# Model Curriculum

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|---|---|
| **NOS Name:** | **Introduction to Roadside Plantation and Bioengineering** |
| **NOS Code:** | **ICE/CON/N0207** |
| **Version:** | **1.0** |
| **NSQF Level:** | **2** |
| **Model Curriculum Version:** | **1.0** |

**Integrated Council for Entrepreneurship and Skilling (ICES)**
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# Training Parameters

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|---|---|---|---|
| **Sector** | Construction | | |
| **Sub-Sector** | Real Estate and Infrastructure Construction | | |
| **Occupation** | Road and Highway Construction | | |
| **Country** | India | | |
| **NSQF Level** | 2 | | |
| **Aligned to NCO/ISCO/ISIC Code** | NCO-2015/9312.9900 | | |
| **Minimum Educational Qualification and Experience** | **S. No.** | **Academic/Skill Qualification (with Specialization - if applicable)** | **Required Experience (with Specialization - if applicable)** |
| | 1 | 5th Grade Pass | |
| **Pre-Requisite License or Training** | Not Applicable | | |
| **Minimum Job Entry Age** | As per Govt. Norms | | |
| **Last Reviewed On** | 07-10-2025 | | |
| **Next Review Date** | 07-10-2028 | | |
| **NSQC Approval Date** | 07-10-2025 | | |
| **QP Version** | 1.0 | | |
| **Model Curriculum Creation Date** | 07-10-2025 | | |
| **Model Curriculum Valid Up to Date** | 07-10-2028 | | |
| **Model Curriculum Version** | 1.0 | | |
| **Minimum Duration of the Course** | 120 Hours | | |
| **Maximum Duration of the Course** | 120 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 significance of roadside plantation and bioengineering in promoting slope stability, erosion control, ecological restoration and improved road safety.
- Identify suitable plant species and eco-friendly materials for different site conditions, considering factors like soil type, slope, rainfall patterns and local biodiversity.
- Explain key bioengineering techniques, including live staking, brush layering, jute netting, bamboo crib walls, vegetated retaining structures and live check dams.
- Understand the concept and construction of bamboo walls for slope protection, including selection of bamboo, structural arrangement, integration with vegetation and maintenance requirements.
- Demonstrate site preparation and plantation techniques, including land clearing, pit excavation, planting methods, watering, mulching and plant protection.
- Apply appropriate vegetation-based methods for slope stabilization and erosion control, such as grass turfing, hydroseeding, shrub planting and bamboo wall construction.
- Monitor the health and effectiveness of plantations and bioengineering structures and carry out basic maintenance activities like weeding, replanting, pest management and repair of protective barriers.
- Follow safety and environmental guidelines during roadside plantation and bioengineering operations to ensure sustainable and risk-free implementation.
- Communicate clearly with team members, supervisors and stakeholders about site conditions, plantation methods and progress of bioengineering interventions.

## Modules:

The table lists the modules and their duration corresponding to the Standalone NOS.

| NOS and Module Details | Theory Duration (in Hours) | Practical Duration (in Hours) | On-the-Job Training Duration (Mandatory) (in Hours) | On-the-Job Training Duration (Recommended) (in Hours) | Total Duration (in Hours) |
|---|---|---|---|---|---|
| **ICE/CON/N0207: Introduction to Roadside Plantation and bioengineering<br>NOS Version: 1.0<br>NSQF Level: 2** | **45:00** | **55:00** | **20:00** | **00:00** | **120:00** |
| Module 1: Concept and Purpose of Roadside Plantation and Bioengineering. | 02:00 | 02:00 | 01:00 | 00:00 | 05:00 |
| Module 2: Roadside Plantation Techniques and Species Selection | 08:00 | 10:00 | 04:00 | 00:00 | 22:00 |
| Module 3: Understanding Retaining Walls in Road Construction | 08:00 | 10:00 | 04:00 | 00:00 | 22:00 |
| Module 4: Bioengineering Techniques for Slope Soil Stabilization and rainwater harvesting | 12:00 | 13:00 | 03:00 | 00:00 | 28:00 |
| Module 5: Maintenance of Plantation and Bioengineered Structures | 07:00 | 10:00 | 04:00 | 00:00 | 21:00 |
| Module 6: Safety, Environmental Guidelines and Reporting | 08:00 | 10:00 | 04:00 | 00:00 | 22:00 |
| **Total Duration** | **45:00** | **55:00** | **20:00** | **00:00** | **120:00** |

