



# Model Curriculum

**QP Name: Industrial Welder (Oil & Gas)**

**QP Code: HYC/Q9101**

**QP Version: 2.0**

**NSQF Level: 4**

**Model Curriculum Version: 2.0**

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## Training Parameters

<b>Sector</b>	Hydrocarbon
<b>Sub-Sector</b>	Construction & Services
<b>Occupation</b>	Production
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	
<b>Minimum Educational Qualification and Experience</b>	Class X with minimum 2 years of relevant experience <b>OR</b> Class XII <b>OR</b> ITI (two years after class 10th in engineering trade)
<b>Pre-Requisite License or Training</b>	
<b>Minimum Job Entry Age</b>	18 years

## 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.

- **Undertake Welding using Manual Metal Arc welding/Shielded metal arc welding:** Knowledge on different types of materials and heat treatment allows performing welding operation and testing to ensure quality, perform the welding operation, perform testing to ensure quality
- **Weld manually (semi-automatic) welding joints using the MIG/MAG:** Perform MIG welding to attain higher productivity, weld materials like stainless steel, carbon steel, nickel alloys, aluminum
- **Perform manually welding joints using the TIG (GTAW) process:** Perform manual TIG (GTAW) welding for a range of standard welding requirements. Weld different materials (carbon steel, aluminum and stainless steel)
- **Work effectively in a team:** Improve work effectiveness with colleagues, superiors, members of own work group, people in other work groups within or outside the organization
- **Follow health, safety and security procedures:** Undertake jobs while following health, safety and security procedures

### 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 (Recommended)	Total Duration
<b>Bridge Module</b>	<b>04:00</b>	<b>Nil</b>	<b>04:00</b>	<b>08:00</b>
Module 1: Introduction to Hydrocarbon sector and the job role of Industrial Welder (Oil & Gas)	04:00	Nil	04:00	08:00
<b>HYC/N9101: General workshop practice followed in the shop floor</b> <b>NOS Version No. –1.0</b> <b>NSQF Level – 4</b>	<b>32:00</b>	<b>48:00</b>	<b>16:00</b>	<b>96:00</b>
Module 2: Understanding basic drawing, workshop operation including inspection.	32:00	48:00	16:00	96:00
<b>HYC/N9102: Welding using Manual Metal Arc welding/Shielded metal arc welding</b> <b>NOS Version No. – 1.0</b>	<b>32:00</b>	<b>48:00</b>	<b>20:00</b>	<b>100:00</b>

<b>NSQF Level – 4</b>				
Module 3: Do work deferent welding positions as per detailed instructions	32:00	48:00	16:00	100:00
<b>HYC/N9103: Manually (semi-automatic) welding joints using the MIG/MAG</b> <b>NOS Version No. – 1.0</b> <b>NSQF Level – 4</b>	<b>48:00</b>	<b>72:00</b>	<b>20:00</b>	<b>140:00</b>
Module 4 Demonstrate and Perform Tungsten Inert Gas (TIG) Welding	48:00	72:00	20:00	140:00
<b>HYC/N9104: Perform Manually welding joints using the TIG (GTAW) Process</b> <b>NOS Version No. – 1.0</b> <b>NSQF Level – 4</b>	<b>48:00</b>	<b>72:00</b>	<b>20:00</b>	<b>140:00</b>
Module 5: Covers the performing of manual TIG (GTAW) welding for a range of standard welding job requirements	48:00	72:00	20:00	140:00
<b>HYC/N6104: Follow health, safety and security procedures</b> <b>NOS Version No. – 1.0</b> <b>NSQF Level – 4</b>	<b>16:00</b>	<b>24:00</b>	<b>10:00</b>	<b>50:00</b>
Module 5: Health, Safety and Security Procedures	16:00	24:00	10:00	50:00
<b>HYC/N6103: Work effectively in a team</b> <b>NOS Version No. – 1.0</b> <b>NSQF Level – 4</b>	<b>20:00</b>	<b>36:00</b>	<b>10:00</b>	<b>66:00</b>
Module 6: Effective working in a team	20:00	36:00	10:00	66:00
<b>Total Duration</b>	<b>200:00</b>	<b>300:00</b>	<b>100:00</b>	<b>600:00</b>

