

Overhead crane operator

QP Code: CSC/N1207

Version: 1.0

NSQF Level: 4

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Contents

CSC/N1207: Overhead crane operator	3
<i>Brief Job Description</i>	3
Applicable National Occupational Standards (NOS)	3
<i>Compulsory NOS</i>	3
<i>Qualification Pack (QP) Parameters</i>	3
CSC/N1207: Overhead crane operator	5
Assessment Guidelines and Weightage	12
<i>Assessment Guidelines</i>	12
<i>Assessment Weightage</i>	13
Acronyms	14
Glossary	15

CSC/N1207: Overhead crane operator

Brief Job Description

Operate gantry crane equipment safely and efficiently to lift, move and position heavy materials or containers according to work orders and instructions.

Personal Attributes

undefined

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [CSC/N1207: Overhead crane operator](#)

Qualification Pack (QP) Parameters

Sector	Capital Goods
Sub-Sector	
Occupation	Shop Floor Management
Country	
NSQF Level	4
Credits	1
Aligned to NCO/ISCO/ISIC Code	
Minimum Educational Qualification & Experience	10th grade pass with 2 year NTC plus 1 year NAC OR 12th Class OR 10th Class OR Previous relevant Qualification of NSQF Level (3.5)

Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	Years
Last Reviewed On	NA
Next Review Date	22/10/2029
Deactivation Date	01/07/2025
NSQC Approval Date	05/11/2024
Version	1.0
Reference code on NQR	NG-04-CG-02168-2024-V1-CGSC
NQR Version	1

CSC/N1207: Overhead crane operator

Description

Operate gantry crane equipment safely and efficiently to lift, move and position heavy materials or containers according to work orders and instructions.

Scope

The scope covers the following :

- Prepare for safe crane operation
- Perform pre-use checks
- Operate crane as per SOP
- Perform maintenance on Electric Wire Rope Hoist as required

Elements and Performance Criteria

Carrying out crane operation safely

To be competent, the user/individual on the job must be able to:

- PC1.** follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment
- PC2.** obtain necessary permit to work
- PC3.** start and stop the travelling motion at low speed to prevent the load from swinging excessively
- PC4.** raise the load high enough to prevent it from hitting objects during travel
- PC5.** perform task safely and recognize any hazards
- PC6.** ensure SWL data plates are clearly visible to the operator at all times
- PC7.** operate the crane with care and consideration
- PC8.** monitor the operation and be ready to press emergency switch whenever required
- PC9.** move in appropriate direction
- PC10.** ensure to attend all the suspended loads
- PC11.** ensure to not lower the hook so far that the ropes become slack
- PC12.** park the crane or hoist in a designated maintenance position
- PC13.** follow the appropriate health and safety regulations and procedures
- PC14.** ensure not to use the overload protection for weighing the load
- PC15.** use the proper pushbuttons intended for controlling the hoist
- PC16.** ensure to avoid short, jerky motions and unnecessary short starts as it causes the hoisting motor to overheat quickly
- PC17.** check the first aid box to ensure it is updated with the relevant first aid supplies
- PC18.** check and test the firefighting and various safety equipment to ensure they are in usable condition
- PC19.** ensure all portable fire extinguishers and stowage locations are numbered in place and inspection dated for safety reasons

- PC20.** coordinate with the supervisor for the repair and replacement of firefighting and safety equipment
- PC21.** check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them
- PC22.** select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions
- PC23.** follow the recommended techniques while lifting and moving heavy objects to avoid injury

Prepare for crane operation

To be competent, the user/individual on the job must be able to:

- PC24.** ensure the equipments are in good working order
- PC25.** pay particular attention to the rope and hook
- PC26.** ensure that the hoist is always operated within its rated capacity (SWL - Safe working load)
- PC27.** check the sling angle is more than 45°
- PC28.** ensure that no one is working on the crane track, crane platform (if fitted) or where they could be struck by the crane/ hoist

Operating the crane as per Standard Operating Procedures

To be competent, the user/individual on the job must be able to:

- PC29.** ensure to operate the crane with care and consideration
- PC30.** start the crane as per set guidelines or user manual
- PC31.** provide clear directions while operating crane
- PC32.** load the crane safely as required or mentioned in work order sheet
- PC33.** transfer the load to the desired location in a safe manner using crane
- PC34.** remove the load at the designated location and park the crane properly
- PC35.** centre the hoist over the load before lifting