# Module Details

## Module 1: Concept and Purpose of Roadside Plantation and Bioengineering

*Mapped to ICE/CON/N0207, v1.0*

**Terminal Outcomes:**

- Interpret the purpose of roadside vegetation and its role in soil erosion control and slope protection.
- State how bioengineering improves sustainability and reduces maintenance needs in road infrastructure.
- Differentiate traditional retaining walls from bioengineered vegetative stabilization systems in terms of cost, visual impact and ecological benefits.

| **Duration: 02:00** | **Duration: 02:00** |
|---|---|
| **Theory – Key Learning Outcomes** | **Practical – Key Learning Outcomes** |
| • Describe objectives of roadside plantation for erosion control and visual improvement.<br>• Explain environmental and ecological advantages such as slope stabilization, noise buffering and air quality improvement.<br>• Define bioengineering in the context of road infrastructure and natural stabilization.<br>• Differentiate traditional vs. bioengineering retaining walls in terms of cost, materials and sustainability.<br>• Identify cases where vegetation-based stabilization is preferable. | • Identify areas prone to erosion and requiring plantation.<br>• Recognize natural materials used for bioengineering solutions.<br>• Demonstrate ability to report conditions requiring stabilization. |
| **Classroom Aids** | |
| Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films | |
| **Tools, Equipment and Other Requirements** | |
| Visuals (images/videos) showing various road conditions, Flip charts or chart paper and markers for lifecycle cost chart creation, Sample road maintenance manuals or reports, Internet access (optional for live case examples), Video playback setup (for visual aids) | |

## Module 2: Roadside Plantation Techniques and Species Selection

*Mapped to ICE/CON/N0207, v1.0*

**Terminal Outcomes:**

- Perform contour marking and layout for roadside plantation based on slope direction and runoff flow.
- Select appropriate native species suitable for specific soil and climatic conditions for roadside stabilization.
- Execute plantation activities following correct spacing, depth and planting posture while ensuring safety and visibility compliance

| **Duration: 08:00** | **Duration: 10:00** |
|---|---|
| **Theory – Key Learning Outcomes** | **Practical – Key Learning Outcomes** |
| • Explain contour planting and its importance for reducing surface runoff.<br>• Describe characteristics of native plant species suitable for slope stabilization.<br>• List vegetation types that anchor soil using root systems.<br>• Explain glare-screening plantation and plantation spacing rules.<br>• Interpret matching of soil types, climate and vegetation survival needs. | • Perform contour marking and layout for plantation spacing.<br>• Select site-appropriate native plants based on supervisor instructions.<br>• Execute planting using proper depth, spacing and orientation.<br>• Demonstrate glare-screening alignment where required.<br>• Report mismatch and challenges (soil unsuitability, species issues, obstructions). |
| **Classroom Aids** | |
| Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films | |
| **Tools, Equipment and Other Requirements** | |
| Visuals (images/videos) showing various road conditions, Flip charts or chart paper and markers for lifecycle cost chart creation, Sample Road maintenance manuals or reports, Internet access (optional for live case examples), Video playback setup (for visual aids) | |

## Module 3: Understanding Retaining Walls in Road Construction

*Mapped to ICE/CON/N0207, v1.0*

**Terminal Outcomes:**

- Identify situations requiring retaining wall installation for stabilization of embankments and slopes.
- Recognize different types of conventional retaining walls and match them with terrain and load conditions.
- Detect and report early visual signs of retaining wall failure, instability or soil displacement.

