Model Curriculum

Model Curriculum

QP Name: Foundation of Road Safety

QP Code: ICE/VSQ/N0201

Version: 1.0

NSQF Level: 2.5

The Institution of Civil Engineers society

301-303, Suncity Trade Tower, Sector-21, Gurugram, Haryana

Table of Contents

Training Parameters

Sector	**Cross-Sectoral**
Sub-Sector	Education Training and Research
Occupation	Safety and Preparedness Education
Country	India
NSQF Level	2.5
Credits	02
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2330.9900
Minimum Educational Qualification and Experience	8th grade pass and pursuing schooling education OR 9th grade pass
Minimum Level of Education for Training in School	9th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	14 Years
Last Reviewed On	17/01/2025
Next Review Date	17/01/2028
NSQC Approval Date	17/01/2025
QP Version	1.0
Model Curriculum Creation Date	17/01/2025
Model Curriculum Valid Up to Date	17/01/2028
Model Curriculum Version	1.0
Minimum Duration of the Course	60 Hours
Maximum Duration of the Course	60 Hours

Program Overview

This section summarises the end objectives of the program along with its duration.

Training Outcomes:

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Understand the traffic rules and regulations, including the rights and responsibilities of pedestrians, cyclists, and motorcyclists.
- Identify and assess possible dangers on the road, allowing individuals to better prepare for and respond to risky circumstances.
- Comprehend methods to promote safer driving habits that decrease the likelihood of accidents and crashes.
- Understand the significance and correct utilization of vehicle safety components like seat belts, airbags, and anti-lock braking systems (ABS).
- Encourage awareness of at-risk road users such as walkers, bikers, and motorcyclists.
- Understand the consequences of consuming alcohol and drugs while driving.
- Gain knowledge of first aid and emergency response skills to offer immediate help when accidents happen.
- Explore the role of technology, smart traffic management, and autonomous vehicles in enhancing road safety.

Compulsory Modules:

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Foundation of Road Safety **NOS Version- 1.0** **NSQF Level- 2.5**	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**
Module 1: Fundamentals of Road Safety and	05:00	06:00	00:00	00:00	11:00

Traffic rules					
Module 2: Road Infrastructure and Vehicle Safety Features	07:00	07:00	00:00	00:00	14:00
Module 3: Impact of Substance Impairment and Fatigue on Driving	06:00	05:00	00:00	00:00	11:00
Module 4: Emergency Response, First Aid, and Accident Management	07:00	07:00	00:00	00:00	14:00
Module 5: Technology and Road Safety	05:00	05:00	00:00	00:00	10:00
Total Duration	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**

Module Details

Module 1: Fundamentals of Road Safety and Traffic rules

Mapped to v1.0

Terminal Outcomes:

- Understand the importance of road safety and its role in accident prevention.
- Identify key traffic laws, road signs, signals, and their significance.
- Recognize common causes of road accidents and ways to minimize risks.
- Learn the principles of defensive driving and responsible road use.
- Analyze the role of law enforcement agencies in ensuring compliance with traffic regulations.
- Analyze the social, economic, and public health impacts of road accidents.
- Understand the emotional and mental health effects of road-related incidents.

Duration (in hours): 05:00	**Duration (in hours):06:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Identify key principles of road safety and its role in preventing accidents. • Explain the importance of following traffic rules and regulations for safe road usage. • Understand the concept of "right of way" and how it applies to different road users. • Recognize the meanings of road signs, signals, and lane markings. • Learn the dangers of distracted driving, such as texting, eating, or using mobile devices. • Interpret various traffic signals, pedestrian crossings, and safety zones. • Understand key traffic laws and	• Demonstrate the ability to recognize and interpret road signs and traffic signals. • Apply knowledge of road markings in simulated real-life scenarios. • Participate in discussions and case studies on the impact of road accidents. • Engage in role-play exercises to understand the legal responsibilities of road users. • Develop awareness campaigns promoting safe driving behavior and mental well-being.

regulations, including penalties for violations. • Learn about the legal responsibilities of pedestrians, cyclists, and drivers. • Recognize the role of law enforcement in ensuring road safety. • Analyse the social consequences of road accidents, including loss of life and emotional trauma. • Understand the economic impact of road accidents, such as medical expenses and property damage. • Discuss the public health impact of road accidents, including injuries and disabilities. • Recognize the emotional and psychological effects of road accidents on victims and their families. • Understand how stress, anger, and fatigue influence driving behavior. • Learn strategies to maintain emotional and mental well-being while driving.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Physical Road Signs: For practical recognition. Traffic Signal Mockups: To understand signal sequences. Cones and Barriers: For road layouts. Toy/Model Vehicles: For role-playing and simulations. First-Aid Kit: For safety.	

