Foundation of Road Safety

Unit Code: ICE/VSQ/N0201

Version: 1.0

NSQF Level: 2.5

THE INSTITUTION OF CIVIL ENGINEERS SOCIETY || 533-R
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Description

This module focuses on equipping trainees with essential road safety knowledge and skills. They will explore traffic rules, safe road practices, the impact of road hazards, emergency response procedures, and the role of technology in road safety. Through interactive learning, they will develop the awareness and responsibility to become safe and informed road users.

Scope

The scope covers the following :

- Introduction to Road Safety, Traffic Rules and Regulations
- Safe road and Safe Vehicles
- The Impact of Road Conditions and Substance Impairment on Driving Safety
- Essential First Aid and Emergency Response Procedures for Roadside Emergencies
- Technology and Road Safety

Elements and Performance Criteria

Understanding the importance of road safety

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

PC1.   Identify the key principles of road safety.

PC2.   Explain the importance of following traffic rules.

PC3.   Discuss the role of road safety in preventing accidents.

PC4.   Recognize the impact of road safety on public health.

PC5.   Learn about the concept of "right of way" and how it applies to different road users.

PC6.   Understand the meaning of road signs and markings (stop signs, speed limits, lane markings, etc.)

Recognizing and interpreting traffic signals and signs

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

PC7.   Explain the meanings of various traffic signals.

PC8.   Demonstrate the ability to interpret road markings.

PC9.   Recognize and explain the importance of pedestrian crossings and safety zones.

PC10. Learn about the dangers of distracted driving (texting, eating, etc.).

PC11. Apply knowledge of traffic signs in real-life scenarios.

The legal aspects of road safety

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

PC12. Identify the key traffic laws and regulations.

PC13. Learn about the consequences of violating traffic laws (fines, license suspension).

PC14. Understand the basic legal responsibilities of pedestrians (using crosswalks, obeying traffic signals).

PC15. Learn about the legal obligations of cyclists (wearing helmets, using lights at night).

PC16. Understand the basic legal responsibilities of drivers (obtaining a driver's license, maintaining vehicle safety).

PC17. Understand the role of law enforcement in maintaining road safety.

Impact of Road Accidents

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

PC18. Understand strategies used to promote road safety.

PC19. Understand the social consequences of road accidents (loss of life, injuries, emotional trauma).

PC20. Understand the impact of road accidents on public health (increased risk of injuries, disabilities).

PC21. Learn about the economic impact of road accidents (medical costs, property damage, lost productivity).

Emotional and Mental Health

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

PC22. Discuss the emotional and psychological impact of being involved in a road accident (fear, anxiety, PTSD).

PC23. Understand how stress, anger, and fatigue can affect driving behaviour.

PC24. Learn about the importance of maintaining emotional and mental well-being while driving.

Understanding vehicle safety features

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

PC25. Identify key safety features in vehicles.

PC26. Explain the importance of regular vehicle maintenance checks (tires, brakes, lights,) for safe operation.

PC27. Understand the role of different vehicle safety features such as : Seat belts, Airbags, Child safety restraints, Anti-lock brakes (ABS)

PC28. Discuss the impact of proper vehicle maintenance on fuel efficiency and environmental impact.

PC29. Understand the dashboard warning lights: Check Engine, Battery, Coolant Temperature,Transmission Temperature, Oil Pressure Warning, Tire Pressure Monitoring System, Brake System, Traction Control, Stability Control, Airbag Warning, Lamp Out, Washer Fluid, Door Open, Low Fuel,

PC30. Conduct inspections on brakes, lights, and other critical systems.

Road infrastructure impact

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

PC31. Recognize potential hazards in road design (poor visibility, sharp curves, inadequate signage).

PC32. Understand the importance of well-maintained roads (free from potholes, clear signage) for safe travel.

PC33. Explain how weather conditions (rain, snow, fog) can affect driving safety.

PC34. Understand the dangers of driving on wet or icy roads.

PC35. Discuss the impact of poor visibility on driving safety.

PC36. Discuss the impact of road conditions on vehicle safety.

