Model Curriculum

QP Name: Structural Steel NDT Tester

Electives: UT/MPT/DPT

QP Code: CON/Q3503

Version: 3.0

NSQF Level: 3.5

Model Curriculum Version: 3.0

Construction Skill Development Council of India|| Tower 4B, DLF Corporate Park, 201&, 202 4B, Mehrauli-Gurgaon Rd, DLF Phase 3, Gurugram, Haryana 122002

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Training Parameters

Sector	Construction
Sub-Sector	Real Estate and Infrastructure Construction
Occupation	Quality Assurance & Quality Control
Country	India
NSQF Level	3.5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3111.0100
Minimum Educational Qualification and Experience	11th Grade pass OR Completed 1st year of 3-year diploma after 10th OR 10th grade pass and pursuing continuous schooling OR 8th Grade pass with 3-year relevant experience OR Previous relevant Qualification of NSQF Level 2.5 with 3-year relevant experience OR Previous relevant Qualification of NSQF Level 3 with 1.5-year relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	31/08/2023
Next Review Date	29/02/2024
NSQC Approval Date	31/08/2023
QP Version	3.0
Model Curriculum Creation Date	31/08/2023
Model Curriculum Valid Up to Date	29/02/2024
Model Curriculum Version	3.0

Minimum Duration of the Course	360 Hours
Maximum Duration of the Course	480 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:

- Elucidate how to prepare for the testing of structural steel components.
- Explain the importance of working effectively in a team to deliver desired results at the workplace.
- Explain the process of managing workplace for safe and healthy work environment.
- Discuss the process of performing ultrasonic testing on structural steel components and welded sections.
- Describe the process of performing Magnetic Particle test on structural steel welded joints.
- Explain the process of performing liquid /dye penetration test on structural steel welded joints.

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
CON/N0417: Prepare for the testing of structural steel components **NOS Version- 1.0** **NSQF Level- 3.5**	**55:00**	**125:00**	**60:00**	**00:00**	**240:00**
Module 1: Introduction to the role of a Structural Steel NDT Tester	05:00	00:00	00:00	00:00	05:00
Module 2: Process of preparing for the Testing of Structural Steel	50:00	125:00	60:00	00:00	235:00
CON/N9001: Work according to personal health, safety and environment protocols at construction site **NOS Version- 10.0** **NSQF Level- 4**	**05:00**	**25:00**	**0:00**	**00:00**	**30:00**
Module 3: Follow safety norms as defined by organization, adopt healthy and safe work practices	05:00	25:00	0:00	00:00	30:00

DGT/VSQ/N0101: Employability Skills **NOS Version- 1.0** **NSQF Level- 2**	**30:00**	**00:00**	**0:00**	**00:00**	**30:00**
Module 4: Employability Skills	30:00	00:00	0:00	00:00	30:00
Total Duration	**90:00**	**150:00**	**60:00**	**00:00**	**300:00**

Elective Modules

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

Elective 1: Ultrasonic Testing (UT)

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
CON/N0411: Perform ultrasonic testing on structural steel components and welded sections **NOS Version- 3.0** **NSQF Level- 3.5**	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**
Module 5: Process of performing ultrasonic testing on structural steel components and welded sections	30:00	30:00	00:00	00:00	60:00
Total Duration	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**

Elective 2: Magnetic Particle Test (MPT)

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
CON/N0412: Perform Magnetic Particle test on structural steel welded joints **NOS Version- 3.0** **NSQF Level- 3.5**	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**

Module 6: Process of performing magnetic particle test on structural steel welded joints	30:00	30:00	00:00	00:00	60:00
Total Duration	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**

Elective 3: Dye Penetration Test (DPT)

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
CON/N0413: Perform liquid /dye penetration test on structural steel welded joints **NOS Version- 3.0** **NSQF Level- 3.5**	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**
Module 7: Process of performing liquid /dye penetration test on structural steel welded joints	30:00	30:00	00:00	00:00	60:00
Total Duration	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**

Module Details

Module 1: Introduction to the role of a Structural Steel NDT Tester

Mapped to CON/N0417, v1.0

Terminal Outcomes:

- Discuss the job role of a Structural Steel NDT Tester.

Duration: 05:00	**Duration: 0:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size and scope of the Construction industry and its sub-sectors. • Discuss the role and responsibilities of a Structural Steel NDT Tester. • Identify various employment opportunities for a Structural Steel NDT Tester.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Process of preparing for the Testing of Structural Steel components

Mapped to CON/N0417, v1.0

Terminal Outcomes:

- Explain how to determine the testing requirements.
- Discuss how to select and prepare the sample.
- Explain how to calibrate the testing equipment.