| **Duration: 08:00** | **Duration: 10:00** |
|---|---|
| **Theory – Key Learning Outcomes** | **Practical – Key Learning Outcomes** |
| • Define retaining walls and their role in slope/soil containment.<br>• Describe failure causes of retaining walls and visual symptoms of distress.<br>• List conventional wall types (e.g., masonry, RCC, gabion).<br>• Describe load and terrain influences on wall selection.<br>• Identify visual differences between conventional and green retaining walls. | • Identify retaining wall locations at site.<br>• Differentiate visually between conventional and vegetated retaining walls.<br>• Inspect and report visible signs of wall distress or soil displacement. |
| **Classroom Aids** | |
| Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films | |
| **Tools, Equipment and Other Requirements** | |
| Sample logbook formats (manual or digital), Time-lapse videos of road degradation due to lack of routine care, Maintenance cost comparison charts, Flipcharts and markers for analysis activities, Projector: video comparisons of damaged and proper roads | |

## Module 4: Bioengineering Techniques for Slope and Soil Stabilization

*Mapped to ICE/CON/N0207, v1.0*

**Terminal Outcomes:**

- Apply basic bioengineering methods including brush layering, fascines andlive staking to stabilize slopes.
- Assist in constructing eco-friendly retaining structures like bamboo crib walls integrated with rainwater harvesting features.
- Inspect slopes for erosion indicators and report risks requiring immediate attention.

| **Duration: 12:00** | **Duration: 13:00** |
|---|---|
| **Theory – Key Learning Outcomes** | **Practical – Key Learning Outcomes** |
| • Explain functioning of brush layering, fascines, live stakes and live crib walls.<br>• Describe benefits of bamboo retaining walls as a green solution.<br>• Identify temporary vs. permanent vegetative stabilization systems.<br>• Explain integration of bioengineering structures with drainage trenches, recharge pits and stormwater control. | • Prepare brush layering and install on slope according to demonstrated procedure.<br>• Place and secure live stakes, fascines and other vegetative elements.<br>• Assist in forming bamboo retaining walls and vegetated crib systems.<br>• Support installation of rainwater recharge features along slope.<br>• Identify early indications of slope erosion or runoff failure and escalate to supervisor. |
| **Classroom Aids** | |
| Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films | |
| **Tools, Equipment and Other Requirements** | |
| Sample cost-benefit data sheets, Case studies or real-world maintenance reports, Materials for group activity (sticky notes, charts, pens), Templates for objective-action linkage charts | |

## Module 5: Maintenance of Plantation and Bioengineered Structures

*Mapped to ICE/CON/N0207, v1.0*

**Terminal Outcomes:**

- Maintain the plantation ecosystem through watering, weeding, mulching and replacement of dead plants.
- Reinforce live stakes, brush layers and vegetated structures to retain slope stability over time.
- Maintain safe view lines and proper drainage around retaining walls to avoid water-logging and accidents.

| **Duration: 07:00** | **Duration: 10:00** |
|---|---|
| **Theory – Key Learning Outcomes** | **Practical – Key Learning Outcomes** |
| • Describe routine inspection of plantation growth, soil moisture and slope stability.<br>• Identify signs of plant stress and pest damage.<br>• Explain replacement and reinforcement techniques for plants, stakes and brush layers.<br>• Describe drainage cleaning and waterlogging prevention near retaining walls. | • Water and weed plantations following schedule.<br>• Replace damaged saplings/plants, secure loose stakes and reinforce brush layers.<br>• Maintain clear visibility lines near road edges.<br>• Clean and maintain drainage channels around retaining structures. |
| **Classroom Aids** | |
| Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films | |
| **Tools, Equipment and Other Requirements** | |
| Sample logbook formats (manual or digital), Time-lapse videos of road degradation due to lack of routine care, Maintenance cost comparison charts, Flipcharts and markers for analysis activities, Projector: video comparisons of damaged and proper roads | |

