



Model Curriculum

QP Name: Pipeline Welding Helper (Oil & Gas)

QP Code: HYC/Q 9105

QP Version: 1.0

NSQF Level: 2.5

Model Curriculum Version: 1.0

Hydrocarbon Sector Skill Council Second Floor - OIDB Bhawan, Tower C, Plot No. 2, Vikas Marg, Sector – 73, Noida, Uttar Pradesh – 201301







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Training Parameters

Sector	Hydrocarbon
Sub-Sector	Midstream/Construction & Services
Occupation	Welding
Country	India
NSQF Level	2.5
Aligned to NCO/ISCO/ISIC Code	NCO 2015/8131.31, NCO 2015/3134.0200
Minimum Educational Qualification and Experience	9th grade pass OR 5th grade pass with 4 years of relevant experience OR Ability to read and write with 5-years of relevant experience OR Previous relevant Qualification of NSQF Level 2 with 6 months of relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 years
Last Reviewed On	3-May-2023
Next Review Date	2-May-2026
NSQC Approval Date	3-May-2023
QP Version	1.0
Model Curriculum Creation Date	3-May-2023
Model Curriculum Valid Up to Date	2-May-2026
Model Curriculum Version	1.0
Minimum Duration of the Course	-
Maximum Duration of the Course	300 Hours





Program Overview

This section summarizes 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.

- Prepare for welding operation at oil and gas pipeline site
- Assist/help for pipeline welding operation at the Pipeline site
- Maintain Health & Hygiene Habits

Compulsory Modules

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

NOS and Module Details	Theory Duratio n	Practical Duratio n	On-the-Job Training Duration (Mandatory)	Total Duration
HYC/N 9105 Prepare for welding operation at oil and gas pipeline site NOS Version No. –1.0 NSQF Level – 2.5	15:00	60:00	15:00	90:00
Module 1: Introduction to Hydrocarbon sector and the job role of Pipeline Welding Helper –(Oil & Gas)	03:00	Nil	Nil	03:00
Module 2: Carry out the preparation for welding operation at oil and gas pipeline site	12:00	60:00	15:00	87:00
HYC/N 9106 Assist/help for pipeline welding operation NOS Version No. – 1.0 NSQF Level – 2.5	15:00	60:00	15:00	90:00
Module 3: Providing assistance for pipeline welding operations at site	15:00	60:00	15:00	90:00
HYC/N 9301 – Work effectively in a team NOS Version No. – 3.0 NSQF Level – 2.5	15:00	30:00	00:00	45:00
Module 4: Effective working in a team	15:00	30:00	00:00	45:00
HYC/N9302 – Maintain health, safety and security procedures NOS Version No. – 3.0 NSQF Level – 2.5	15:00	30:00	00:00	45:00
Module 5: Health, safety and security	15:00	30:00	00:00	45:00
Employability Skills (Mandatory)	06:00	24:00	-	30:00
Total Duration	66:00	204:00	30:00	300:00





Module Details

Module 1: Introduction to Hydrocarbon Sector and the job role of Pipeline Welding Helper (Oil & Gas)

Bridge Module Mapped to HYC/ N 9105 v 1.0

Terminal Outcomes:

- Discuss the Hydrocarbon Sector
- Discuss the job of a Pipeline Welding Helper (Oil & Gas)

Duration: 03:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 Describe the oil and natural gas sector and its subsectors. Explain the importance of a Pipeline Welding Helper (Oil & Gas) Explain the roles and responsibilities of Pipeline Welding Helper (Oil & Gas) 	
Classroom Aids:	
White / Black board and Projector	
Digital Presentation	
Computer/Laptop	
Public Addressing System	
Tools, Equipment and Other Requirements	
ΝΑ	





Module 2: Carry out the preparation for welding operation at oil and gas pipeline site *Mapped to HYC/ N 9105 v 1.0*

Terminal Outcomes:

• Prepare for welding operation at oil and gas pipeline site

Duration: 12:00	Duration: 60:00		
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes		
 Explain how to assist/help welder in arranging blueprint, drawing, machine, measuring equipment and tools and mark the pipes accordingly Explain how to assist/help welder for electrical connection of welding machine Explain how to assist/help welder in identifying damaged parts/material Explain how to keep work area and welding gun, electrodes, filler wires, gas cylinders, welding transformers clean 	 Demonstrate how to assist/help welder in arranging blueprint, drawing, machine, measuring equipment and tools Demonstrate how to assist/help welder in marking pipes for welding as per blueprint/drawing Demonstrate how to assist/help welder for electrical connection of welding machine Demonstrate how to assist/help welder in identifying damaged parts/material Demonstrate how to keep work area and welding gun, electrodes, filler wires, gas cylinders, welding transformers clean Demonstrate how to remove dust, moisture and waste material from equipment before welding operation 		
Classroom Aids:			
White / Black board and Projector			
Digital Presentation			
Computer/Laptop			
Public Addressing System			
Tools, Equipment and Other Requirements			
• Gas Cutting Torch Set With Accessories (S	Set)		
Gas Welding Torch Set With Accessories ((Set)		
 Welding Head Helmet (Shield) 			
Welder's Apron			
 Welding Hand Screen (Shield) 			
 Welding Goggles (Black) 			
Welding Gloves			
TIC Malding Mashing			

• TIG Welding Machine

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- MIG Welding Machine
- Screw Drivers
- Adjustable Spanners
- Grinder
- Wire Brush
- Flux Core Wire
- Electrodes
- Gas Regulator
- Cutting Torch
- Electrode Holder
- Earth Clamp
- Angle Grinder
- Welding Rod
- Welding Gun
- Gas Cylinder
- Welding Transformer
- Rules
- Squares
- Scribers
- Vernier Calliper

Non Mandatory

- Hydrostatic Testing Machine
- Pneumatic Testing Machine





Module 3: Providing assistance for pipeline welding operations at site *Mapped to HYC/N9106 v 1.0*

Terminal Outcomes:

• Carryout the activities related to providing assistance for pipeline welding operations at site

Duration 15:00	Duration: (0.00
Duration: 15:00	Duration: 60:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 Describe how to assist/help welder in arranging the pipes in the specified manner for welding as per the drawing Describe how to give appropriate welding tools to the welder for welding operation Describe the use of rules, squares, scribers, vernier caliper, instrument for marking in welding operations Describe how to assist/help welder in cleaning the pipe surface area using file or grinding tools Describe how to clean the work area after welding operation 	 Demonstrate how to assist/help welder in arranging the pipes in the specified manner for welding as per the drawings Demonstrate how to check and give appropriate welding tools to the welder for welding operation Demonstrate how to use rules, squares, scribers, vernier caliper, instrument for marking in welding operations Demonstrate how to cut the pipe as per the marking Demonstrate how to hold and clamp the pipe during jointing/welding operation Demonstrate how to assist/help welder in cleaning the pipe surface area using file or grinding tools Demonstrate how to clean the work area after welding operation
Classroom Aids:	
 White / Black board and Projector Digital Presentation Computer/Laptop Public Addressing System 	
Tools, Equipment and Other Requirements	
 Wire Electrodes Gas Regulator Cutting Torch Electrode Holder Earth Clamp Angle Grinder Welding Rod Welding Gun Gas Cylinder Welding Transformer 	
Rules, Squares, Scribers, Vernier Callipe	r





Non Mandatory

- Hydrostatic Testing Machine
- Pneumatic Testing Machine





Module 4: Working effectively in a team

Mapped to HYC/N9301 v 3.0

Terminal Outcomes:

• Effective team work

Duration: 15:00	Duration: 30:00		
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes		
 Describe maintaining clear communication with colleagues Explain passing on information to colleagues in line with organizational requirements Describe working in a team and support the team members Explain working in ways that show respect to colleagues Describe fulfilling commitments made to colleagues Explain informing team members timely, if timelines can't be met Describe taking the necessary initiatives to resolve the issues while working in team 	 Demonstrate maintaining clear communication with colleagues Perform passing on information to colleagues in line with organizational requirements Perform working in a team and support the team members Demonstrate working in ways that show respect to colleagues Perform fulfilling commitments made to colleagues Demonstrate informing team members timely, if timelines can't be met Perform taking the necessary initiatives to resolve the issues while working in team 		
Classroom Aids:			
• White / Black board and Projector			
Digital Presentation			
Computer/LaptopPublic Addressing System			
Tools, Equipment and Other Requirements			
Dummy Team			
,			





Module 5: Maintain health, safety and security procedures Mapped to HYC/N9302 v 3.0

