Draft: Model Curriculum

NAME: INTRODUCTION TO CONFINED SPACE CHALLENGES AT WORKSITES

MICROCREDENTIAL CODE: SSD/MCr-0109

MICROCREDENTIAL VERSION: 1.0

NSQF LEVEL:3

MODEL CURRICULUM VERSION-1.0

Safety Skill Development Foundation || Safety Skill Development Foundation D-507Light House, Town Square Sector 82A, Gurugram, Haryana, India - 122004

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Training Parameter

Sector	Construction, Infrastructure, Real estate, Iron & Steel, Mining, Logistics, Hydrocarbon and others
Sub Sector	-
Occupation	Construction Engineering & Management
Country	India
NSQF Level	3
Minimum Educational Qualification and Experience	10th grade pass or equivalent with 3 years of relevant experience OR Previous qualification of NSQF level 2.5 + 1.5 year of relevant experience
Pre-Requisite License or Training	NA
Minimum Age	18 Years
Last Reviewed On	08-05-2025
Next Review Date	08-05-2028
NSQC Approval Date	08-05-2025
MC Version	1.0
Model Curriculum Creation Date	08-05-2025
Model Curriculum Valid Up to Date	08-05-2028

Model Curriculum Version	1.0
Minimum Duration of the Course	15 hours
Maximum Duration of the Course	15 hours

Program Overview

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

Training Outcomes

After completing the program, the participant will be able to: -

- Define and classify confined spaces as per national and international safety standards.
- Describe the types and sources of hazards in confined spaces, including atmospheric, physical, and mechanical.
- Understand and interpret safety protocols such as the Permit to Work (PTW) system, LOTO, and ERP
- Apply gas detection and atmospheric testing techniques using relevant tools.
- Perform risk assessment using HIRA, JSA, and hazard mapping.
- Set up safety equipment and execute confined space entry procedures.
- Evaluate rescue strategies and implement emergency drills.
- Demonstrate responsibility and teamwork in confined space tasks.
- Contribute to the creation of safer confined space practices through hazard reporting and peer coaching.

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
Module 1: Recognize and define confined spaces and understand inherent risks	02:00 Hours	02:00 Hours	00:00 Hours	00:00 Hours	04:00 Hours
Module 2: Detect and assess specific hazards in confined spaces.	02:00 Hours	02:00 Hours	00:00 Hours	00:00 Hours	04:00 Hours
Module 3: Prepare for safe entry and safety during confined space operations.	02:00 Hours	1.5:00 Hours	00:00 Hours	00:00 Hours	3.5:00 Hours
Module 4:Emergency handling and confined space rescues.	02:00 Hours	1.5:00 Hours	00:00 Hours	00:00 Hours	3.5:00 Hours
Total Duration	**08:00 Hours**	**07:00 Hours**	**00:00 Hours**	**00:00 Hours**	**15.00 Hours**

Module Details

Module 1: Recognize and define confined spaces and understand inherent risks.

Terminal Outcomes:

- **Define** what constitutes a confined space based on national/international standards.
- **Differentiate** between permit-required and non-permit confined spaces.
- **Explain** the legal and operational relevance of confined space classification.
- **Identify** confined spaces in real or simulated work environments using tags, visual aids, and checklists.
- **Demonstrate** the use of confined space registers to log key classification and hazard data.