Perform inspection and maintenance on wire rope hoist

To be competent, the user/individual on the job must be able to:

- PC36.** check the wire rope for kinking, corrosion, broken wires and broken strands visually
- PC37.** check the rope lays in the grooves of the drum and in rope sheaves
- PC38.** examine wire rope/ chain by walking 360 degrees around hook block
- PC39.** ensure there is no reduction in rope diameter
- PC40.** inspect there are no broken wires
- PC41.** check the hook moves freely in every allowed direction
- PC42.** ensure the presence of safety latch and its functioning
- PC43.** inspect free and smooth rotation of rope sheaves
- PC44.** check there is no structural damage
- PC45.** ensure there are no cracks on any component
- PC46.** inspect the presence of capacity marking of equipments
- PC47.** ensure the sheave guards are intact, unbroken and sheaves are smooth
- PC48.** check the sheave ropes rotate freely
- PC49.** inspect the limit switches operate properly

- PC50.** check the pushbutton controller for cracks, signs of wear in the housing and for loose or broken buttons
- PC51.** ensure the emergency button is working properly
- PC52.** clean the parts of the equipment
- PC53.** replace damaged parts
- PC54.** clean of corrosion and apply protective treatment

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** applicable documentation requirement in the job role
- KU2.** use of relevant PPE
- KU3.** applicable health, safety and environmental regulations and guidelines
- KU4.** the concepts and benefits of industry 4.0 and Industrial IOT
- KU5.** how to minimize various hazards associated with the crane operations
- KU6.** the importance of keeping the work area clean and hazard free
- KU7.** how to read and interpret safe crane operations
- KU8.** how to extract information/data and related information related to crane operations
- KU9.** how to use imperial and metric systems of measurement
- KU10.** use of different types of lifting hooks
- KU11.** use of relevant accessories like rope, hook, sling, belt etc.
- KU12.** the importance of following the manufacturer instructions and workplace safety guidelines while working on heavy machinery, tools and equipment
- KU13.** safety aspects related to crane operation and material handling
- KU14.** ratings of motors and precautions to taken while dealing with electrical equipment
- KU15.** different types of hazards associated with the use of various machinery, tools, implements, equipment and materials

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** communicate politely and professionally
- GS4.** listen attentively to understand the information being shared
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** identify possible disruptions to work and take appropriate preventive measures
- GS7.** take quick decisions to deal with workplace emergencies/ accidents
- GS8.** evaluate all possible solutions to a problem to select the best one
- GS9.** coordinate with the co-workers to achieve the work objectives