Terminal Outcomes:

• Demonstrate how to carrying out mandatory inspection for all customers under the distributor periodically

Duration: 15:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 Describe using protective clothing/equipment for specific tasks and work conditions Explain identifying documents, location and people responsible for health and safety in the workplace Describe identifying possible causes of risk or accident in the workplace Describe carrying out safe working practices while dealing with hazards to ensure the safety of self and others Explain lifting heavy objects safely using correct procedures Describe identifying common safety signs, displayed in various areas Explain using the various appropriate fire extinguishers on different types of fires correctly Describe following rescue techniques applied during fire hazard Explain following good housekeeping practice in order to prevent fire hazards Describe list issues concerning the safety in work place Describe informing fire safety department about any near-miss incidents in the work place Explain following the applicable laws, regulations and codes as per safety standard Describe preparing written accident/incident report and share with the concerned officer/department Explain providing appropriate first aid to victims in emergency situation Explain basic techniques of bandaging Explain responding promptly and appropriately to an accident Explain rescue activity during an accident in real or simulated environments 	 Demonstrate using protective clothing/equipment for specific tasks and work conditions Perform identifying documents, location and people responsible for health and safety in the workplace Demonstrate identifying possible causes of risk or accident in the workplace Perform carrying out safe working practices while dealing with hazards to ensure the safety of self and others Demonstrate lifting heavy objects safely using correct procedures Perform identifying common safety signs, displayed in various areas Demonstrate using the various appropriate fire extinguishers on different types of fires correctly Perform following rescue techniques applied during fire hazard Demonstrate following good housekeeping practice in order to prevent fire hazards Perform list issues concerning the safety in work place Demonstrate informing fire safety department about any near-miss incidents in the work place Perform following the applicable laws, regulations and codes as per safety standard Demonstrate preparing written accident/incident report and share with the concerned officer/department Perform providing appropriate first aid to victims in emergency situation Perform basic techniques of bandaging Perform responding promptly and appropriately to an accident





 Describe correct method to rescue injured people and others during an emergency 	 Perform rescue activity during an accident in real or simulated environments Demonstrate correct method to rescue injured people and others during an emergency
Classroom Aids:	
 White / Black board and Projector Digital Presentation Computer/Laptop Public Addressing System 	
Tools, Equipment and Other Requirements	
 Trainer Guide Participant hand book Escalation matrix chart Class Room White Board & Markers LCD Projector 	

• PPE Kit





Annexure

Trainer Requirements

Minimum Specializatio Educational n Qualification	•	Relevant Industry Experience		Training Experience		Remarks
	Years	Specialization	Years	Specializatio n		
ITI Pass (Welder)	-	3	-	1	-	Relevant Experience
Diploma	-	2	-	1	-	Relevant Experience

Trainer Certification					
Domain Certification	Platform Certification				
Certified for the Job Role: "Pipeline Welding Helper (Oil & Gas)", mapped to QP: "HYC/Q6105, v1.0". Minimum accepted score is 80%	Certified for the Job Role: "Trainer", mapped to the Qualification Pack: "MEP/Q2601, v1.0". Minimum accepted score as per MEPSC guidelines is 80%.				





Assessor Requirements

Assessor Prerequisites						
Minimum Educational	Educational	Relevant Industry Experience		Training/Assessmen t Experience		Remarks
Qualification		Years	Specialization	Years	Specialization	
ITI Pass (Welder)	-	3	-	1	-	Relevant Experience
Diploma	-	2	-	1	-	Relevant Experience

Certified under relevant Craft Instructor Training Scheme (CITS) course

Assessor Certification		
Domain Certification	Platform Certification	
Certified for the Job Role: "Pipeline Welding Helper (Oil & Gas)", mapped to QP: "HYC/Q 6105, v1.0". Minimum accepted score is 80%	Certified for the Job Role: "Assessor", mapped to the Qualification Pack: "MEP/Q2701, v1.0". Minimum accepted score as per MEPSC guidelines is 80%.	





Assessment Strategy

The assessment of candidates/trainees will be on the basis on assessment outcome/assessment criteria of the Qualification. In the assessment criteria for each NOS marks have been defined for theoretical and practical skills, on which the candidate will be assessed. The emphasis is on 'learning-by-doing' and performance criteria is based on the practical demonstration of skills and knowledge.