Duration: 02:00 Hours	**Duration: 02:00 Hours**
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Define a confined space based on statutory definitions (OSHA, IS standards). • Differentiate between permit-required and non-permit confined spaces. • List common types of confined spaces found in industrial settings. • Explain the inherent hazards associated with confined spaces. • Identify relevant legal and compliance requirements, including roles and responsibilities. • Visually identify confined spaces in simulated or real environments. • Classify scenarios using checklist-based assessments. • Use confined space tagging and register systems during mock exercises. • Demonstrate pre-entry safety inspection steps. • Explain the selection criteria for appropriate PPE used in confined spaces. • Describe inspection, limitations, and maintenance of PPE and safety gear. • Identify and explain the specific hazards associated with performing hot work (such as welding, cutting, grinding, etc.) inside confined spaces.	• **Identify confined spaces visually** in simulated or real work environments using checklists and visual cues. • **Classify confined spaces** using structured criteria (e.g., entry limitations, ventilation, risk of engulfment, etc.). • **Tag and label confined spaces** during a mock drill using standardized identification systems. • **Fill and maintain an entry register** including location, type of space, hazard profile, and access authorization. • **Participate in a case-study analysis** of a confined space incident to identify classification failure points and learning outcomes. • Demonstrate their ability to safely conduct hot work (e.g., welding, cutting) inside a confined space by implementing proper risk control measures and ensuring compliance with safety protocols.
Classroom Aids	

Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser
Tools, Equipment and Other Requirements
Safety Helmet, Safety Gloves, Reflective jackets, Safety gumboots, Safety shoes, Safety belt, Safety harness, High visibility jackets, First Aid box, Safety Cone, Caution Boards, Safety Sign Boards.

Module 2: Detect and assess specific hazards in confined spaces.

Terminal Outcomes:

- **Identify and categorize confined space hazards** including atmospheric, physical, mechanical, and biological risks, using industry-specific scenarios.
- **Use structured risk assessment tools** (HIRA, JSA, bow-tie method) to evaluate likelihood and severity of confined space hazards.
- **Interpret gas detection results** for toxic, flammable, and oxygen-deficient/enriched environments using multi-gas analyzers.
- **Implement initial risk control measures** such as ventilation, barricading, isolation, and tagging prior to entry.
- **Document risk assessment outcomes** and communication controls using standard formats and signage

Duration: 02:00 Hours	Duration: 02:00 Hours
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Describe the types of hazards associated with confined spaces (atmospheric, physical, mechanical, biological, ergonomic, etc.) • Explain atmospheric risks such as oxygen deficiency/enrichment, flammable gases, and toxic vapours. • Understand the sources of hazards, including welding fumes, sludge decomposition, stored energy, moving parts, etc. • Recognize the importance of gas detection and atmospheric testing protocols before and during entry. • Understand risk assessment methods (HIRA, JSA, bow-tie analysis) applicable to confined space entry. • Interpret exposure limits and measurement units (LEL, UEL, PPM, % Vol) from gas detection readings.	• **Use and calibrate a multi-gas detector** to accurately assess oxygen levels, combustible gases, and toxic substances (e.g., H_2S, CO) prior to confined space entry. • **Perform a basic HIRA (Hazard Identification and Risk Assessment)** for a confined space task, identifying potential hazards, risk levels, and suggested controls. • **Fill out a Job Safety Analysis (JSA) form**, clearly documenting hazards, risk ratings, and control measures for a confined space operation. • **Simulate and assess ventilation strategies** in a confined space using fans or visual aids to evaluate effectiveness in dispersing contaminants. • **Identify and interpret warning signs, labels, and hazard markers** placed near confined spaces using real or simulated worksite visuals.

• Understand and recognize the risks posed by seepage (liquids, gases, or chemicals) when working in confined spaces and identify safety measures to mitigate these risks.	• **Interpret atmospheric gas readings** using multi-gas detectors and decide whether the environment is safe for entry based on industry-standard "go/no-go" thresholds. • Demonstrate their ability to respond effectively to seepage incidents (liquids, gases, chemicals) in confined spaces using appropriate detection tools and safety measures.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Safety Helmet, Safety Gloves, Reflective jackets, Safety gumboots, Safety shoes, Safety belt, Safety harness, High visibility jackets, First Aid box, Safety Cone, Caution Boards, Safety Sign Boards.	

Module 3: Prepare for safe entry and safety during confined space operations.

