manner, manually or by using mechanical devices		4	2	2
	PC24. ensure that all the fixtures and small components are staked properly for further use		5	1	4
	PC25. clean and store scaffold components for further use		5	1	4
		Total	**100**	**30**	**70**
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**	7	2	5
	PC2. inform co-workers and superiors about any kind of deviations from work		7	2	5
	PC3. address the problems effectively and report if required to immediate supervisor appropriately		10	3	7
	PC4. receive instructions clearly from superiors and respond effectively on the same		7	2	5
	PC5. communicate to team members/subordinates for appropriate work technique and method		10	3	7
	PC6. seek clarification and advice as per the requirement and applicability		7	2	5
	PC7. hand over the required material, tools tackles, equipment and work fronts timely to interfacing teams		27	8	19
	PC8. work together with co-workers in a synchronized manner		27	8	19
		Total	**100**	**30**	**70**
CON/N8002: Plan and organize work to meet expected outcomes	PC1. understand clearly the targets and timelines set by superiors	**100**	7	2	5
	PC2. plan activities as per schedule and sequence		7	2	5
	PC3. provide guidance to the subordinates to obtain desired outcome		10	3	7
	PC4. plan housekeeping activities prior to and post completion of work		7	2	5
	PC5. list and arrange required resources prior to commencement of work		10	3	7
	PC6. select and employ correct tools, tackles and equipment for completion of desired work		10	3	7
	PC7. complete the work with allocated resources		10	3	7
	PC8. engage allocated manpower in an appropriate manner		10	3	7

	PC9. use resources in an optimum manner to avoid any unnecessary wastage		10	3	7
	PC10. employ tools, tackles and equipment with care to avoid damage to the same		7	2	5
	PC11. organize work output, materials used, tools and tackles deployed,		7	2	5
	PC12. processes adopted to be in line with the specified standards and instructions		7	2	5
		Total	**100**	**30**	**70**
CON/N9001: Work according to personal health, safety and environment protocol at construction site	PC1. identify and report any hazards, risks or breaches in site safety to the appropriate authority	**100**	7	2	5
	PC2. follow emergency and evacuation procedures in case of accidents, fires, natural calamities		7	2	5
	PC3. follow recommended safe practices in handling construction materials, including chemical and hazardous material whenever applicable		10	3	7
	PC4. participate in safety awareness programs like Tool Box Talks, safety demonstrations, mock drills, conducted at site		7	2	5
	PC5. identify near miss , unsafe condition and unsafe act		7	2	5
	PC6. use appropriate Personal Protective Equipment (PPE) as per work requirements including: • Head Protection (Helmets) • Ear protection • Fall Protection • Foot Protection • Face and Eye Protection • Hand and Body Protection • Respiratory Protection (if required)		10	3	7
	PC7. handle all required tools, tackles , materials & equipment safely		7	2	5
	PC8. follow safe disposal of waste, harmful and hazardous materials as per EHS guidelines		7	2	5
	PC9. install and apply properly all safety equipment as instructed		13	4	9
	PC10. follow safety protocol and practices as laid down by site EHS department		13	4	9
	PC11. collect and deposit construction waste into identified containers before disposal, separate containers that may be needed for disposal of toxic or hazardous wastes		7	2	5
	PC12. apply ergonomic principles wherever required		7	2	5
		Total	**100**	**30**	**70**