Preventing accidents through proactive maintenance

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

PC37. Analyse the link between maintenance and accident prevention.

PC38. Educate others on the importance of maintenance

Understanding road conditions

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

PC39. Identify different types of road conditions.

PC40. Explain the impact of weather on road safety.

PC41. Discuss how road surface affects vehicle handling.

PC42. Understand the challenges posed by road construction.

Effects of alcohol and drugs on driving

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

PC43. Identify the effects of alcohol on cognitive and motor skills.

PC44. Discuss the impact of drugs on driving abilities.

PC45. Understand the legal consequences of driving under the influence.

PC46. Recognize the signs of impaired driving.

Strategies to combat impaired driving

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

PC47. Develop awareness campaigns on the dangers of impaired driving.

PC48. Educate drivers on the legal and safety risks.

PC49. Implement checks and controls to prevent impaired driving.

PC50. Promote alternative transportation options for impaired individuals.

Safety and Environmental Compliance Adapting to different road conditions

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

PC51. Develop strategies for safe driving in various conditions.

PC52. Understand the importance of speed adjustment based on road conditions.

PC53. Recognize the need for vehicle maintenance in different conditions.

PC54. Educate others on the challenges of different road conditions.

Understanding emergency response protocols

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

PC55. Identify the steps in an emergency response plan.

PC56. Explain the importance of staying calm in emergencies.

PC57. Discuss the role of emergency services.

PC58. Understand the need for quick decision-making in emergencies.

Administering basic first aid

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

PC59. Demonstrate basic first aid techniques.

PC60. Recognize common injuries in road accidents.

PC61. Apply first aid in case of bleeding, fractures, and burns.

PC62. Understand the importance of CPR and other life-saving techniques.

Managing road-related emergencies

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

PC63. Identify different types of road emergencies.

PC64. Develop strategies for managing traffic accidents.

PC65. Understand the role of bystanders in emergencies.

PC66. Implement safety measures to prevent further harm.

Coordinating with emergency Protocols

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

PC67. Establish communication with emergency responder.

PC68. Provide accurate information to emergency services.

PC69. Assist emergency responder upon arrival.

PC70. Understand the importance of follow-up after an emergency.

Understanding technological interventions in road safety

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

PC71. Explain the role of technology in enhancing road safety.

PC72. Learn about how technology is used to improve road safety (traffic cameras, speed bumps, electronic speed signs).

PC73. Understand the role of GPS and navigation systems in improving traffic flow and reducing accidents.

PC74. Identify and describe various technological advancements in road safety, such as: Advanced Driver-Assistance Systems (ADAS), Automatic Emergency Braking (AEB), Lane Departure Warning (LDW), Blind Spot Monitoring (BSM), Adaptive Cruise Control (ACC), Electronic Stability Control (ESC), Forward Collision Warning (FCW),

Understanding smart traffic management systems

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

PC75. Understand the basics of smart traffic management systems including traffic signal timing, variable message signs, surveillance cameras etc.

Autonomous vehicles

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

PC76. Understand the concept of self-driving cars and their potential impact on road safety

PC77. Discuss the potential benefits and drawbacks of autonomous vehicles.

PC78. Explore the ethical considerations related to the use of technology in transportation.

Mobile App

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

PC79. Understand the benefits of using navigation apps for safe travel.

PC80. Discuss the importance of responsible navigation app use.

PC81. Understand the benefits of using ride-hailing services for safe transportation.

PC82. Discuss the importance of passenger safety and responsible behaviour when using ride-hailing services.

PC83. Understand the importance of having access to emergency assistance in case of an accident.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Key principles of road safety.

KU2. Traffic signals, signs, and road markings.

KU3. Legal framework governing road safety.

KU4. Consequences of violating traffic rules.

KU5. The role of law enforcement in road safety.

KU6. Public health implications of road safety.

KU7. Road safety campaigns and their impact.

KU8. Techniques for interpreting road signs.

KU9. Strategies for promoting road safety.

KU10. The relationship between road safety and accident prevention.

KU11. The importance of community involvement in road safety.

KU12. Penalties associated with traffic violations.

KU13. Emotional and mental impact of road accidents.