Terminal Outcomes:

- **Demonstrate knowledge and application of standard operating procedures (SOPs)** for confined space entry, including hazard control, team coordination, and readiness checks.
- **Implement entry preparation protocols**, including confined space entry permits, isolation and Lockout/Tagout (LOTO) systems, purging, ventilation, and signage.
- **Ensure compliance with organizational and statutory safety requirements**, including PPE selection, gas testing, team briefings, and readiness documentation before entry.

Duration: 02:00 Hours	Duration: 1.5:00 Hours
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• **Explain the role and significance of entry preparation** in ensuring safety and minimizing incident potential during confined space work.	• **Fill out a confined space entry permit**, accurately identifying hazards, control measures, authorizations, and validity periods.

• **Describe the Permit-to-Work (PTW) system**, its purpose, types, authorization workflow, and essential components of a confined space entry permit. • **List standard pre-entry safety controls**, including atmospheric testing, energy isolation, lockout/tagout (LOTO), mechanical purging, and signage. • **Explain the duties and coordination roles** of authorized entrants, standby attendants, supervisors, gas testers, and rescue team members during confined space operations. • **Describe the types and uses of personal protective equipment (PPE)** relevant to confined space work — including harnesses, helmets, gloves, antistatic clothing, and respiratory protection. • **Explain communication protocols and tools** (verbal, non-verbal, signal-based, and radio systems) to be used in confined or noisy environments, especially when lone working is involved. • **Explain the selection criteria for confined space PPE**, including SCBA, airline systems, antistatic gear, chemical-resistant clothing, and communication-integrated helmets. • **Describe the inspection, maintenance requirements, and limitations** of PPE and safety equipment including tripods, harnesses, gas monitors, and SCBA units, ensuring readiness and compliance. • Describe and differentiate between several types of ventilation systems used in confined spaces and understand their roles in maintaining safety.	• **Perform a Lockout/Tagout (LOTO) simulation**, applying tags and locks to isolate energy from equipment such as valves or agitators in a confined space context. • **Set up mechanical ventilation systems**, ensuring air quality standards and positive airflow in a mock confined space environment. • **Inspect PPE for defects and demonstrate correct donning of respiratory protective devices (RPDs)** like half/full-face masks or SCBA units. • **Conduct a confined space pre-entry checklist walkthrough**, confirming hazard control measures, signage, gas testing, and personnel readiness. • **Role-play specific confined space duties**, including gas tester, standby attendant, entrant, and permit issuer, to understand procedural workflows. • **Demonstrate correct donning, fit-check, and doffing procedures** for confined space PPE including SCBA, harnesses, gloves, and antistatic gear. • **Inspect and set up essential safety equipment** like a tripod, retrieval winch, gas detector, and blower, ensuring compliance with operational protocols. • Demonstrate their ability to set up and operate diverse types of ventilation systems in confined spaces to ensure safety during work activities.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Safety Helmet, Safety Gloves, Reflective jackets, Safety gumboots, Safety shoes, Safety belt, Safety harness, High visibility jackets, First Aid box, Safety Cone, Caution Boards, Safety Sign Boards.	

Module 4: Emergency handling and confined space rescues.

Terminal Outcomes:

- Recall confined space emergency types (e.g., gas exposure, engulfment) and explain key elements of a standard Emergency Response Plan (ERP).
- Plan and prepare a confined space ERP, identifying rescue resources, roles, communication systems, and escalation pathways.
- Implement effective emergency communication protocols, using signals, alarms, or two-way devices in simulated confined space incidents.
- Demonstrate confined space rescue procedures, including equipment setup, casualty retrieval, and responder coordination using role-play or practical drills.
- Participate in post-incident review, identifying root causes, assessing team actions, and documenting improvements for future emergency preparedness.

