

National Occupational Standards



Introduction to Roads Repair and Maintenance

Unit Code: ICE/CON/N0206

Version: 1.0

NSQF Level: 2

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Description

The roads repair and maintenance course involves ensuring the longevity and safety of road infrastructure through regular upkeep, repairs and restoration activities. This role encompasses identifying and addressing issues such as potholes, cracks, erosion and surface wear, which can compromise the safety and functionality of roads. Technicians and specialists in road repair are responsible for planning, executing and overseeing maintenance tasks, using tools and technologies to ensure that roads remain safe, smooth and durable for daily use.

Scope

The scope covers the following :

- Identification and classification of common road defects (e.g., potholes, cracks, rutting)
- Causes of road deterioration (traffic load, weather, drainage issues, material failure)
- Introduction to various repair methods (patching, sealing, overlay, reconstruction)
- Routine, periodic and emergency maintenance procedures
- Tools, equipment and materials used in road maintenance
- Environment, Health and Safety considerations in maintenance operations
- Standards and best practices for quality control in repair work
- Importance of planning and record-keeping in maintenance scheduling.

Elements and Performance Criteria

Identify the Purpose and Importance of Road Repair and Maintenance

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

- PC1. recognize the role of road maintenance in improving safety and transportation flow.
- PC2. identify basic causes of road damage such as heavy traffic, poor drainage, and weather effects.
- PC3. state the benefits of timely maintenance and repair for extending road life.
- PC4. explain how poor road conditions impact users and local economies.
- PC5. list key reasons for regular repair work, including safety and cost-efficiency.
- PC6. identify different types of roads and their general maintenance needs.
- PC7. recognize the value of using durable materials in road repair.
- PC8. Follow instructions related to road upkeep and understand their purpose.

Differentiate Types of Road Maintenance Work

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

- PC9. classify maintenance into routine, preventive, corrective and rehabilitation types.
- PC10. identify examples of each maintenance type through site observation.
- PC11. understand when each type of maintenance is applied based on road condition.
- PC12. distinguish between temporary fixes and long-term repair solutions.
- PC13. explain the purpose of preventive maintenance in delaying damage.
- PC14. report road issues to appropriate personnel using correct terminology.
- PC15. assist in selecting suitable repair actions based on road surface damage.

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PC16. follow supervisor instructions for different types of maintenance tasks.

Support Common Road Maintenance Activities

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

PC17. assist in pothole filling, crack sealing and surface cleaning.

PC18. use hand tools and basic equipment as instructed.

PC19. identify materials commonly used in road maintenance, such as bitumen or sealants.

PC20. maintain cleanliness and safety of the work area.

PC21. help with placing road signs and cones to alert traffic.

PC22. report any damage or equipment malfunction to supervisor.

PC23. work as part of a team to complete repair tasks efficiently.

PC24. participate in basic resurfacing and drainage clearing under supervision.

Understand the Objectives and Importance of Road Maintenance

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

PC25. define key objectives of road maintenance such as preserving quality, improving safety, and reducing repair costs.

PC26. explain how regular maintenance enhances road user comfort and safety.

PC27. describe how maintenance protects nearby assets like drainage, slopes and utilities.

PC28. identify its role in ensuring access to essential services.

PC29. recognize its economic value in supporting transport and reducing vehicle wear.

PC30. understand the need for planning and budgeting based on weather and traffic.

Apply Routine Maintenance Practices

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

PC31. observe and report early signs of road wear like cracks or small potholes.

PC32. carry out cleaning, patching or sealing as instructed.

PC33. follow daily work plans and checklists.

PC34. ensure safe handling of tools and materials during routine tasks.

PC35. complete repetitive tasks with consistency and accuracy.

PC36. use basic measuring tools (e.g., tape measure) to mark damaged areas.

PC37. avoid disruption to passing traffic during roadwork.

PC38. assist in post-maintenance cleanup and tool collection.