## Module Details

### Module 1: Introduction to Hydrocarbon sector and the job role of Industrial Welder (Oil & Gas)

#### Bridge Module

#### Terminal Outcomes:

- Discuss the Hydrocarbon Sector
- Discuss the job of an Industrial Welder (Oil & Gas)

<b>Duration:</b> 04:00	<b>Duration:</b> 00:00
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe the oil and natural gas sector and its subsectors.</li> <li>• Explain the importance of an Industrial Welder.</li> <li>• Explain the roles and responsibilities of Industrial Welder.</li> <li>• Explain general discipline in the classroom (Do's &amp; Don'ts)</li> </ul>	
<b>Classroom Aids:</b>	
<ul style="list-style-type: none"> <li>• White / Black board and Projector</li> <li>• Digital Presentation</li> <li>• Computer/Laptop</li> <li>• Public Addressing System</li> </ul>	
<b>Tools, Equipment and Other Requirements</b>	
NA	

## Module 2: Understanding basic drawing, workshop operation including inspection to HYC/ N9101 v 1.0

### Terminal Outcomes:

- Understand the basic Engineering practice
- Mathematical skills with respect to welding
- Knowledge on different types of materials and Heat Treatment
- Fundamentals of Electricity
- Knowledge on basic workshop practice and tools used

Duration: 32:00	Duration: 48:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Describe the geometrical principles, techniques, basic mathematical calculations and select &amp; apply for area and volume calculations</li> <li>• Explain how to identify ferrous and non-ferrous metals</li> <li>• Explain the basic principles of material selection to specific applications of stainless Steel</li> <li>• Describe the property of different material and their workability</li> <li>• Explain the differences in properties of different materials including metals, alloys, ceramics, polymers and composites</li> <li>• Explain the basics of heat treatment principles, its operations and, purpose</li> <li>• Describe secondary electrical / welding circuit terminology and operations of the practical application of electricity and technology</li> <li>• Explain the testing of existing wiring for safety and quality control</li> <li>• Explain workshop safety and welding safety rules</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to use and operate tools safely and specific safety issues relating to work involving cutting tools</li> <li>• Apply and promote health and safety legislation and best practice and work in a safe manner on a worksite</li> <li>• Demonstrate how to operate trade machinery effectively, safely and in accordance with manufacturers' instructions</li> <li>• Demonstrate how to identify appropriate machine, tools and safety equipment's</li> <li>• Demonstrate how to apply knowledge of metals and non-metals and types and characteristics of materials used in the manufacturing industry</li> <li>• Perform identification of ferrous and non-ferrous metals</li> <li>• Demonstrate how to integrate properties and applications of carbon steel and alloy steel (with reference to welding)</li> <li>• Demonstrate how to apply the basic principles of material selection to specific applications of stainless Steel</li> <li>• Demonstrate application of stress relieving methods with reference to welding</li> <li>• Perform routine maintenance on equipment and determining type of maintenance needed</li> </ul>
<b>Classroom Aids:</b>	
<ul style="list-style-type: none"> <li>• White / Black board and Projector</li> <li>• Digital Presentation</li> </ul>	

- Computer/Laptop
- Public Addressing System

#### Tools, Equipment and Other Requirements

- Sample promotional material
- Sample presentation



## Module 3: Do work deferent welding positions as per detailed instructions to HYC/N9102 v 1.0

### Terminal Outcomes:

- Understand the basic Engineering practice
- Mathematical skills with respect to welding
- Knowledge on different types of materials and Heat Treatment
- Fundamentals of Electricity
- Knowledge on basic workshop practice and tools used

