



Model Curriculum

QP Name: Fire Safety Technician (Oil & Gas)

QP Code: HYC/Q3601

QP Version: 2.0

NSQF Level: 4

Model Curriculum Version: 2.0

Hydrocarbon Sector Skill Council
OIDB Bhawan, Block G+3, 2nd Floor, Plot No.2, Vikas Marg,
Sector – 73, Noida, Uttar Pradesh -201301

Table of Contents

Training Parameters.....	3
Program Overview	4
Training Outcomes.....	4
Compulsory Modules.....	4
Module Details.....	5
Module 1: Introduction to Hydrocarbon Sector	5
Module 2: Prepare workplace in line with fire safety rules	7
Module 3: Perform fire safety operation at workplace.....	10
Module 4: Working effectively in a team	18
Annexure.....	20
Trainer Requirements	20
Assessor Requirements.....	21
Assessment Strategy.....	22
References	24
Glossary.....	24
Acronyms and Abbreviations.....	26

Training Parameters

Sector	Hydrocarbon
Sub-Sector	MIDSTREAM
Occupation	MANAGEMENT OF HEALTH, SAFETY AND ENVIRONMENT (HSE)
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO/2015-3119.0800
Minimum Educational Qualification and Experience	10th Grade Pass with 2 years of relevant experience OR 12th Grade Pass OR 10th Grade Pass plus 2-year of National Trade Certificate (NTC) OR Completed 2nd year of the 3-year Diploma (after 10th) and pursuing regular Diploma
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 years
Last Reviewed On	17-11-2022
Next Review Date	3 years from the last review date
NSQC Approval Date	17-11-2022
QP Version	2.0
Model Curriculum Creation Date	
Model Curriculum Valid Up to Date	
Model Curriculum Version	2.0
Minimum Duration of the Course	-
Maximum Duration of the Course	450 Hours

Program Overview

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

Training Outcomes

After completing this program, participants will be able to:

- Carry out safety procedural checks as per safety rules and procedures specific to oil and gas installations and conduct safety demonstration
- Perform firefighting operations and undertake fire safety measures to ensure safety of workers and communities surrounding the oil and gas installation area
- Work effectively with colleagues, superiors, members of own work group, people in other work groups within or outside the organization

Compulsory Modules

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

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration	Total Duration
BRIDGE MODULE	06:00	Nil	Nil	06:00
Module 1: Introduction to Hydrocarbon sector	06:00	Nil	Nil	06:00
HYC/N3601 Prepare workplace in line with fire safety rules NOS Version – 3.0 NSQF Level - 4	75:00	120:00	15:00	210:00
Module 2: Prepare workplace in line with fire safety rules	75:00	120:00	15:00	210:00
HYC/N3602 Perform fire safety operation at workplace NOS Version No. – 3.0 NSQF Level – 4	24:00	90:00	15:00	129:00
Module 3: Perform fire safety operation at workplace	24:00	90:00	15:00	129:00
HYC/N 9301 – Work effectively in a team NOS Version No. – 3.0 NSQF Level – 4	15:00	30:00	00:00	45:00
Module 4: Effective working in a team	15:00	30:00	00:00	45:00
DGT/VSQ/N0102 - Employability Skills NOS Version No. – 1.0	-	-	-	60:00
Total Duration	120:00	240:00	30:00	450:00

Module Details

Module 1: Introduction to Hydrocarbon Sector and the job role of Fire Safety Technician

Bridge Module

Terminal Outcomes:

- Discuss the Hydrocarbon Sector
- Discuss the job of a Fire Safety Technician

Duration: 06:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe oil and gas sector and its sub-sectors • List the three major segments in the hydrocarbon sector • State the functions of upstream, midstream and downstream segments • List the roles and responsibilities of a fire safety technician 	
Classroom Aids:	
<ul style="list-style-type: none"> • White / Black board and Projector • Digital Presentation • Computer/Laptop • Public Addressing System 	
Tools, Equipment and Other Requirements	
<ul style="list-style-type: none"> • PPE Kit, pipe dies, power threading and cutting machines, hammers, chisels, wrenches 	

Module 2: Prepare workplace in line with fire safety rule

Mapped to HYC/ N3601 v 3.0

Terminal Outcomes:

- Carryout Safety Procedures as per safety rules
- Manage Safety Demonstration
- Reporting

Duration: 75:00	Duration: 120:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the Oil Industry Safety Directorate (OISD) standards related to firefighting equipment and appliances in oil and gas industry • Describe the policies related to occupational health and safety • Describe how to prepare the checklist for monitoring safety regulations specific to oil and gas installations • Describe work permit system like hot work, confined spaced job work entry etc. • Describe the effects of oil spills or gas leakage • Explain impact on environment due to fire incidents caused by oil spills or gas leakage • List fire safety equipment and safety signage and their usage • List issues concerning fire safety at work • Explain fire science related to oil and gas industry covering flammability limits, explosive hazards, and other hazards related to health, safety and environment • Describe how to prepare and maintain the daily inspection and incident's reports and the importance of maintaining all recordsefficiently • Explain how to prepare record of all near- miss incidents and their proper reporting 	<ul style="list-style-type: none"> • Demonstrate how to install, maintain and use fire safety equipment • Demonstrate the procedure to conduct daily inspection of fire safety equipment • Describe how to coordinate with operation and maintenance team for conducting fire safety awareness programs and safety drills • Demonstrate rescue techniques during fire incidents • Demonstrate how to respond promptly and appropriately during fire incident • Demonstrate fire safety equipment usage in emergency situations • Demonstrate how to administer first aid to victims in case of emergencies • Demonstrate how to ensure readiness of fire safety equipment for any type of emergency situations
Classroom Aids:	
<ul style="list-style-type: none"> • White / Black board and Projector • Digital Presentation • Computer/Laptop • Public Addressing System 	