Follow Safety Protocols, Maintain Basic Records and Assist in Planning Activities

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

PC39. wear safety gear like helmets, gloves and reflective vests on-site.

PC40. identify and avoid hazards such as live traffic, hot materials and open trenches.

PC41. place cones and barricades properly before starting tasks.

PC42. use tools and materials safely under guidance.

PC43. keep worksite free from debris and spills.

PC44. dispose of waste material in assigned areas.

PC45. record daily maintenance tasks on simple log sheets or forms.

PC46. collect and note material usage and work durations.

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PC47. help update schedules under the guidance of a supervisor.

PC48. maintain a checklist for routine inspection activities.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. basic purpose and importance of road maintenance in infrastructure management.
- KU2. different causes of road deterioration such as traffic load, environmental factors and material fatigue.
- KU3. classification and characteristics of roads (e.g., rural, urban, highways) and their typical maintenance needs.
- KU4. types of road maintenance: routine, preventive, corrective and rehabilitation.
- KU5. common maintenance techniques like pothole patching, crack sealing and drainage cleaning.
- KU6. basic functioning and handling of tools and materials used in road repair (e.g., bitumen, sealants, rollers).
- KU7. general workflow and responsibilities during repair tasks on-site.
- KU8. importance of early intervention in preventing further road damage.
- KU9. procedures for safe use, storage and maintenance of hand tools and materials.
- KU10. standard safety practices during road work, including PPE and hazard signs.
- KU11. environmental factors to consider during maintenance (e.g., dust, runoff, waste disposal).
- KU12. procedures for placing barricades, cones and signs for traffic control.
- KU13. record-keeping methods like checklists, maintenance logs and basic forms.
- KU14. awareness of computerized maintenance systems and their basic outputs.
- KU15. importance of teamwork and coordination during field activities.
- KU16. role of supervisors and how to communicate problems or suggestions.
- KU17. guidelines for reporting unsafe situations or potential hazards.
- KU18. procedures for minor resurfacing and drainage system upkeep.
- KU19. quality control basics-understanding what a good repair looks like.
- KU20. economic and safety impacts of neglected or delayed maintenance.

Generic Skills (GS)

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

- GS1. read and interpret simple instructions, safety signs and work orders.
- GS2. write or fill out basic forms such as maintenance records or checklists.
- GS3. communicate clearly with team members and supervisors using appropriate terms.
- GS4. understand and respond to verbal instructions effectively.
- GS5. apply basic numeracy to measure, count and mix materials correctly.
- GS6. observe surroundings and identify visible damage or risks on the road.
- GS7. work in coordination with others to complete assigned tasks.

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- GS8. follow a routine schedule and stay organized during repetitive tasks.
- GS9. use tools and equipment safely and efficiently under supervision.
- GS10. report any challenges, delays or issues to the relevant authority.
- GS11. make simple decisions within defined parameters (e.g., tool choice, order of tasks).
- GS12. demonstrate responsibility by completing tasks without constant supervision.
- GS13. adapt to changing site conditions and adjust tasks as instructed.