## Module 6: Safety, Environmental Guidelines and Reporting

*Mapped to ICE/CON/N0207, v1.0*

**Terminal Outcomes:**

- Follow PPE and site safety protocols during plantation and slope stabilization activities near road corridors.
- Practice eco-friendly disposal of plantation waste and adhere to environmental protection norms.
- Complete basic documentation and report unsafe site situations, erosion risks or structural instability to the supervisor.

| **Duration: 08:00** | **Duration: 10:00** |
|---|---|
| **Theory – Key Learning Outcomes** | **Practical – Key Learning Outcomes** |
| • List PPE required for roadside and slope work.<br>• Explain safe distance protocols near moving traffic.<br>• Describe safe disposal of plant waste and environmental precautions.<br>• Identify ecological risks such as landslides and habitat disturbance.<br>• Explain documentation and reporting requirements on site. | • Demonstrate use of PPE (helmet, gloves, safety boots, reflective jacket).<br>• Set safety boundaries and signage before plantation activity.<br>• Practice safe disposal of plant/soil waste.<br>• Record plantation and maintenance activities in site log sheets.<br>• Report safety hazards, landslide risk or ecological damage to supervisor. |
| **Classroom Aids** | |
| Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films | |
| **Tools, Equipment and Other Requirements** | |
| Safety signage: cones, flags, reflective barriers, Sample first-aid kit (demonstration use), High-visibility safety clothing (vests, helmets), Road condition survey forms, Maintenance scheduling templates (weekly/monthly formats), Props to simulate traffic diversion setup, Access to maintenance tracking software (if applicable) | |

## On-the-Job Training

*Mapped to Introduction to Roadside Plantation and Bioengineering, v1.0*

All the On-the-Job Training Program must be conducted only at On-Site of relevant Industry. The details mentioned below are NOS wise Terminal Outcomes of OJT Period.

| | |
|---|---|
| **ICE/CON/N0207** | **Introduction to Roadside Plantation and Bioengineering** |
| **Mandatory OJT duration (in Hours)** | **20:00** |
| **Terminal Outcomes:** | |
| During the OJT period, the candidate will be able to: | |
| • Identify real roadside sections where plantation/bioengineering can reduce erosion, dust and slope failure.<br>• Point out locations showing soil slippage, exposed slope or water runoff trail and suggest plantation-based solutions when asked.<br>• Interact with the supervisor using correct terminology (vegetation cover, slope stabilization, root anchorage, erosion barrier).<br>• Assist in mapping high-risk areas for slope deterioration by visually inspecting embankments after rain.<br>• Observe senior workers and record 3 real examples of bioengineering benefits (e.g., less soil loss, improved water retention, improved visibility on curves).<br>• Assist in marking plantation rows/contours on actual roadside slopes using pegs, lime or twine.<br>• Participate in plant species selection by matching instructions on species suitability with soil type, slope angle and rainfall.<br>• Perform pit preparation under supervision (mark location → dig pit → check depth → place manure).<br>• Assist in spacing and alignment of plantation ensuring consistency along the slope.<br>• Support in plant transport and safe handling from storage/vehicle to planting position.<br>• Document species and quantity planted on a daily plantation log format provided on site.<br>• Identify existing roadside retaining wall types (gravity, rubble masonry, crib wall, gabion etc.) during site walk-through.<br>• Assist supervisor in checking for early failure signs: cracks, settlement, bulging, tilt, water seepage, material displacement.<br>• Participate in cleaning and clearing blocked weep holes or drain outlets connected to retaining walls.<br>• Help prepare basic site observations report capturing defects using photos/marks on printed plan (if provided).<br>• Assist the retaining wall team with material arrangement (stacking bricks/blocks/bamboo, arranging reinforcement mats).<br>• Maintain safe clearance area around ongoing retaining wall repair or inspection activity.<br>• Assist in installation of live stakes by placing cut branches to required depth and orientation along slope.<br>• Carry out brush layering support tasks (layer placement → soil covering → pressing for compaction).<br>• Participate in assembling bamboo crib structures by holding, aligning and tying members as instructed.<br>• Assist in layout of fascines/bundles across slopes to redirect runoff and prevent soil erosion. | |