Duration: 50:00	Duration: 125:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the importance of testing structural steel components to ensure their quality, safety, and compliance with industry standards and regulations. • Elucidate the relevant industry standards and codes applicable to structural steel testing. • Discuss the importance of safety in structural steel testing and the use of relevant PPE. • Describe how the quality plan, WPS, and fabrication shop drawings are interpreted. • Explain the appropriate testing environment required for ultrasonic/magnetic particle/liquid or dye penetration testing. • Elucidate how different testing equipment is calibrated to conduct ultrasonic/magnetic particle/liquid or dye penetration testing. • Describe the applicable sample labeling and documentation requirements.	• Demonstrate how to interpret the quality plan, Welding Procedure Specification (WPS), fabrication shop drawings, and other relevant documents to understand the technical specifications for a welding project. • Demonstrate how to identify the location of a joint or section in a complex metal structure for conducting a non-destructive test, as per the specified testing requirements. • Show how to estimate the quantity of materials and time required for the completion of test. • Demonstrate the selection of representative samples of structural steel components for testing, in accordance with applicable policies and specifications. • Demonstrate how to prepare steel samples according to specific testing requirements, including cutting, machining, or shaping the samples to the desired dimensions. • Show how to carry out pre-test cleaning of structural steel components. • Demonstrate how to maintain appropriate documentation for each sample, including its origin, specifications, and any relevant material certifications. • Show how to label each sample appropriately for identification in a way that ensures clarity and easy reference during testing.
Classroom Aids	

Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films
Tools, Equipment and Other Requirements
Digital Ultrasonic Flaw Detector, Calibration Blocks, Probe (Straight and Angle), Reference Blocks, Developers, Penetrants, Black Light (Optional), Safety Helmet, Safety Goggles, Safety Shoes, Safety Belt, Safety Gloves, Ear Plugs / Ear Protection, Reflective Jackets, Particle Mask / Nose Mask, Fire Prevention Kit, First Aid Kit, Safety Tags, Safety Notice Board, Safety Harness, Knee Pads, Face Shield, Overalls

Module 3: Work according to personal health, safety and environment protocols at construction site

Mapped to NOS CON/N9001 v10.0

Terminal Outcomes:

- Explain the importance of following safety norms as defined by organization.
- Explain the need to adopt healthy & safe work practices.
- Describe the process of implementing good housekeeping and environment protection process and activities.
- Explain the importance of following infection control guidelines as per applicability.

Duration: 05:00	**Duration: 25:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the reporting procedures in cases of breaches or hazards for site safety, accidents, and emergency situations as per guidelines. • Explain different types of safety hazards at construction sites. • Discuss basic ergonomic principles as per applicability. • Describe the procedure for responding to accidents and other emergencies at site. • Explain the importance of handling tools, equipment, and materials as per applicable norms. • Explain the effect of construction material on health and environments as per applicability. • Describe various environmental protection methods as per applicability. • Explain the storage requirement of waste including non-combustible scrap material and debris, combustible scrap material and debris, general construction waste and trash (non-toxic, non-hazardous), any other hazardous wastes and any other flammable wastes at the appropriate location. • Explain how to use hazardous material in a safe and appropriate manner as per applicability.	• Demonstrate how to follow emergency and evacuation procedures in case of accidents, fires, natural calamities. • Show how to operate different types of fire extinguishers corresponding to various types of fires as per EHS guideline. • Demonstrate the use of appropriate Personal Protective Equipment (PPE) as per work requirements for: Head Protection, Ear protection, Fall Protection, Foot Protection, Face and Eye Protection, Hand and Body Protection, and Respiratory Protection (if required). • Demonstrate how to check and install all safety equipment as per standard guidelines. • Show how to collect, segregate and deposit construction waste into appropriate containers based on their toxicity or hazardous nature. • Show how to clean and disinfect all materials, tools and supplies before and after use.

• Explain types of fire. • Describe the procedure of operating different types of fire extinguishers. • State safety relevant to tools, tackles, and equipment as per applicability. • List housekeeping activities relevant to task. • Elucidate ways of transmission of infection • Explain the ways to manage infectious risks at the workplace. • Describe different methods of cleaning, disinfection, sterilization, and sanitization. • List the symptoms of infection like fever, cough, redness, swelling, and inflammation.	