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carrying out crane operation safely</i>	5	10	-	-
PC1. follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment	-	-	-	-
PC2. obtain necessary permit to work	-	-	-	-
PC3. start and stop the travelling motion at low speed to prevent the load from swinging excessively	-	-	-	-
PC4. raise the load high enough to prevent it from hitting objects during travel	-	-	-	-
PC5. perform task safely and recognize any hazards	-	-	-	-
PC6. ensure SWL data plates are clearly visible to the operator at all times	-	-	-	-
PC7. operate the crane with care and consideration	-	-	-	-
PC8. monitor the operation and be ready to press emergency switch whenever required	-	-	-	-
PC9. move in appropriate direction	-	-	-	-
PC10. ensure to attend all the suspended loads	-	-	-	-
PC11. ensure to not lower the hook so far that the ropes become slack	-	-	-	-
PC12. park the crane or hoist in a designated maintenance position	-	-	-	-
PC13. follow the appropriate health and safety regulations and procedures	-	-	-	-
PC14. ensure not to use the overload protection for weighing the load	-	-	-	-
PC15. use the proper pushbuttons intended for controlling the hoist	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC16. ensure to avoid short, jerky motions and unnecessary short starts as it causes the hoisting motor to overheat quickly	-	-	-	-
PC17. check the first aid box to ensure it is updated with the relevant first aid supplies	-	-	-	-
PC18. check and test the firefighting and various safety equipment to ensure they are in usable condition	-	-	-	-
PC19. ensure all portable fire extinguishers and stowage locations are numbered in place and inspection dated for safety reasons	-	-	-	-
PC20. coordinate with the supervisor for the repair and replacement of firefighting and safety equipment	-	-	-	-
PC21. check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them	-	-	-	-
PC22. select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions	-	-	-	-
PC23. follow the recommended techniques while lifting and moving heavy objects to avoid injury	-	-	-	-
<i>Prepare for crane operation</i>	7	15	-	-
PC24. ensure the equipments are in good working order	-	-	-	-
PC25. pay particular attention to the rope and hook	-	-	-	-
PC26. ensure that the hoist is always operated within its rated capacity (SWL - Safe working load)	-	-	-	-
PC27. check the sling angle is more than 45°	-	-	-	-
PC28. ensure that no one is working on the crane track, crane platform (if fitted) or where they could be struck by the crane/ hoist	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Operating the crane as per Standard Operating Procedures</i>	7	16	-	-
PC29. ensure to operate the crane with care and consideration	-	-	-	-
PC30. start the crane as per set guidelines or user manual	-	-	-	-
PC31. provide clear directions while operating crane	-	-	-	-
PC32. load the crane safely as required or mentioned in work order sheet	-	-	-	-
PC33. transfer the load to the desired location in a safe manner using crane	-	-	-	-
PC34. remove the load at the designated location and park the crane properly	-	-	-	-
PC35. centre the hoist over the load before lifting	-	-	-	-
<i>Perform inspection and maintenance on wire rope hoist</i>	15	25	-	-
PC36. check the wire rope for kinking, corrosion, broken wires and broken strands visually	-	-	-	-
PC37. check the rope lays in the grooves of the drum and in rope sheaves	-	-	-	-
PC38. examine wire rope/ chain by walking 360 degrees around hook block	-	-	-	-
PC39. ensure there is no reduction in rope diameter	-	-	-	-
PC40. inspect there are no broken wires	-	-	-	-
PC41. check the hook moves freely in every allowed direction	-	-	-	-
PC42. ensure the presence of safety latch and its functioning	-	-	-	-
PC43. inspect free and smooth rotation of rope sheaves	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC44. check there is no structural damage	-	-	-	-
PC45. ensure there are no cracks on any component	-	-	-	-
PC46. inspect the presence of capacity marking of equipments	-	-	-	-
PC47. ensure the sheave guards are intact, unbroken and sheaves are smooth	-	-	-	-
PC48. check the sheave ropes rotate freely	-	-	-	-
PC49. inspect the limit switches operate properly	-	-	-	-
PC50. check the pushbutton controller for cracks, signs of wear in the housing and for loose or broken buttons	-	-	-	-
PC51. ensure the emergency button is working properly	-	-	-	-
PC52. clean the parts of the equipment	-	-	-	-
PC53. replace damaged parts	-	-	-	-
PC54. clean of corrosion and apply protective treatment	-	-	-	-
NOS Total	34	66	-	-

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N1207
NOS Name	Overhead crane operator
Sector	Capital Goods
Sub-Sector	Plastics Manufacturing Machinery, Electrical and Power Machinery, Process Plant Machinery, Light Engineering Goods, Machine Tools, Dies, Moulds and Press Tools, Textile Manufacturing Machinery, Defence Equipment, Ship Building & Repair, Fire-Fighting & Safety Equipment, Homeland Security
Occupation	Shop Floor Management
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	30/01/2027
NSQC Clearance Date	22/10/2024

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for the Qualification Pack will be created by CGSSC.
2. Performance Criteria (PC) have been assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
3. The assessment for the theory part will/may be based on knowledge bank of questions approved CGSSC.
4. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
5. Assessment Agencies will create Assessor Guides comprising of Theory and Practical Assessment Set and Guidelines for each examination/training centre (as per assessment criteria below). The same will be approved by CGSSC for adequacy.

6. To successfully attain Certification on the Qualification Pack, the trainee must score a minimum of 70% in each Core NOS and minimum of 50% in all non-core NOS. In addition, a candidate needs to attain a minimum overall pass percentage of 70% for certification.

7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(**Please note:** Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CSC/N1207.Overhead crane operator	34	66	-	-	100	100
Total	34	66	-	-	100	100

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.