- Help create small recharge trenches/soak pits in integration with bioengineering structures.
- Supply and organize biomass materials (soil, mulch, jute, bamboo, brushwood) around work zones.
- Monitor moisture retention of recently installed structures and report drying or sliding portions.
- Assist in installation of live stakes by placing cut branches to required depth and orientation along slope.
- Carry out brush layering support tasks (layer placement → soil covering → pressing for compaction).
- Participate in assembling bamboo crib structures by holding, aligning and tying members as instructed.
- Assist in layout of fascines/bundles across slopes to redirect runoff and prevent soil erosion.
- Help create small recharge trenches/soak pits in integration with bioengineering structures.
- Supply and organize biomass materials (soil, mulch, jute, bamboo, brushwood) around work zones.
- Monitor moisture retention of recently installed structures and report drying or sliding portions.
- Prepare site safety area using cones, barricades, reflectors and signage before starting plantation or slope work.
- Perform correct PPE usage check on self and team members (vest, gloves, helmet, shoes).
- Maintain hazard-free work zone by clearing tools/branches from traffic pathways and slope edges.
- Identify environmentally sensitive spaces (bird nesting, natural water drains, wetlands) and help avoid disturbance.
- Segregate biodegradable and non-biodegradable waste after plantation activities and dispose appropriately.
- Fill daily OJT work log including tasks completed, location details, materials used and safety observations.
- Report near-miss events / slope risk / wildlife disturbance / tool damage to supervisor in prescribed format.

# Annexure

## Trainer Requirements

| Minimum Educational Qualification | Specialization | Relevant Industry Experience | | Preferable Training Experience | |
|---|---|---|---|---|---|
| | | Years | Specialization | Years | Specialization |
| Graduation | Any Stream | 1 | Plantation and Bioengineering related activities | 1 | Plantation and Bioengineering related activities |

| Trainer Certification | |
|---|---|
| **Domain Certification** | **Platform Certification** |
| Recommended that the Trainer is certified for the Standalone NOS: *"Introduction to Roadside Plantation and Bioengineering"*, mapped to the Standalone NOS: "ICE/CON/N0207, v1.0". The minimum accepted score is 80%. | Recommended that the Trainer is certified for the Job Role: *"Trainer (VET and skills)"*, mapped to the Qualification Pack: "MEP/Q2601, v3.0". The minimum accepted score is 80%. |

## Assessor Requirements

| Minimum Educational Qualification | Specialization | Relevant Industry Experience | | Preferable Training / Assessment Experience | |
|---|---|---|---|---|---|
| | | Years | Specialization | Years | Specialization |
| Graduation | Any Stream | 1 | Plantation and Bioengineering related activities | 1 | Plantation and Bioengineering related activities |

| Assessor Certification | |
|---|---|
| **Domain Certification** | **Platform Certification** |
| Recommended that the Assessor is certified for the Standalone NOS: *"Introduction to Roadside Plantation and Bioengineering"*, mapped to the Standalone NOS: "ICE/CON/N0207, v1.0". The minimum accepted score is 80%. | Recommended that the Assessor is certified for the Job Role: *"Assessor (VET and skills)"*, mapped to the Qualification Pack: "MEP/Q2701, v3.0". The minimum accepted score is 80%. |

## 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:**

   Assessment is done through ICES affiliated Assessment Agencies. Assessors are trained & certified by ICES after Training of Assessor (ToA) program. Assessments are conducted to gauge and assess the trainee's skill and knowledge competency in the specified areas.

   The assessment will have both theory, practical and viva components as per ratio specified in the Standalone NOS **Introduction to Road Repair and Maintenance.**

   During the practical task, trainees are assessed on their workmanship, quality of finished product and time management. They will be graded for all their assessments based on the approved assessment strategy which is signed off by ICES. The Assessor submits an assessment plan to ICES prior to assessments.