Module 2: Road Infrastructure and Vehicle Safety Features

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Mapped to v1.0

Terminal Outcomes:

- Understand the impact of road design and maintenance on driving safety.
- Learn about different vehicle safety features and their role in accident prevention.
- Recognize the importance of regular vehicle maintenance and inspections.
- Identify how road conditions and markings contribute to traffic control and safety.
- Analyze case studies on vehicle and infrastructure-related accidents.

Duration (in hours): 07:00	**Duration (in hours): 07:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Identify key safety features in vehicles, including seat belts, airbags, child safety restraints, and anti-lock braking systems (ABS). • Explain the importance of regular vehicle maintenance checks, such as tires, brakes, and lights, for safe operation. • Understand the role of different vehicle safety features in preventing accidents and protecting passengers. • Discuss the impact of proper vehicle maintenance on fuel efficiency and environmental sustainability. • Recognize the significance of dashboard warning lights, including Check Engine, Battery, Coolant Temperature, Oil Pressure, and Brake System	• Conduct a vehicle pre-trip safety inspection (brakes, lights, tires, etc.). • Identify different road markings and signs used for traffic control. • Perform basic vehicle maintenance checks to ensure safety compliance. • Conduct hands-on inspections of critical vehicle components, including brakes, lights, and tires. • Demonstrate the proper use of vehicle safety features such as seat belts, airbags, and ABS. • Analyze real-world road infrastructure examples and identify potential hazards. • Perform road condition assessments and discuss safety strategies for different environments. • Develop and present accident

indicators. • Conduct visual inspections on brakes, lights, and other critical vehicle systems. • Identify potential hazards in road design, such as poor visibility, sharp curves, and inadequate signage. • Understand the importance of well-maintained roads with proper signage and smooth surfaces for safe travel. • Explain how weather conditions like rain, snow, and fog affect driving safety. • Discuss the impact of poor visibility on driver reaction times and accident risks. • Analyze how road conditions influence vehicle safety and handling. • Identify different types of road conditions, such as urban roads, highways, and mountainous terrain. • Explain the impact of adverse weather conditions on road safety. • Discuss how road surface quality affects vehicle handling and stability. • Understand the challenges posed by road construction zones and how to navigate them safely.	prevention strategies through proactive vehicle maintenance and driver awareness.

Classroom Aids
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop
Tools, Equipment and Other Requirements
1. Vehicle Pre-Trip Safety Inspection: • **Tire Pressure Gauge: Ensures proper tire inflation.** • **Tire Tread Depth Gauge: Checks for safe tread levels.** • **Flashlight/Torch: For inspecting lights and under-vehicle areas.** **2. Road Markings and Signs Identification:** • **Road Sign Charts/Posters: Visual reference for sign recognition.** **3. Basic Vehicle Maintenance Checks:** • **Owner's Manual: Vehicle-specific maintenance guidance.** • **Fluid Level Dipsticks: Checks essential fluid levels.** • **Wiper Fluid: Ensuring proper windshield cleaning.** **4. Hands-On Vehicle Component Inspections:** • **Jack and Jack Stands: Safe vehicle lifting for inspections.** • **Tire Inspection Tools: Tread depth gauge, visual tools.** • **Light Testing Equipment: Multimeter or circuit tester.** **5. Vehicle Safety Feature Demonstration:** • **Vehicle (with Working Safety Features): Demonstrating seat belts, ABS, etc.** • **Seat Belt Demonstration Dummy: Illustrating proper seat belt use.** • **Airbag Deployment** **6. Road Infrastructure Hazard Analysis:** • **Road Images/Videos: Identifying potential hazards.** • **Maps/Satellite Images: Analyzing road layouts.** • **Hazard Identification Checklist: Structured hazard assessment.** **7. Road Condition Assessments:** • **Road Condition Assessment Checklist: Evaluating road surfaces.** • **Camera/Smartphone: Documenting road conditions.** • **Weather Information: Assessing weather-related hazards.**