KU14. Key vehicle safety features and their importance.

KU15. Functions of airbags, ABS, and other safety systems.

KU16. Routine maintenance practices for vehicles.

KU17. Inspection procedures for road worthiness.

KU18. The impact of vehicle maintenance on safety.

KU19. Maintenance of road infrastructure.

KU20. The relationship between road conditions and accidents.

KU21. Record-keeping for maintenance activities.

KU22. Safety protocols during maintenance work.

KU23. The importance of regular inspections.

KU24. Advances in vehicle safety technology.

KU25. Methods for educating others about maintenance.

KU26. Strategies for implementing a proactive maintenance schedule.

KU27. Different types of road conditions and their impact on driving

KU28. The effects of weather on road safety

KU29. The influence of road surface on vehicle handling.

KU30. Challenges posed by road construction.

KU31. Effects of alcohol on cognitive and motor skills.

KU32. Impact of drugs on driving abilities.

KU33. Legal consequences of driving under the influence.

KU34. Signs of impaired driving.

KU35. Strategies to prevent impaired driving.

KU36. The importance of awareness campaigns.

KU37. Safe driving strategies for various conditions.

KU38. The relationship between road conditions and vehicle maintenance.

KU39. Legal and safety risks of impaired driving.

KU40. Emergency response protocols and their importance.

KU41. Basic first aid techniques for road accidents.

KU42. The role of emergency services in road incidents.

KU43. Common injuries in road accidents and their treatment.

KU44. The importance of CPR and other life-saving techniques.

KU45. Strategies for managing road-related emergencies.

KU46. The role of bystanders in emergencies.

KU47. Communication with emergency responders.

KU48. Providing accurate information during emergencies.

KU49. The role of quick decision-making in emergencies.

KU50. Safety measures to prevent further harm.

KU51. Coordination with emergency services.

KU52. The importance of follow-up after an emergency.

KU53. Various technological interventions in road safety.

KU54. Applications of technology in road safety.

KU55. Smart traffic management systems and their components.

KU56. Features of autonomous vehicles.

KU57. Various Mobile Apps used for navigation.

KU58. Various Apps used for ride hailing.

KU59. Benefits of technology and mobile apps in road safety.

KU60. Responsible use of services.

KU61. Ethical considerations for use of technology in road safety.

Generic Skills (GS)

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

GS1. Critical thinking and problem-solving.

GS2. Communication skills for promoting road safety.

GS3. Ability to interpret and follow traffic rules.