Tools, Equipment and Other Requirements

<ul style="list-style-type: none"> • Fire safety equipment • Portable fire pump • Sprinkler systems • Smoke control systems • Fire Alarm • Fire trays • Various types of fire extinguisher • Fire hose 	<ul style="list-style-type: none"> • Safety shirt • Safety trouser • Safety jacket 	
--	---	--

Module 3: Perform Fire Safety Operations at work place

Mapped to HYC/N3602 v 3.0

Terminal Outcomes:

- Usage of Firefighting equipment
- Fire Safety Measures
- Reporting

Duration: 24:00	Duration: 90:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe how to attend a fire-related emergency situation • List fire safety tools and equipment used in firefighting and describe how to use them in case of fire • Explain the hazards associated in handling various firefighting equipment • Describe fixed firefighting installation in oil and gas industry and their methods of operations • Demonstrate the proper use of PPE in firefighting • Explain the different classes of fires and their ignition sources • Describe the various fire extinguishing agents and systems • Identify the types of fire extinguisher i.e. Fire water system, foam system, carbon dioxide system, dry chemical extinguishing system and mobile firefighting equipment etc 	<ul style="list-style-type: none"> • Describe how to attend a fire-related emergency situation • List fire safety tools and equipment used in firefighting and describe how to use them in case of fire • Explain the hazards associated in handling various firefighting equipment • Describe fixed firefighting installation in oil and gas industry and their methods of operations • Demonstrate the proper use of PPE in firefighting • Explain the different classes of fires and their ignition sources • Describe the various fire extinguishing agents and systems • Identify the types of fire extinguisher i.e. Fire water system, foam system, carbon dioxide system, dry chemical extinguishing system and mobile firefighting equipment etc. • Demonstrate selection of proper fire extinguisher in accordance with the type of fire • Demonstrate how to operate fire extinguisher with appropriate method and techniques to extinguish fire, vapor dispersal/vapor suppression etc. • Describe how to report authorities in case of emergency situations • Explain various safety practices needs to be followed during firefighting operations • Demonstrate fire safety measures in case of fire incident due to oil spills or gas leakage

	<ul style="list-style-type: none"> • Demonstrate how to check various type of safety valves in case of fire incidents in oil and gas installations • Explain how to prepare records of all fire related incidents
Classroom Aids:	
<ul style="list-style-type: none"> • White / Black board and Projector • Digital Presentation • Computer/Laptop • Public Addressing System 	
Tools, Equipment and Other Requirements	
<ul style="list-style-type: none"> • Firefighting equipment • Breathing apparatus (Negative & Gas cylinders • Various types of gas detectors • Water fire extinguisher • Stored pressure fire extinguisher • Chemical foam type fire extinguisher • Mechanical foam type fire extinguisher • BC type • ABC type • Extension ladder • All type of branches and nozzles • Fire Hoses • PPE • First aid box • Safety shoe • Safety helmet • Safety glasses • Hand gloves • Safety jacket 	

Module 4: Effective working in a team

Mapped to HYC/N9301 v 3.0

Terminal Outcomes:

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

Duration: 15:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe methods to communicate clearly with the supervisor and reporting authorities. • Explain how to share information in line with organisational requirements. • Explain the organisation’s policies and procedures. • Explain how to identify causes of interpersonal conflict at workplace. • Describe ways/methods to resolve interpersonal conflict. • Explain the importance of gender equality. • Explain the importance of supporting and respecting colleagues and other members of the organisation without any bias based on gender, culture, disability etc. • Explain the importance of gender neutral behaviour while interacting with others. 	<ul style="list-style-type: none"> • Demonstrate ways to handle interpersonal conflict at the workplace. • Demonstrate the ways of developing suitable rapport with other team members. • Demonstrate how to respond during emergencies. • Demonstrate how to communicate in a manner that is respectful of gender, culture and disability.
<ul style="list-style-type: none"> • Classroom Aids: 	
<ul style="list-style-type: none"> • White / Black board and Projector • Digital Presentation • Computer/Laptop • Public Addressing System 	
Tools, Equipment and Other Requirements	
<ul style="list-style-type: none"> • Dummy team 	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI (two years after class 10th)	-	3		1	-	Minimum 3-years of total experience in relevant job role Minimum of 1-year training experience

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: "Fire Safety Technician" mapped to QP: "HYC/Q3601". 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 (two years after class 10 th)	-	2		1	-	Minimum 3-years of total experience in relevant job role Minimum of 1-year training experience

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Fire Safety Technician mapped to QP: “HYC/Q3601”. Minimum accepted score is 80%	Recommended that the Assesor is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q2601”. 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 empaneled 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 empaneled 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 require 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 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 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
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 organization.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements that together specify the technical, generic, professional and organizational specific knowledge that an individual need in order to perform to the required standard.
Organizational Context	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.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/Generic Skills(GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication-related skills that are applicable to most job roles.

Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.

Acronyms and Abbreviations

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
KYC	Know Your Consumer
FAB	Feature Advantage Benefit