   The assessment plan contains the following information:

   - What will be assessed, i.e. the competency based on each NOS based on theory, practical and viva questions
   - How assessment will occur i.e. methods of assessment
   - When the assessment will occur
   - Duration of assessment
   - Where the assessment will take place i.e. context of the assessment (workplace/simulation)
   - The criteria for decision making i.e. those aspects that will guide judgments
   - Where appropriate, any supplementary criteria are used to make a judgment on the level of performance.

   ICES will be monitoring thoroughly the complete Assessment process.

2. **Testing Environment:**

   - Training partner shares the batch start date and end date, number of trainees and the job role.
   - Assessment will be fixed for a day after the end date of training. It could be next day or later. Assessment will be conducted at the training venue/test center only.
   - The knowledge/theory assessments are conducted with proper seating arrangements with enough space between the candidates to prevent mal practicing.
   - Question set for Theory and Practical will be distributed to each candidate by the Assessor.
     - Theory testing will include MCQ type questions, pictorial questions etc. which will test the trainee on his theoretical knowledge of the subject.
     - Practical assessments will be conducted in the approved test centers. The training provider will ensure adequate tools and materials are available to conduct the practical test.
     - Viva Testing will be conducted during or post to the practical assessment by the assessor concerned. This Viva Assessment is applicable to understand the outcomes from OJT attended by the candidate concerned.

- One (1) Assessor is eligible to conduct assessments of a batch of maximum 30 candidates.
- The assessment must comprise of two components, namely:
  - Knowledge and Viva assessment (Theory assessment)
  - Skill assessment (Practical / Hands-on Skill assessment)

**3. Mode of assessment**

- Demonstration/Practical Performance /Skill Assessment
- Synoptic multiple-choice question test for Theory Assessment

**4. Performance/skill assessment:**

- The performance/skill assessment will be conducted through demonstration/practical
- For the practical test trainees are assessed through a given task, which they have to complete correctly for them to be marked as passed.
- The assessment is conducted in a simulated working environment. Due to this fact, the assessors must note that the naturally occurring evidence of competence is unavailable or infrequent. Simulation must be undertaken in a Realistic Working Environment which provides an environment that replicates the key characteristics of the workplace in which the skill to be assessed is normally employed.

**5. Knowledge Assessment:**

- The knowledge assessments are conducted through Theory (written) Test and Viva Test
- Synoptic test is used for this. It is an MCQ (Multiple Choice Question) test which is prepared externally and externally marked, meaning by agency having no link with training partners.
- The Viva test will be conducted by the assessor in the oral mode considering the communication and domain understanding of skills of trainees.
- The assessment strategy, weightage and duration of assessment for **Introduction to Road Repair and Maintenance** is summarized below

| Assessment Type | Formative or Summative | Strategies | Weightage | Duration (hours) |
|---|---|---|---|---|
| Knowledge | Summative | MCQ | 45 | 1 hour |
| Knowledge | Summative | Viva | 10 | 1 hour |
| Skill | Summative | Structured practical Task | 45 | 6 hours |

**6. Assessment Quality Assurance levels/Framework**

- ICES has developed assessment criteria framework for each Qualification pack as per National Occupational Standards. The criteria framework includes weightages/marks for each criterion under knowledge and skill. The criteria ensure quality assurance as they ensure valid, consistent and fair assessments at all locations. Issued to the affiliated Assessment body. The Assessment Body develops questions based on ICES's approved assessment criteria.
- The training partner will intimate the time of arrival of the assessor and time of leaving the venue. Random spot checks/audit may conducted by ICES to monitor assessment.
- 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 errors in assessment process

- A well -defined comprehensive framework of NON-COMPLIANCE MATRIX is defined and implemented to identify the non-compliance made by assessor and AA and punitive actions are taken correspondingly.
- The capacity building sessions are conducted regularly for assessors and assessment agencies to update them about best practices in assessment

**7. Types of evidence or evidence-gathering protocol:**

- Evidence in the form of answer sheets in case of knowledge assessments (Theory only) is collected.
- For Practical and Viva assessments videos and photographs are prepared as evidence. These are submitted by the assessor to the assessment agency. ICES does random checks of the same with the participant/ trainee's ID and ascertains authenticity and validity of assessments.
- Post Assessment, the evidence are uploaded by Assessor to assessment agency and further assessment agency to ICES as per stipulated TAT
- Evidence are broadly photographic and video graphics in nature (Geo-Tagged)
- Results along with evidence to be submitted to ICES by the concerning Assessment Agency in the prescribed format and on Digital Format and Physical Format (As required)
- Results to be uploaded on SIDH and other relevant portals for collective data management.