Classroom Aids:
Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board, registers and other teaching aids
Tools, Equipment and Other Requirements
Leather Hand Gloves, Jump suit, Wire brush, Hand and Leg guard leather, Safety goggles, Nose mask, Ear protection, Fire extinguishers, Sand buckets Flashback arrestors, Welding helmet, Welding glass, Fire Extinguisher, Fire prevention kit, First Aid box, Safety tags, Safety Notice board

Module 4: Employability Skills

Mapped to DGT/VSQ/N0101 v1.0

Duration: 30:00
Key Learning Outcomes
Introduction to Employability Skills Duration: 1 Hour After completing this programme, participants will be able to: 1. Discuss the importance of Employability Skills in meeting the job requirements **Constitutional values - Citizenship Duration: 1 Hour** 2. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen. 3. Show how to practice different environmentally sustainable practices **Becoming a Professional in the 21st Century Duration: 1 Hours** 4. Discuss 21st century skills. 5. Display positive attitude, self -motivation, problem solving, time management skills and continuous learning mindset in different situations. **Basic English Skills Duration: 2 Hours** 6. Use appropriate basic English sentences/phrases while speaking **Communication Skills Duration: 4 Hour** 7. Demonstrate how to communicate in a well -mannered way with others. 8. Demonstrate working with others in a team **Diversity & Inclusion Duration: 1 Hour** 9. Show how to conduct oneself appropriately with all genders and PwD 10. Discuss the significance of reporting sexual harassment issues in time **Financial and Legal Literacy Duration: 4 Hours** 11. Discuss the significance of using financial products and services safely and securely. 12. Explain the importance of managing expenses, income, and savings. 13. Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws **Essential Digital Skills Duration: 3 Hours** 14. Show how to operate digital devices and use the associated applications and features, safely and securely 15. Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely **Entrepreneurship Duration: 7 Hours** 16. Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges **Customer Service Duration: 4 Hours** 17. Differentiate between types of customers 18. Explain the significance of identifying customer needs and addressing them 19. Discuss the significance of maintaining hygiene and dressing appropriately **Getting ready for apprenticeship & Jobs Duration: 2 Hours** 20. Create a biodata 21. Use various sources to search and apply for jobs 22. Discuss the significance of dressing up neatly and maintaining hygiene for an interview 23. Discuss how to search and register for apprenticeship opportunities

Module 5: Process of Performing Ultrasonic Testing on Structural Steel Components and Welded Sections

Mapped to CON/N0411 v3.0

Terminal Outcomes:

- Demonstrate the process of performing ultrasonic testing.

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the standard practices for quality control. • Explain the safety measures concerning the handling and storage of required tools, equipment and materials. • Explain the importance of personal protection and the use of relevant safety gear and equipment. • State the statutory compliance requirements related to working at heights. • Explain the different types of testing carried out on fabricated materials. • Elucidate the pros and cons and difference between destructive and non-destructive testing. • Explain the properties of sound how it is transmitted. • Explain wave and related parameters. • Discuss the principle, application and limitations of ultrasonic testing. • Describe the different methods and procedures of performing ultrasonic testing. • Describe the process of performing ultrasonic test on structural steel components and sections to detect deformities present inside the weld, between weld and parent material, rolling defects under the surface of base material. • State the range, area of application, classification and principles of operation of different equipment	• Demonstrate how to determine the transducers, instruments, and calibration standards to be used based upon the testing conditions, location, and accessibility of testing and the purpose of the test. • Show how to interpret the standard specifications and perform the test in accordance with them. • Demonstrate how to run diagnostic checks following the calibration standards to ensure that readings obtained are accurate. • Show how to apply the coating of gel, water, or solvent on the surface to be tested appropriately as per the manufacturer's guidelines or standard practices. • Demonstrate how to ensure the test specimen is appropriately immersed in solvent for the immersed type of ultrasonic test. • Show how to ensure the transducers are appropriately coated and ready for use. • Demonstrate how to choose normal or angle beam as per the test requirement and instructions. • Show how to set the frequency of ultrasound as per the test specifications and requirements. • Demonstrate how to ensure the position and movement of both pieces is correct and simultaneous in the case of dual-element transducers. • Show how to ensure the single-piece transducer moves appropriately, and the required test area is covered.