Duration: 32:00	Duration: 48:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Explain the procedures or systems in place for health and safety, personal protective equipment (PPE) and other relevant safety regulations</li> <li>• Describe the terminology used in the welding industry</li> <li>• Describe the selection, use and techniques of various welding processes</li> <li>• Explain the common welding processes</li> <li>• Explain the advantages of DC machines</li> <li>• Describe the DC machines are specified</li> <li>• Describe the characteristics and properties of filler materials</li> <li>• Explain the components of essential equipment required for welding</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to check the condition of welding leads, earthing arrangements and electrode holder</li> <li>• Demonstrate how to use the correct welding electrodes i.e. types of electrode, specification of electrode, AWS coding of electrodes, selection of electrodes</li> <li>• Perform measurements for joint preparation and routine MMAW</li> <li>• Demonstrate how to differentiate AC/DC machines</li> <li>• Demonstrate how to interpret welding / engineering drawings and weld symbols, welding procedure specifications and standard operating procedures Understand the influence of surface contamination on the finished weld characteristics</li> <li>• Prepare material and joint for welding, i.e. free from scaling, paint, oil/grease; made dry and free from moisture, edges to be welded as per job requirement such as flat, square or beveled</li> <li>• Demonstrate how to identify various weld defects using visual inspection</li> <li>• Demonstrate how to use of manual metal-arc welding and related equipment to include alternating current (AC) equipment/direct current (DC) equipment</li> <li>• Perform the process to stop and properly re-start arcs to avoid welding defects (scratch start, tapping techniques)</li> <li>• Demonstrate how to maintain constant puddle by using appropriate travel speed</li> <li>• Demonstrate how to maintain proper bead sequence with respect to groove/fillet configurations and positions</li> <li>• Perform the process to remove slag in an appropriate manner (e.g. wire brush, hammer, etc.)</li> <li>• Demonstrate how to produce welded joints to the specified quality, dimensions and</li> </ul>

	<p>profile</p> <ul style="list-style-type: none"> <li>• Demonstrate how to produce fillet and groove joints in 1F/1G, 2F/2G and 3F/ 3G welding positions as per the WPS specified using single or multi-run welds</li> </ul>
<b>Classroom Aids:</b>	
<ul style="list-style-type: none"> <li>• White / Black board and Projector</li> <li>• Digital Presentation</li> <li>• Computer/Laptop</li> <li>• Public Addressing System</li> </ul>	
<b>Tools, Equipment and Other Requirements</b>	
<ul style="list-style-type: none"> <li>• 200 Amp Ac Welding Transformer with Cables.</li> <li>• Electrodes 6013 Grade Dia 2.5 Mm And 3.15 Mm.</li> <li>• Ut Testing, Fracture Testing and Dp Testing Facility.</li> <li>• Gas Cutting with Pug Attachment</li> <li>• Sample promotional material</li> </ul>	

## Module 4: Demonstrate and Perform Tungsten Inert Gas (TIG) Welding to HYC/N9103 v 1.0

### Terminal Outcomes:

- Do MIG welding to attain higher productivity.
- Highlight and use MIG welding because of the low cost.
- Use advantage of high deposit of MIG welding and low hydrogen deposit
- Able to weld stainless steel, carbon steel, nickel alloys, aluminum.
- Easily used on thin materials and there is no limitation for thickness.
- Advantage of MIG operation - easy to learn and it is a clean operation