**8. Method of verification or validation:**

- The process and technical audit of assessment batches are done by Awarding Body
- 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 is matched with respect to summary sheet submitted by AAs
- Under detailed technical audit for sample batches, the knowledge and skill assessment results for each candidate are checked in technical aspect.
- All the evidence of batches are preserved on server of Awarding Body digital platform

**9. On the Job:**

- On job training (OJT), candidates undergo training and leaning at actual workplace for a fixed period of time and a certain weightage of assessment is allocated out of total skill weightage of Qualification Pack for undergoing OJT as stipulated by ICES. This OJT score and assessors' end point score are combined to arrive at final Marking/grading of trainees' skill test. The OJT score is determined by Supervisor / Engineer / other authorized head of departments of relevant industry under which candidates undergo on job training.
- The Assessment is subject to take place only after submission of OJT data (in case of STT only) approved by concerned industry and training provider.
- The Hard copy of the OJT report (on trainings, outcomes, exposures learnt and feedback certified by Supervisor / Engineer / other authorized head of departments of relevant industry) will be submitted to the Assessor by the concerned candidate on the Assessment date only, failing which the candidate may not be allowed for attending the Assessment.
- As OJT is mandatory for this QP, the TP should ensure the correct submission of all relevant reports pertaining to OJT of each trained candidate. The Assessment agency is responsible for collecting all the relevant information and submit the same to ICES in future (if required).

# References

## Glossary

| Term | Description |
|---|---|
| **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. |

## Acronyms and Abbreviations

| Acronym | Description |
|---|---|
| **NOS** | National Occupational Standard(s) |
| **NSQF** | National Skills Qualification Framework |
| **QP** | Qualification Pack |
| **TVET** | Technical and Vocational Education and Training |
| **MSDE** | Ministry of Skill Development and Entrepreneurship |
| **NCVET** | National Council for Vocational Education and Training |
| **NSDC** | National Skill Development Corporation |
| **ICES** | Integrated Council for Entrepreneurship and Skilling (erstwhile Integrated Council for Entrepreneurship and Skilling) |
| **AB** | Awarding Body |
| **AA** | Assessment Agency |
| **TP** | Training Partner |
| **TC** | Training Centre |
| **ITI** | Industrial Training Institute |
| **ISCO** | International Standard Classification of Occupations |
| **NCO** | National Classification of Occupations |
| **NCrF** | National Credit Framework |
| **NEP** | New Education Policy |
| **Q-File** | Qualification File |
| **MC** | Model Curriculum |
| **PC** | Performance Criteria |
| **KU** | Knowledge and Understanding |
| **GS** | Generic Skills |
| **PMKVY** | Pradhan Mantri Kaushal Vikas Yojana |
| **DDUGKY** | Deen Dayal Upadhyaya Grameen Kaushalya Yojana |
| **STT** | Short Term Training |
| **RPL** | Recognition of Prior Learning |
| **NAPS** | National Apprenticeship Promotion Scheme |
| **NQR** | National Qualification Register |
| **OJT** | On the Job Training |
| **NSQC** | National Skill Qualification Committee |
| **IS** | Indian Standard |
| **MoRTH** | Ministry of Road Transport and Highways |
| **IRC** | Indian Roads Congress |
| **PMS** | Pavement Management System |
| **BC** | Bituminous Concrete |
| **PPE** | Personal Protective Equipment |
| **RRM** | Road Repair and Maintenance |