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify the Purpose and Importance of Road Repair and Maintenance</i>	5	10	-	1
PC1. recognize the role of road maintenance in improving safety and transportation flow.	-	-	-	-
PC2. identify basic causes of road damage such as heavy traffic, poor drainage, and weather effects.	-	-	-	-
PC3. state the benefits of timely maintenance and repair for extending road life.	-	-	-	-
PC4. explain how poor road conditions impact users and local economies.	-	-	-	-
PC5. list key reasons for regular repair work, including safety and cost-efficiency.	-	-	-	-
PC6. identify different types of roads and their general maintenance needs.	-	-	-	-
PC7. recognize the value of using durable materials in road repair.	-	-	-	-
PC8. Follow instructions related to road upkeep and understand their purpose.	-	-	-	-
<i>Differentiate Types of Road Maintenance Work</i>	5	10	-	1
PC9. classify maintenance into routine, preventive, corrective and rehabilitation types.	-	-	-	-
PC10. identify examples of each maintenance type through site observation.	-	-	-	-
PC11. understand when each type of maintenance is applied based on road condition.	-	-	-	-
PC12. distinguish between temporary fixes and long-term repair solutions.	-	-	-	-
PC13. explain the purpose of preventive maintenance in delaying damage.	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. report road issues to appropriate personnel using correct terminology.	-	-	-	-
PC15. assist in selecting suitable repair actions based on road surface damage.	-	-	-	-
PC16. follow supervisor instructions for different types of maintenance tasks.	-	-	-	-
<i>Support Common Road Maintenance Activities</i>	5	10	-	2
PC17. assist in pothole filling, crack sealing and surface cleaning.	-	-	-	-
PC18. use hand tools and basic equipment as instructed.	-	-	-	-
PC19. identify materials commonly used in road maintenance, such as bitumen or sealants.	-	-	-	-
PC20. maintain cleanliness and safety of the work area.	-	-	-	-
PC21. help with placing road signs and cones to alert traffic.	-	-	-	-
PC22. report any damage or equipment malfunction to supervisor.	-	-	-	-
PC23. work as part of a team to complete repair tasks efficiently.	-	-	-	-
PC24. participate in basic resurfacing and drainage clearing under supervision.	-	-	-	-
<i>Understand the Objectives and Importance of Road Maintenance</i>	5	10	-	2
PC25. define key objectives of road maintenance such as preserving quality, improving safety, and reducing repair costs.	-	-	-	-
PC26. explain how regular maintenance enhances road user comfort and safety.	-	-	-	-
PC27. describe how maintenance protects nearby assets like drainage, slopes and utilities.	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC28. identify its role in ensuring access to essential services.	-	-	-	-
PC29. recognize its economic value in supporting transport and reducing vehicle wear.	-	-	-	-
PC30. understand the need for planning and budgeting based on weather and traffic.	-	-	-	-
<i>Apply Routine Maintenance Practices</i>	5	10	-	2
PC31. observe and report early signs of road wear like cracks or small potholes.	-	-	-	-
PC32. carry out cleaning, patching or sealing as instructed.	-	-	-	-
PC33. follow daily work plans and checklists.	-	-	-	-
PC34. ensure safe handling of tools and materials during routine tasks.	-	-	-	-
PC35. complete repetitive tasks with consistency and accuracy.	-	-	-	-
PC36. use basic measuring tools (e.g., tape measure) to mark damaged areas.	-	-	-	-
PC37. avoid disruption to passing traffic during roadwork.	-	-	-	-
PC38. assist in post-maintenance cleanup and tool collection.	-	-	-	-
<i>Follow Safety Protocols, Maintain Basic Records and Assist in Planning Activities</i>	5	10	-	2
PC39. wear safety gear like helmets, gloves and reflective vests on-site.	-	-	-	-
PC40. identify and avoid hazards such as live traffic, hot materials and open trenches.	-	-	-	-
PC41. place cones and barricades properly before starting tasks.	-	-	-	-
PC42. use tools and materials safely under guidance.	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC43. keep worksite free from debris and spills.	-	-	-	-
PC44. dispose of waste material in assigned areas.	-	-	-	-
PC45. record daily maintenance tasks on simple log sheets or forms.	-	-	-	-
PC46. collect and note material usage and work durations.	-	-	-	-
PC47. help update schedules under the guidance of a supervisor.	-	-	-	-
PC48. maintain a checklist for routine inspection activities.	-	-	-	-
NOS Total	30	60	-	10

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National Occupational Standards (NOS) Parameters

NOS Code	ICE/CON/N0206
NOS Name	Introduction to Roads Repair and Maintenance
Sector	Construction
Sub-Sector	
Occupation	Ability to Read and Write
NSQF Level	2
Credits	4
Minimum Job Entry Age	18
Minimum Educational Qualification & Experience	5th grade pass
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025
Reference code on NQR	NG-02-CO-046382025-V1-ICES
NQR Version	1.0
CCN Category	1