GS4. Work effectively in a team

GS5. Public speaking

GS6. Oraganisational skills

GS7. Leadership skills

GS8. Adaptability and resilience

GS9. Attention to detail.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Understanding the importance of road safety	**10**	**10**	-	**2**
PC1. Identify the key principles of road safety.	-	-	-	-
PC2. Explain the importance of following traffic rules.	-	-	-	-
PC3. Discuss the role of road safety in preventing accidents.	-	-	-	-
PC4. Recognize the impact of road safety on public health.	-	-	-	-
PC5. Learn about the concept of "right of way" and how it applies to different road users.	-	-	-	-
PC6. Understand the meaning of road signs and markings (stop signs, speed limits, lane markings, etc.)	-	-	-	-
Recognizing and interpreting traffic signals and signs	**10**	**10**	-	**2**
PC7. Explain the meanings of various traffic signals.	-	-	-	-
PC8. Demonstrate the ability to interpret road markings.	-	-	-	-
PC9. Recognize and explain the importance of pedestrian crossings and safety zones.	-	-	-	-
PC10. Learn about the dangers of distracted driving (texting, eating, etc.).	-	-	-	-
PC11. Apply knowledge of traffic signs in real-life scenarios.	-	-	-	-
The legal aspects of road safety	**10**	**10**	-	**2**
PC12. Identify the key traffic laws and regulations.	-	-	-	-
PC13. Learn about the consequences of violating traffic laws (fines, license suspension).	-	-	-	-
PC14. Understand the basic legal responsibilities of pedestrians (using crosswalks, obeying traffic signals).	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. Learn about the legal obligations of cyclists (wearing helmets, using lights at night).	-	-	-	-
PC16. Understand the basic legal responsibilities of drivers (obtaining a driver's license, maintaining vehicle safety).	-	-	-	-
PC17. Understand the role of law enforcement in maintaining road safety.	-	-	-	-
Impact of Road Accidents	10	10	-	2
PC18. Understand strategies used to promote road safety.	-	-	-	-
PC19. Understand the social consequences of road accidents (loss of life, injuries, emotional trauma).	-	-	-	-
PC20. Understand the impact of road accidents on public health (increased risk of injuries, disabilities).	-	-	-	-
PC21. Learn about the economic impact of road accidents (medical costs, property damage, lost productivity).	-	-	-	-
Emotional and Mental Health	5	5	-	2
PC22. Discuss the emotional and psychological impact of being involved in a road accident (fear, anxiety, PTSD).	-	-	-	-
PC23. Understand how stress, anger, and fatigue can affect driving behaviour.	-	-	-	-
PC24. Learn about the importance of maintaining emotional and mental well-being while driving.	-	-	-	-
Understanding vehicle safety features	25	25	-	5
PC25. Identify key safety features in vehicles.	-	-	-	-
PC26. Explain the importance of regular vehicle maintenance checks (tires, brakes, lights,) for safe operation.	-	-	-	-
PC27. Understand the role of different vehicle safety features such as : Seat belts, Airbags, Child safety restraints, Anti-lock brakes (ABS)	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC28. Discuss the impact of proper vehicle maintenance on fuel efficiency and environmental impact.	-	-	-	-
PC29. Understand the dashboard warning lights: Check Engine, Battery, Coolant Temperature,Transmission Temperature, Oil Pressure Warning, Tire Pressure Monitoring System, Brake System, Traction Control, Stability Control, Airbag Warning, Lamp Out, Washer Fluid, Door Open, Low Fuel,	-	-	-	-
PC30. Conduct inspections on brakes, lights, and other critical systems.	-	-	-	-
Road infrastructure impact	**15**	**10**	**-**	**3**
PC31. Recognize potential hazards in road design (poor visibility, sharp curves, inadequate signage).	-	-	-	-
PC32. Understand the importance of well-maintained roads (free from potholes, clear signage) for safe travel.	-	-	-	-
PC33. Explain how weather conditions (rain, snow, fog) can affect driving safety.	-	-	-	-
PC34. Understand the dangers of driving on wet or icy roads.	-	-	-	-
PC35. Discuss the impact of poor visibility on driving safety.	-	-	-	-
PC36. Discuss the impact of road conditions on vehicle safety.	-	-	-	-
Preventing accidents through proactive maintenance	**5**	**10**	**-**	**2**
PC37. Analyse the link between maintenance and accident prevention.	-	-	-	-
PC38. Educate others on the importance of maintenance	-	-	-	-
Understanding road conditions	**15**	**10**	**-**	**2**
PC39. Identify different types of road conditions.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC40. Explain the impact of weather on road safety.	-	-	-	-
PC41. Discuss how road surface affects vehicle handling.	-	-	-	-
PC42. Understand the challenges posed by road construction.	-	-	-	-
Effects of alcohol and drugs on driving	10	10	-	3
PC43. Identify the effects of alcohol on cognitive and motor skills.	-	-	-	-
PC44. Discuss the impact of drugs on driving abilities.	-	-	-	-
PC45. Understand the legal consequences of driving under the influence.	-	-	-	-
PC46. Recognize the signs of impaired driving.	-	-	-	-
Strategies to combat impaired driving	10	15	-	3
PC47. Develop awareness campaigns on the dangers of impaired driving.	-	-	-	-
PC48. Educate drivers on the legal and safety risks.	-	-	-	-
PC49. Implement checks and controls to prevent impaired driving.	-	-	-	-
PC50. Promote alternative transportation options for impaired individuals.	-	-	-	-
Safety and Environmental Compliance Adapting to different road conditions	10	10	-	2
PC51. Develop strategies for safe driving in various conditions.	-	-	-	-
PC52. Understand the importance of speed adjustment based on road conditions.	-	-	-	-
PC53. Recognize the need for vehicle maintenance in different conditions.	-	-	-	-
PC54. Educate others on the challenges of different road conditions.	-	-	-	-