Duration: 02:00 Hours	**Duration: 1.5:00 Hours**
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• **Explain the importance of a confined space Emergency Response Plan (ERP)** in minimizing harm and enabling quick, structured action during incidents. • **Identify and differentiate types of confined space rescues** (self-rescue, non-entry, and entry) and determine appropriate use based on scenario risk levels. • **List the critical components of a confined space ERP**, including hazard-specific details, response personnel, available rescue equipment, and command chain. • **Describe the roles and responsibilities** of internal rescue team members and procedures for integrating with external emergency services during confined space incidents. • **Interpret legal requirements** related to rescue planning (e.g., mandatory drill frequency, team training, ERP validation, and rescue equipment inspection).	• **Develop a basic Emergency Response Plan (ERP)** for a mock confined space scenario, including hazard mapping, contact protocols, and rescue responsibilities. • **Demonstrate confined space rescue techniques** using mannequins, full-body harnesses, and tripod retrieval systems (or alternate formats such as video simulation). • **Set up a confined space retrieval system**, including anchoring a tripod, attaching a winch and fall-arrest system, and ensuring it is compliant and functional. • **Operate two-way radios, alarms, or signal tools** to simulate and manage real-time emergency communication between rescuers and control points.

• **Explain communication protocols used during emergencies**, including the use of signals, alarms, radios, and escalation channels to coordinate an effective response.	• **Participate in a mock rescue drill**, actively rotating through assigned roles: rescuer, standby attendant, victim, or incident coordinator, following standard protocols. • **Perform post-incident debriefing**, including root cause analysis, reporting key findings, and suggesting preventive and corrective actions.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Safety Helmet, Safety Gloves, Reflective jackets, Safety gumboots, Safety shoes, Safety belt, Safety harness, High visibility jackets, First Aid box, Safety Cone, Caution Boards, Safety Sign Boards.	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	**Specialization**	**Years**	**Specialization**	
ITI/12th Pass	Any domain	5	Relevant Domain	0	-	
Graduate in any discipline / Diploma in Engineering	Any domain	3	Relevant Domain	0	-	

M. Tech/ B. Tech	Any domain	1	Relevant Domain	0	-	

Trainer Certification	
Domain Certification	**Platform Certification**
Certified as Trainer for the Job Role: "SSD/M0109 v1.0: Introduction to Confined Space Challenges & Safety Measures" or higher qualification as per career progression by SSDF. 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 v2.0". The minimum accepted score is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
ITI/12th Pass	Any domain	5	Relevant Domain	0	-	
Graduate in any discipline / Diploma in Engineering	Any domain	3	Relevant Domain	0	-	
M. Tech/ B. Tech	Any domain	1	Relevant Domain	0	-	

Assessor Certification	
Domain Certification	**Platform Certification**
Certified as Assessor for the Job Role: "SSD/M0109 v1.0: Introduction to Confined Space Challenges & Safety Measures" or higher qualification as per career progression by SSDF. 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 v2.0". The minimum accepted score is 80%.

Assessment Strategy

The assessment will be based on the concept of third-party assessments through certified assessors with empaneled Assessment Agencies of NCVET. The certification of each assessor will be done by SSDF through a process of selection, training, assessment & certification through training of assessor's program.

The assessments will include both formative & summative. The progressive assessments will be through the trainer during the progress of the training. Summative assessments will be carried out by an assessor through assessment agencies.

The assessment process will determine whether the candidate or professional is competent or not to perform the job as per expected performance criteria. The assessment plan contains the following information:

a) Assessment elements – Competencies based on performance criteria of each NOS.
b) Methods of assessment – Written test (online/offline), viva and practical/ field exercises.
c) Time of assessment – The assessment will be done both formative and summative (post orientation/training) of candidates.
d) Place i.e., context of the assessment - The assessment will be conducted through theory, viva voce and practical/ field exercises, on simulators and will be both online and offline modes.
e) The criteria for decision making– It will be based on assessment criteria & guidelines as given in the qualification pack.
f) Questions – The written questions, viva & practical questions will be set to cover all aspect of performance criteria and would have been validated from experts in the subject matter.

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to Be known and/or understood to accomplish 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 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 psycho motor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do 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 helps 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 Standard
AB	Awarding Body
AA	Assessment Agency
TP	Training Partner