Theory/Knowledge test— This section will test the trainee on his/her knowledge on the subject/trade. The test will be carried out online/offline with a set of random Question paper. that include multiple choice questions in multilingual, True/False Statement, audio-video question etc.

The Question Bank will be developed by Subject Matter Experts (SME) of the hydrocarbon sector and these questions again be vetted by the Industry Experts, each performance criteria have its marks for theory based on the level of question i.e., easy, medium and difficult.

Practical/Demonstration Test– This stage involves the face-to-face interaction between Assessor and each trainee. The practical knowledge will be tested through trade test which demonstrates the skill required for the job, by which assessor would be able to evaluate the trainee for his/her practical knowledge on respective Qualification.

To ensure the maximum possible consistency in the assessment by different assessors at different locations, orientation of the assessors is also required about the stages involved in the assessment and the assessor role in the assessment process. The assessor must have knowledge of the following concepts before assessment:

- Qualification Pack Structure
- □ Guidance for the assessor to conduct theory and practical assessments
- □ Guidance for trainees to be given by assessor before the start of the assessments.
- Guidance on assessments process, practical brief with steps of operations practical observation checklist
- □ Practical/Demonstration Test guidance for uniformity and consistency.
- Guidance on assessment evidence collection (signed attendance copy, verification of the authenticity of the candidate by checking the photo ID card, Photographs-while assessment undergoing etc.)

The empanelled assessment agencies will be instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise impartiality of the assessments. The assessment agencies are instructed to ideally have assessor with sufficient amount of relevant industry experience related to Qualification. The assessors will also have scrutinized and have to undergo orientation of assessment framework, competency-based assessments etc.

Recognition of Prior Learning (RPL)





Under the Recognition of Prior Learning (RPL), the candidates enrolled and the assessment will be carried out as per the assessment criteria and assessment outcome of the full Qualification and the process of assessment will be carry out by the body/bodies empanelled by Hydrocarbon Sector Skill Council

In RPL, the candidate already has the skills and knowledge while working on the job from long, the learners only requires to undergo a brief orientation training and the subsequent assessment process and certification is awarded to those candidates who successfully clears the assessment. The tentative process of RPL would include the flowing stages:

- 1 Cluster Mapping and Mobilization of the candidates
- 2 Counselling & Pre-Screening
- 4 Candidate registration, batch creation and enrolment
- 5 conductions of an orientation program for candidates before assessment
- 7 Assessment by HSSC
- 8 Evaluation of Assessment Result
- 9 Issuance of the Certificate to successful candidates

Assessment Strategy:

- For each Qualification Pack assessment criteria has been developed, which describe the weightage for each NOS/Performance criteria (PC) and assigned marks based on each NOS separately for theoretical and practical skills
- The question bank will be developed by the subject matter experts to assess the theoretical and practical knowledge.
- The accredited assessment agency will carry out the assessment process on the date proposed after completion of the training. The assessment will be carried out on the basis of the two parameters i.e. Theoretical test and Practical test.
- The result of the assessment will be shared by assessment body to the HSSC for review and compliance, after that result will be processed and certificates will be generated
- Assessments shall be conducted in the regional languages in case of any specific requirement from the concerned Training Provider.
- For ensuring the impartial assessment it will be ensured that the Assessment Bodies (AB) are not involved in any type of training delivery with respect to this project.

Assessment Guidelines

- 1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.
- 2. The assessment for the theory part will be based on the knowledge bank of questions created by the SSC.
- 3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
- 4. Individual assessment agencies will create unique question papers for the theory part for each candidate at each examination/training center (as per assessment criteria below).
- 5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
- 6. To pass the Qualification Pack assessment, every trainee should score a minimum of 50% of % aggregate marks to successfully clear the assessment.
- 7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.





Recommended Pass % aggregate for QP: 50%



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 Understandin g (KU)	Knowledge and Understanding (KU) are statements that together specify the technical, generic, professional and organisational specific knowledge that an individual need 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

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	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

Term	Description
NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
OS	Occupational Standard(s)
QP	Qualifications Pack
KU	Knowledge and understanding
GS	Generic Skills
FAQ	Frequently Asked Questions
BP	Business Partner
КҮС	Know Your Consumer
FAB	Feature Advantage Benefit