Duration: 48:00	Duration: 72:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Describe welding procedure data sheets specifications, PQR and WPS</li> <li>• Describe how to identify parts of welding machines such as inverters, rectifiers and generators, according to the task</li> <li>• Describe appropriate mode of metal transfer</li> <li>• Explain set pre-purge with shielding gas as required and verify gas flow rates</li> <li>• Explain how to follow the established organizational process for dealing with the welded pieces including handover, storage, safety and security, record keeping, etc</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to prepare the welding equipment for a range of given applications Plan the welding activities before starting effectively and efficiently for achieving specifications as per WPS</li> <li>• Demonstrate how to use welding consumables appropriate to the material and application to DC current types</li> <li>• Demonstrate how to assist in preparation non-destructive testing of the welds, for a range of tests Non- dye Penetration Test (DPT),</li> <li>• Fluorescent Penetration Test (FPT), Magnetic Particle Test (MPT)</li> <li>• Perform to connect and adjust regulators and flow meters to cylinders</li> <li>• Demonstrate how to adjust wire feed rate and read and set current as required</li> <li>• Demonstrate how to prepare and support the joint using the appropriate methods</li> <li>• Demonstrate how to use manual welding and related equipment to carry out MIG/MAG welding processes</li> <li>• Perform MIG/MAG welding operations using various welding techniques to meet welding procedure specification requirements</li> <li>• Perform adjusting of wire stick-out as per requirement</li> <li>• Demonstrate how to use welding consumables appropriate to the material and application to DC current types</li> <li>• Demonstrate how to prepare for destructive tests on weld specimens for fillet butt and corner Destructive Tests (DT): macro examination, nick break test, bend tests (such as face, root or side, as appropriate), mechanical (peel, tensile and shear, fatigue, impact tests), chemical</li> <li>• Perform the process to shut down and make safe the welding equipment on completion of</li> </ul>

	the welding activities
<b>Classroom Aids:</b>	
<ul style="list-style-type: none"> <li>• White / Black board and Projector</li> <li>• Digital Presentation</li> <li>• Computer/Laptop</li> <li>• Public Addressing System</li> </ul>	
<b>Tools, Equipment and Other Requirements</b>	
<ul style="list-style-type: none"> <li>• Safety regulation manual</li> <li>• MIG Welding machine with 0.8 mm and 1.2 mm wire spool.</li> <li>• Ut Testing, Fracture Testing and Dp Testing Facility.</li> <li>• Gas Cutting with Pug Attachment</li> </ul>	

## Module 5: Covers the performing of manual TIG (GTAW) welding for a range of standard welding job requirements to HYC/N9104 v 1.0

### Terminal Outcomes:

- Maintain Safe working
- Welding Equipment's
- Prepare for welding operations
- Carry out welding operations
- Test for quality
- Post welding activities
- Other related operation

Duration: 48:00	Duration: 72:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Describe to interpret weld procedure data sheets specifications, the welding process (ISO Codes), parent metal, and pre-welding joint preparation</li> <li>• Explain welding machines e.g. transformer, inverters (AC/DC), rectifiers and generators, according to the materials and task</li> <li>• Explain how to plan the welding activities before they start them effectively and efficiently for achieving specifications as per WPS i.e. correct set-up of the joint, proper condition of electrical connections, welding return and earthing arrangements and operating parameters</li> <li>• Explain how to ensure the work area is maintained and kept safe and tidy</li> <li>• Describe various weld defects and its types</li> <li>• Explain different types of tests such as Destructive Tests (DT): nick break test; bend tests (face, root or side, as appropriate); metallographic; mechanical (peel, tensile and shear, fatigue, impact tests); chemical etc.</li> <li>• Describe the organizational process for dealing with the welded pieces including handover, storage, safety and security, record keeping, etc.</li> <li>• Explain about Oxy fuel cutting:-type of gas, its property and application, colour coding of cylinder, lighting of cutting charger, controlling of gas and selection of cutting nozzle</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to select welding machines e.g. transformer, inverters (AC/DC), rectifiers and generators, according to the materials and task</li> <li>• Obtain filler wire according to specifications</li> <li>• Perform TIG welding process</li> <li>• Demonstrate how to prepare the materials and joint in readiness for welding</li> <li>• Select tungsten electrode by the colour of the tip according to base metal and correct diameter</li> <li>• Demonstrate how to use correct technique for starting the arc using HF (high frequency) unit, scratching the electrode on the job material, lifting the electrode immediately</li> <li>• Demonstrate how to use welding consumables appropriate to the material and application to include AC current types and DC current types</li> <li>• Perform to check the welded joint conforms to the specification through various quality parameters such as visual inspection, dimensional accuracy, alignment/ squareness, size and profile of weld, visual defects and NDT/DT tested defects</li> <li>• Demonstrate how to select and fit the welding and shielding gases for a range of given applications</li> <li>• Perform connection of torches and other components like cables, water carrying tubes, ceramic nozzle, collet, collet holder, gas lens, teflon washers, bakelite cap and ceramic shields/nozzles</li> <li>• Demonstrate how to prepare tungsten by sharpening or balling it to desired tip shape</li> <li>• Demonstrate how to prepare and support the joint using the appropriate methods</li> <li>• Perform TIG welding operations using appropriate welding techniques to meet</li> </ul>