Module 3: Impact of Substance Impairment and Fatigue on Driving

Mapped to v1.0

Terminal Outcomes:

- Understand the effects of alcohol, drugs, and fatigue on a driver's cognitive and motor skills.
- Learn about legal consequences and penalties for driving under the influence of substances.
- Recognize signs of driver fatigue and strategies to prevent drowsy driving.
- Analyze public awareness campaigns and initiatives against impaired driving.
- Evaluate real-world accident cases involving impaired or fatigued driving.

Duration (in hours): 06:00	**Duration (in hours): 05:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Identify the effects of alcohol on cognitive and motor skills, including delayed reaction time and impaired judgment. • Discuss the impact of different types of drugs (both legal and illegal) on driving abilities. • Understand the legal consequences of driving under the influence, including fines, license suspension, and imprisonment. • Recognize the physical and behavioral signs of impaired driving. • Analyze case studies of road accidents caused by impaired driving. • Develop awareness campaigns on	• Use online simulation tools to test reaction times under different impairment conditions. • Conduct role-playing exercises to understand the effects of impaired driving. • Participate in interactive sessions on detecting signs of intoxication in drivers. • Develop strategies for preventing drowsy driving through healthy driving habits. • Analyze accident case studies related to substance-impaired driving and suggest prevention methods.

the dangers of impaired driving. • Educate drivers about the legal and safety risks associated with driving under the influence. • Implement effective checks and controls, such as breathalyzer tests and roadside sobriety checkpoints. • Promote safe and responsible transportation options, such as designated drivers, public transport, and ride-hailing services. • Explore community engagement initiatives and policy measures to reduce impaired driving incidents. •	
Classroom Aids	
Training Kit - Trainer Guide, Projector/LED Monitor, Computer/ Laptop, Presentations, Black/ Whiteboard, Marker, Projector, Video	
Tools, Equipment and Other Requirements	
Crosswalk markings, pedestrian signal, and traffic simulation tools, Bicycle, safety gear, cones to simulate turns, Helmets, gloves, reflective vests, safety gear checklist, Bicycle, traffic cones, road signs, bike lane markings, Mobile phones, simulated distractions, crosswalk markings, Vehicle, pedestrian and cyclist, traffic cones, First aid kit, mock injuries, Reflective vests, bicycle lights, low-light simulation.	

Module 4: Emergency Response, First Aid, and Accident Management

Mapped to v1.0

Terminal Outcomes:

- Learn the basic principles of first aid and emergency response at accident scenes.
- Understand the "Golden Hour" concept and its significance in saving lives.
- Identify different types of road accident injuries and their appropriate treatment.
- Learn procedures for contacting emergency services and assisting accident victims.
- Develop skills for handling roadside emergencies and managing accident situations.

Duration (in hours): 07:00	**Duration (in hours): 07:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• responsibilities of bystanders. • Develop strategies for safe driving in different weather and road conditions. • Understand the importance of adjusting speed and vehicle control based on road conditions. • Recognize the need for vehicle maintenance in different environmental conditions. • Educate others on the challenges and risks associated with different road conditions. • Identify the steps involved in an emergency response plan. • Explain the importance of staying calm and making quick decisions in emergencies. • Discuss the role of emergency services in road-related incidents. • Understand the importance of	• Demonstrate CPR and basic first aid techniques for roadside emergencies. • Use a first aid kit to manage different types of injuries. • Simulate emergency response scenarios, including accident scene management. • Practice calling emergency services and providing essential accident details. • Participate in mock drills for handling multi-vehicle accident situations.