used in ultrasonic testing. ● Explain how to operate various settings on the ultrasonic testing equipment and their implication on testing. ● Explain the types of defects inspected by ultrasonic testing. ● List the precautions to be taken while conducting ultrasonic testing. ● Explain the importance of cleaning the surface before and after conducting ultrasonic testing. ● Describe the different methods of cleaning metal surface. ● Explain how to interpret the readings and graphs shown on the display of ultrasonic testing equipment. ● Explain how to classify a sample based upon the test report. ● Explain how to calibrate the ultrasonic testing equipment.	● Demonstrate how to check the graphs and other details mentioned on the display to compute the size and type of defect.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Digital Ultrasonic Flaw Detector, Calibration Blocks, Probe (Straight and Angle), Reference Blocks, Developers, Penetrants, Black Light (Optional), Safety Helmet, Safety Goggles, Safety Shoes, Safety Belt, Safety Gloves, Ear Plugs / Ear Protection, Reflective Jackets, Particle Mask / Nose Mask, Fire Prevention Kit, First Aid Kit, Safety Tags, Safety Notice Board, Safety Harness, Knee Pads, Face Shield, Overalls	

Module 6: Process of performing magnetic particle test on structural steel welded joints

Mapped to CON/N0412 v3.0

Terminal Outcomes:

- Demonstrate the process of performing magnetic particle test.

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Elucidate the fundamentals and concepts of magnetic field. • Discuss the principle and process of conducting magnetic particle test. • Explain the concept of flux leakage. • State the areas of application, and limitations and advantages of different equipment and methods used for creating a magnetic field. • Describe the methods of measuring magnetic field. • Discuss the range, principle of operation, area of operation, and limitations of different tools used to measure magnetic field. • Explain the limitations of magnetic particle method. • Explain the type of defects inspected by magnetic particle test. • Explain the precautions to be taken while conducting magnetic particle test. • Explain the importance of cleaning the surface before and after conducting magnetic particle test. • Describe different methods of cleaning metal surface. • Explain different types of indicators, their application and auxiliary items required by them. • Elucidate the definition, properties and effects of carrier in relation to magnetic particle test.	• Demonstrate ways to interpret the quality plan, WPS, fabrication shop drawings etc., to determine the technical specifications, locations of testing and method to be adopted. • Demonstrate ways to interpret the standard specifications and perform the test in accordance to the same. • Demonstrate the process of carrying out pre-test cleaning activities using solvents, brushes, scrubs etc., to remove any paint, dust, oil, grease or scale etc., from the test surface. • Demonstrate the process of applying suspended magnetic particles to the test surface using appropriate method. • Demonstrate the process of applying dry powder indicators to the surface of the test specimen. • Demonstrate the process of applying the magnetic fields in two directions perpendicular to each other of the required magnitude. • Show how to clean the particulate matter under supervision. • Demonstrate the process of setting up reverse magnetic field to demagnetize the component or structure under inspection.
Classroom Aids	

Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films
Tools, Equipment and Other Requirements
Digital Ultrasonic Flaw Detector, Calibration Blocks, Probe (Straight and Angle), Reference Blocks, Developers, Penetrants, Black Light (Optional), Safety Helmet, Safety Goggles, Safety Shoes, Safety Belt, Safety Gloves, Ear Plugs / Ear Protection, Reflective Jackets, Particle Mask / Nose Mask, Fire Prevention Kit, First Aid Kit, Safety Tags, Safety Notice Board, Safety Harness, Knee Pads, Face Shield, Overalls

Module 7: Process of performing liquid /dye penetration test on structural steel welded joints

Mapped to CON/N0413 v3.0

Terminal Outcomes:

- Describe the process of performing liquid/ dye penetration test.

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the principle, advantages and limitations of dye penetration test. • List different types of materials on which dye penetration test can be carried out. • Explain how to select materials used in dye penetration test for various conditions of testing. • List the types of defects inspected by dye penetration test. • Explain the precautions to be taken while conducting dye penetration test. • Explain the importance of cleaning the surface before and after conducting dye penetration test. • Describe different methods of cleaning metal surface. • Explain the use of different types of penetrants and developers. • Describe different methods of applying penetrants and developers. • Discuss the guidelines for the application, and development time of various penetrants and developers. • Explain the appropriate safety measures to be taken while conducting the dye penetration test.	• Demonstrate ways to interpret the quality plan, WPS, fabrication shop drawings etc., to determine the technical specifications, locations of testing and method to be adopted. • Show how to identify the location of joint or section for conducting the test as per the specification. • Demonstrate ways to interpret the standard specifications and perform the test in accordance to the same. • Show how to check the compatibility of penetrants and developers with each other, the base metal and conditions of testing. • Demonstrate the process of carrying out pre-test cleaning activities using solvents, brushes, scrubs etc., to remove any paint, dust, oil, grease or scale etc., from the test surface. • Demonstrate the process of applying the penetrant uniformly across the test specimen and allow it to soak into the flaw for the recommended duration, and avoid the direct application of removers/solvents to the test surface. • Show how to remove excess penetrant from the surface of test specimen using suitable means as per the type of penetrant used and manufacturer's guidelines. • Demonstrate the process of applying the developer uniformly across the test specimen as per the manufacturer's guidelines or standard procedure.