	<p>specified requirements</p> <ul style="list-style-type: none"> <li>• Demonstrate how to check joint to the specified quality, dimensions and profile</li> <li>• Demonstrate how to use manual welding and related equipment to carry out TIG welding processes</li> <li>• Demonstrate how to produce joints of the required quality and of specified dimensional accuracy</li> <li>• Demonstrate how to produce joints from different forms of materials i.e. ferrous, carbon steel, stainless steel (all grades), non-ferrous, aluminum and aluminum alloys, nickel and nickel alloys, titanium, copper and copper alloys</li> <li>• Carry out LPT tests to assess fine defect not detected by visual inspection (VT)</li> <li>• Perform manual cutting: -safety on handling gas cylinders, setting up cylinders and cutting torch, regulators flash back and back fire arrestors, process of cutting</li> <li>• Perform straight cutting, bevel cutting and machine cutting: PUG cutting machine and its parts and functions, setting machine and machine parameters for straight, bevel and circular cutting, plasma cutting and related process precautions</li> <li>• Demonstrate how to do pipe welding by following different welding processes</li> </ul>
<b>Classroom Aids:</b>	
<ul style="list-style-type: none"> <li>• White / Black board and Projector</li> <li>• Digital Presentation</li> <li>• Computer/Laptop</li> <li>• Public Addressing System</li> </ul>	
<b>Tools, Equipment and Other Requirements</b>	
<ul style="list-style-type: none"> <li>• Escalation matrix chart</li> <li>• Class Room</li> <li>• White Board &amp; Markers</li> <li>• LCD Projector</li> <li>• TIG welding machine</li> <li>• Tungsten electrode, filler wire,</li> <li>• Ut Testing, Fracture Testing and Dp Testing Facility.</li> <li>• Tig welding equipment's</li> <li>• Gas Cutting with Pug Attachment</li> </ul>	

## Module 6: Effective working in a team

Mapped to HYC/N6103 v 2.0

### Terminal Outcomes:

- Describe how to interact with others effectively and appropriately.
- Demonstrate how to deal with colleagues at workplace

<b>Duration: 16:00</b>	<b>Duration: 24:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe methods to communicate clearly with the supervisor and reporting authorities.</li> <li>• Explain how to share information in line with organisational requirements.</li> <li>• Explain the organisation's policies and procedures.</li> <li>• Explain how to identify causes of interpersonal conflict at workplace.</li> <li>• Describe ways/methods to resolve interpersonal conflict.</li> <li>• Explain the importance of gender equality.</li> <li>• Explain the importance of supporting and respecting colleagues and other members of the organisation without any bias based on gender, culture, disability etc.</li> <li>• Explain the importance of gender neutral behaviour while interacting with others.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate ways to handle interpersonal conflict at the workplace.</li> <li>• Demonstrate the ways of developing suitable rapport with other team members.</li> <li>• Demonstrate how to respond during emergencies.</li> <li>• Demonstrate how to communicate in a manner that is respectful of gender, culture and disability.</li> </ul>
<ul style="list-style-type: none"> <li>• Classroom Aids:</li> </ul>	
<ul style="list-style-type: none"> <li>• White / Black board and Projector</li> <li>• Digital Presentation</li> <li>• Computer/Laptop</li> <li>• Public Addressing System</li> </ul>	
<b>Tools, Equipment and Other Requirements</b>	
<ul style="list-style-type: none"> <li>• Dummy team</li> </ul>	