effective communication during emergencies. • Demonstrate basic first aid techniques for accident victims. • Recognize common injuries in road accidents, including fractures, burns, and bleeding. • Apply first aid measures such as wound dressing, immobilization, and burn treatment. • Understand the significance of CPR and other life-saving techniques in critical situations. • Identify different types of road-related emergencies, including vehicle breakdowns and collisions. • Develop strategies for managing traffic accidents to prevent further harm. • Understand the role of bystanders in assisting accident victims and ensuring safety. • Implement safety measures such as placing warning signs and securing accident scenes. • Establish effective communication with emergency responders. • Provide accurate and essential information to emergency services. • Assist emergency responders upon their arrival at the scene. • Understand the importance of follow-up actions after an emergency,	

including reporting and medical evaluations.	
Classroom Aids	
Training Kit - Trainer Guide, Projector/LED Monitor, Computer/ Laptop, Presentations, Black/ Whiteboard, Marker, Projector, Video	
Tools, Equipment and Other Requirements	
CPR manikins, AED training devices, Choking manikins, First aid kits, injuries (e.g., blood kits, wound dressings), Blankets, first aid supplies, incident report forms, communication devices.	

Module 5: Technology and Road Safety

Mapped to v1.0

Terminal Outcomes:

- Understand the role of modern technology in improving road safety and traffic management.
- Identify various intelligent transport systems (ITS) and their applications in reducing accidents.
- Analyse the impact of vehicle safety technologies in preventing collisions and enhancing driver assistance.
- Explore digital enforcement tools used for monitoring traffic violations and ensuring compliance with traffic laws.
- Evaluate the effectiveness of emerging road safety technologies, such as AI-driven monitoring and autonomous vehicles.

Duration (in hours): 05:00	**Duration (in hours): 05:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain how technology enhances road safety through digital monitoring and enforcement. • Identify road safety technologies such as traffic cameras, electronic speed signs, and smart speed bumps. • Understand the role of GPS and navigation systems in improving traffic flow and reducing accidents. • Describe key vehicle safety technologies, including Advanced Driver-Assistance Systems (ADAS), Automatic Emergency Braking (AEB), Lane Departure	• Demonstrate the use of GPS navigation and real-time traffic monitoring applications. • Identify and explain the functioning of vehicle safety features like lane departure warning, blind-spot detection, and collision avoidance systems. • Analyze real-time road safety data using GIS and mapping software. • Participate in a case study review of road accidents prevented by technology. • Use driving simulators or virtual reality tools to experience different safety technologies in action.

Warning (LDW), Blind Spot Monitoring (BSM), Adaptive Cruise Control (ACC), Electronic Stability Control (ESC), and Forward Collision Warning (FCW). • Learn about smart traffic management systems and their role in reducing accidents. • Explain how intelligent traffic signals, variable message signs, and surveillance cameras improve road safety. • Identify the benefits of real-time traffic data in preventing congestion and managing road incidents. • Understand the concept of self-driving cars and their potential impact on road safety. • Discuss the potential benefits and drawbacks of autonomous vehicle technology. • Explain the benefits of navigation apps in route optimization and safe travel. • Discuss the responsible use of navigation apps to prevent distracted driving. • Understand the role of ride-hailing services in promoting safer transportation. • Analyze passenger safety	• Demonstrate the use of traffic monitoring tools such as speed cameras, electronic road signs, and smart surveillance systems. • Use GPS navigation and real-time traffic applications to assess their role in preventing congestion. • Identify and analyze the functions of vehicle safety features such as ADAS, AEB, and ACC through case studies or simulations. • Participate in scenario-based discussions on smart traffic management and autonomous vehicles. • Evaluate mobile applications for emergency response, safe navigation, and ride-hailing safety features.

measures and responsible behavior while using ride-hailing services. • Recognize the importance of emergency assistance features in navigation and ride-hailing apps.	

Classroom Aids

Training Kit - Trainer Guide, Projector/LED Monitor, Computer/ Laptop, Presentations, Black/ Whiteboard, Marker, Projector, Video

Tools, Equipment and Other Requirements

- **GPS Navigation & Traffic Apps:** For routing and congestion avoidance.
- **Vehicle Safety Feature Demonstrations:** Showing how lane departure, blind-spot detection, and collision avoidance systems work.
- **GIS & Mapping Software:** For analyzing road safety data and identifying hazards.
- **Traffic Monitoring Tool Displays:** Showcasing speed cameras, electronic signs, and surveillance systems.
- **ADAS, AEB, and ACC :**Demonstrating advanced driver-assistance systems.
  [Note: ADAS: Advanced Driver Assistance Systems
  AEB: Automatic Emergency Braking (sometimes also referred to as Autonomous Emergency Braking)
  ACC: Adaptive Cruise Control- to maintain safe distance between two vehicles].
- **Mobile App Evaluations:** Assessing safety features in emergency, navigation and ride-hailing applications.