	• Show how to clean the developer and penetrant appropriately after inspection.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Digital Ultrasonic Flaw Detector, Calibration Blocks, Probe (Straight and Angle), Reference Blocks, Developers, Penetrants, Black Light (Optional), Safety Helmet, Safety Goggles, Safety Shoes, Safety Belt, Safety Gloves, Ear Plugs / Ear Protection, Reflective Jackets, Particle Mask / Nose Mask, Fire Prevention Kit, First Aid Kit, Safety Tags, Safety Notice Board, Safety Harness, Knee Pads, Face Shield, Overalls	

Module 8: On-the-Job Training

Mapped to Structural Steel NDT Tester

Mandatory Duration: 30:00	Recommended Duration: 00:00
Location: On-Site	

Terminal Outcomes

- Show how to determine the testing requirements.
- Demonstrate how to interpret the quality plan, WPS, fabrication shop drawings etc., to understand the technical specifications, locations of testing and method to be adopted.
- Show how to estimate the quantity of materials and time required for the completion of test.
- Show how to calibrate the testing equipment.
- Demonstrate how to run diagnostic checks following the calibration standards to ensure that readings obtained are accurate.
- Show how to apply coating of gel, water or solvent on the surface to be tested appropriately as per manufactures guidelines or standard practices.
- Demonstrate how to apply the magnetic fields in two directions perpendicular to each other of the required magnitude.
- Show how to set up reverse magnetic field to demagnetize the component or structure under inspection.
- Show how to apply the penetrant uniformly across the test specimen and allow it to soak into the flaw for the recommended duration.
- Demonstrate how to use appropriate developers based on the type of penetrant and inspection condition.
- Show how to check the completion of blotting period and development of penetrant on the test surface.

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialisation**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B. Tech	Civil/Mechanical/ Electrical	2	Quality Assurance & Quality Control	0	-	
Diploma	Civil/Mechanical/ Electrical	3	Quality Assurance & Quality Control	0	-	
ITI	Civil/Mechanical/ Electrical	6	Quality Assurance & Quality Control	0	-	
General BA/BSc./ EX-Army/ 12th	Civil/Mechanical/ Electrical	6	Quality Assurance & Quality Control	0	-	

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "Structural Steel NDT Tester", mapped to QP: "CON/Q3503, v3.0", Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: "Trainer (Vet and Skills)", mapped to the Qualification Pack: "MEP/Q2601, v2.0". The minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B. Tech	Civil/Mechanical/ Electrical	2	Quality Assurance & Quality Control	0	-	
Diploma	Civil/Mechanical/ Electrical	5	Quality Assurance & Quality Control	0	-	
ITI	Civil/Mechanical/ Electrical	7	Quality Assurance & Quality Control	0	-	

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "Structural Steel NDT Tester", mapped to QP: "CON/Q3503 v3.0", 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, v2.0", with a minimum score of 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:

- Batches assigned to the assessment agencies for conducting the assessment on SIP
- 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 SSC
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC 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
- For Skill assessment, environment is simulated to create a realistic Working Environment that should replicate the key features of the workplace. In job roles, where it is difficult to replicate the same, the OJT assessment is implemented.
- 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.
- Knowledge assessment is done through closed ended questions up to level 4 and from level 5 onwards, it is mixture of open ended and closed ended questions

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 SSC and validated by industry
- Taking reference of Assessment criteria and Sample Questions, AAs create the question bank which is further validated by SSC
- 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
- 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

4. Types of evidence or evidence-gathering protocol:

- Post Assessment, the evidences are uploaded by Assessor to assessment agency and further assessment agency to SSC 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 SSC digital platform (ZoHO)
- 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 SSC
- 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 SSC digital platform

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 CSDCI. 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 of company under which candidates undergo on job training.

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
CSDCI	Construction Skill development Council of India
MCQ	Multiple Choice Question
EHS	Environment Health and Safety
IPS	Indian Patent Stone
VDF	Vacuum Dewatering Flooring