## Module 7: Health, safety and security

*Mapped to HYC/N6104 v 2.0*

### Terminal Outcomes:

- Identify the possible cause of accident and hazards
- Explain how to maintain safety and healthy environment
- Demonstrate how to use PPE kit at workplace

<b>Duration: 20:00</b>	<b>Duration: 36:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain importance of using PPE like face mask, hand gloves, goggle, protective clothing/equipment, etc. at workplace.</li> <li>• Explain how to monitor the health and safety of self and other team members.</li> <li>• Explain the hazard and risk associated with mishandling various tools and equipment.</li> <li>• Discuss safe work practices as per the company's guidelines and procedures.</li> <li>• Explain the good housekeeping practices to prevent any hazard.</li> <li>• Explain how to record and report all incidents, damages or injury.</li> <li>• Explain importance of personal and workplace hygiene.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to appropriately wear and discard PPE kit.</li> <li>• Demonstrate how to respond promptly and appropriately to an accident.</li> <li>• Demonstrate how to administer first aid.</li> <li>• Demonstrate various rescue techniques.</li> <li>• Demonstrate how to use fire extinguishers.</li> <li>• Show the correct way to lift heavy objects.</li> </ul>
<b>Classroom Aids:</b>	
<ul style="list-style-type: none"> <li>• White / Black board and Projector</li> <li>• Digital Presentation</li> <li>• Computer/Laptop</li> <li>• Public Addressing System</li> </ul>	
<b>Tools, Equipment and Other Requirements</b>	
<ul style="list-style-type: none"> <li>• First aid kit</li> <li>• Dummy for first aid treatment</li> <li>• Housekeeping kit</li> <li>• Personal Protective Equipment (PPE)</li> </ul>	



## Annexure

### Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI/ DIPLOMA/DEGREE	-	2	-	1	-	3 years for ITI, 2 year - Diploma, 1.5 year-for Degree

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: "Industrial Welder (Oil & Gas)" mapped to QP: "HYC/Q9101". Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "MEP/Q2601". 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/ DIPLOMA/DEGREE	-	2	-	1	-	3 years for ITI, 2 year - Diploma, 1.5 year-for Degree

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role: "Industrial Welder (Oil & Gas)" mapped to QP: "HYC/Q9101". Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: "Assessor", mapped to the Qualification Pack: "MEP/Q2701". Minimum accepted score 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 following stages:

- 1 Cluster Mapping and Mobilization of the candidates
- 2 Counselling & Pre-Screening
- 4 Candidate registration, batch creation and enrolment
- 5 conduction 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 70% 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: 70%**

## References

## Glossary

Term	Description
<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
<b>Occupational Standards(OS)</b>	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.
<b>Performance Criteria(PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards(NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack(QP)</b>	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.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Scope</b>	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.
<b>Knowledge and Understanding(KU)</b>	Knowledge and Understanding (KU) are statements that together specify the technical, generic, professional and organizational specific knowledge that an individual need in order to perform to the required standard.
<b>Organizational Context</b>	Organizational context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/Generic Skills(GS)</b>	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.

<b>Electives</b>	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.
<b>Options</b>	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
DMA	Direct Marketing Agent
PNG	Piped Natural Gas
FAQ	Frequently Asked Questions
BP	Business Partner
KYC	Know Your Consumer
FAB	Feature Advantage Benefit