National Occupational Standards

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Understanding emergency response protocols	10	10	-	2
PC55. Identify the steps in an emergency response plan.	-	-	-	-
PC56. Explain the importance of staying calm in emergencies.	-	-	-	-
PC57. Discuss the role of emergency services.	-	-	-	-
PC58. Understand the need for quick decision-making in emergencies.	-	-	-	-
Administering basic first aid	15	15	-	4
PC59. Demonstrate basic first aid techniques.	-	-	-	-
PC60. Recognize common injuries in road accidents.	-	-	-	-
PC61. Apply first aid in case of bleeding, fractures, and burns.	-	-	-	-
PC62. Understand the importance of CPR and other life-saving techniques.	-	-	-	-
Managing road-related emergencies	15	10	-	2
PC63. Identify different types of road emergencies.	-	-	-	-
PC64. Develop strategies for managing traffic accidents.	-	-	-	-
PC65. Understand the role of bystanders in emergencies.	-	-	-	-
PC66. Implement safety measures to prevent further harm.	-	-	-	-
Coordinating with emergency Protocols	5	10	-	2
PC67. Establish communication with emergency responder.	-	-	-	-
PC68. Provide accurate information to emergency services.	-	-	-	-
PC69. Assist emergency responder upon arrival.	-	-	-	-

National Occupational Standards

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC70. Understand the importance of follow-up after an emergency.	-	-	-	-
Understanding technological interventions in road safety	**20**	**15**	**-**	**3**
PC71. Explain the role of technology in enhancing road safety.	-	-	-	-
PC72. Learn about how technology is used to improve road safety (traffic cameras, speed bumps, electronic speed signs).	-	-	-	-
PC73. Understand the role of GPS and navigation systems in improving traffic flow and reducing accidents.	-	-	-	-
PC74. Identify and describe various technological advancements in road safety, such as: Advanced Driver-Assistance Systems (ADAS), Automatic Emergency Braking (AEB), Lane Departure Warning (LDW), Blind Spot Monitoring (BSM), Adaptive Cruise Control (ACC), Electronic Stability Control (ESC), Forward Collision Warning (FCW),	-	-	-	-
Understanding smart traffic management systems	**5**	**5**	**-**	**2**
PC75. Understand the basics of smart traffic management systems including traffic signal timing, variable message signs, surveillance cameras etc.	-	-	-	-
Autonomous vehicles	**10**	**10**	**-**	**2**
PC76. Understand the concept of self-driving cars and their potential impact on road safety	-	-	-	-
PC77. Discuss the potential benefits and drawbacks of autonomous vehicles.	-	-	-	-
PC78. Explore the ethical considerations related to the use of technology in transportation.	-	-	-	-
Mobile App	**10**	**15**	**-**	**3**
PC79. Understand the benefits of using navigation apps for safe travel.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC80. Discuss the importance of responsible navigation app use.	-	-	-	-
PC81. Understand the benefits of using ride-hailing services for safe transportation.	-	-	-	-
PC82. Discuss the importance of passenger safety and responsible behaviour when using ride-hailing services.	-	-	-	-
PC83. Understand the importance of having access to emergency assistance in case of an accident.	-	-	-	-
NOS Total	**225**	**225**	**-**	**50**

National Occupational Standards (NOS) Parameters

NOS Code	ICE/VSQ/N0201
NOS Name	Foundation of Road Safety
Sector	Cross Sectoral
Sub-Sector	Education Training And Research
Occupation	Safety and Preparedness Education
NSQF Level	2.5
Credits	2
Minimum Job Entry Age	14
Minimum Educational Qualification & Experience	8th Grade pass and pursuing continuous schooling in regular school OR 9th grade pass
Version	1.0
Last Reviewed Date	17/01/2025
Next Review Date	17/01/2028
NSQC Clearance Date	17/01/2025
Reference code on NQR	NG-2.5-CO-03455-2025-V1-TICE
NQR Version	1.0
CCN Category	2