Annexure

Trainer Requirements:

Trainer Certification						
Domain Certification			**Platform Certification**			
Certified for Job Role "Foundation of Road Safety", mapped to QP: "ICE/EDU/Q1008, v1.0", Minimum accepted score is 80%			Recommended that the Trainer is certified for the Job Role: "Trainer (VET and Skills)", mapped to the Qualification Pack: "foundation of road safety, v1.0". The minimum accepted score as per MEPSC guidelines is 80%.			
Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Any Graduate	Road Safety	1	Road Safety			

Assessor Requirements:

Trainer Certification						
Domain Certification			**Platform Certification**			
Certified for Job Role "Foundation of Road Safety", mapped to QP: "ICE/VSQ/N0201 , v1.0", Minimum accepted score is 70%			Recommended that the Trainer is certified for the Job Role: "Trainer (VET and Skills)", mapped to the Qualification Pack: "foundation of road safety, v1.0". The minimum accepted score as per MEPSC guidelines is 70%.			
Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Any Graduate	Road Safety	2	Road Safety			

Assessment Strategy:

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SIDH
- The batch allocation Matrix prepared for each month based on previous months' performance of AAs, which determines the quantum of Assessment which can be allocated to each AA for a month
- Post allocation of assessment, Assessment agencies send the assessment confirmation to AB
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- AB monitors the assessment process.

2. Testing Environment:

- A combination of Theory and practical/demonstration test is deployed to assess knowledge and Skill respectively of Learners.
- Assessment is conducted at Training center in in-person/offline mode
- During the practical task, trainees are assessed on their workmanship, quality of finished product, time management, etc., based on the performance criteria (PC), knowledge and understanding and their professional and soft skills as specified in the qualification pack.

3. Assessment Quality Assurance levels/Framework

- Assessment criteria is developed for each QP which acts as a guide for developing question set /banks
- Sample questions aligned with Assessment criteria for each QP are developed by AB and validated by industry
- Taking reference of Assessment criteria and Sample Questions, AAs create the question bank which is further validated by AB
- Questions are mapped to the specified assessment criteria
- It is mandatory that Assessor and Trainer must be ToA certified & ToT Certified respectively
- Continuous Monitoring through virtual and In-person mode are conducted to ensure the assessment is conducted as per stipulated process
- Process and Technical audit of assessment batches by quality team are

conducted to avoid the errors in assessment process

- The capacity building sessions are conducted regularly for assessors and assessment agencies to update them about best practices in assessment

4. Types of evidence or evidence-gathering protocol:

- Post Assessment, the evidences are uploaded by Assessor to assessment agency and further assessment agency to AB as per stipulated TAT
- Evidences are broadly the photographic and video graphic in nature
- Assessment agencies upload the evidence on SIP and detailed evidence on AB digital platform
- Evidences are; NOS wise-Geotagged photographs and videos of Theory Test & Practical Tasks, Attendance sheet, result summary sheet, group photographs.

5. Method of verification or validation:

- The process and technical audit of assessment batches are done by AB
- Attendance of each candidate is verified and it is ensured that only those candidates are assessed by assessors who are meeting the stipulated minimum percentage of attendance
- The result of each candidate is verified, it is verified that that result on SIP are matching with respect to summary sheet submitted by AAs
- Under detailed technical audit for sample of batches, the knowledge and skill assessment results for each candidate is checked in technical aspect.
- All the evidences of batches are preserved on server of AB digital platform

References

Glossary:

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do it upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
ICE	The Institution of Civil Engineers
MCQ	Multiple Choice Question
EHS	Environment, Health and Safety
ADAS	Advanced Driver Assistance Systems
AEB	Automatic Emergency Braking
ACC	Adaptive Cruise Control