NSQF QUALIFICATION FILE GUIDANCE

Version 6: Draft of 08 March 2016

NSDA Reference
To be added by NSDA

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Hydrocarbon Sector Skill Council
0120-2594659, +91-9911746601

Name and address of submitting body:
Hydrocarbon Sector Skill Council
OIDB Bhawan, 2nd Floor, Plot No.2, Sector-73
Noida-201301 0120

Name and contact details of individual dealing with the submission

Name: Vishal Sharma
Position in the organisation: Consultant
Address if different from above: Same as above
Tel number(s): 0120-2594659
E-mail address: hsscindia.2016@gmail.com

List of documents submitted in support of the Qualifications File

1. Hydrocarbon Sector Profile
2. Qualification Pack- Industrial Electrician (Oil & Gas)
3. Occupational Map – Hydrocarbon Sector
4. MoM held at MoPNG on 19.01.2017 on Skill Development and Apprenticeship programme, wherein it was decided that Oil PSU's will develop the QP for high priority trades
5. List of the companies participated in the development of QP
6. Composition of Task Force committee members
7. Industry Validation/Communication

SUMMARY

<table>
<tr><td>Qualification Title</td><td>Industrial Electrician (Oil & Gas)</td></tr>
<tr><td>Qualification Code</td><td>HYC/Q 6101</td></tr>
<tr><td>Nature and purpose of the qualification</td><td>Learners after attaining the certificate of Industrial Electrician (Oil & Gas) will be competent to perform the job of installation, maintenance and performs repair work of electrical, electronic, and electrical wiring for well-functioning in Petroleum Refineries, while following standard safety procedures</td></tr>
<tr><td>Body/bodies which will award the qualification</td><td>Hydrocarbon Sector Skill Council</td></tr>
<tr><td>Body which will accredit providers to offer courses leading to the qualification</td><td>Hydrocarbon Sector Skill Council</td></tr>
<tr><td>Body/bodies which will carry out assessment of learners</td><td>Body/Bodies empanelled by Hydrocarbon Sector Skill Council will carry out the assessment of learners</td></tr>
<tr><td>Occupation(s) to which the qualification gives access</td><td>This Qualification give the access to learners in the Petroleum Refineries as Industrial Electrician</td></tr>
<tr><td>Licensing requirements</td><td>N/A</td></tr>
<tr><td>Level of the qualification in the NSQF</td><td>Level 4</td></tr>
<tr><td>Anticipated volume of training/learning required to complete the qualification</td><td>1000 Hours</td></tr>
<tr><td>Entry requirements and/or recommendations</td><td>18 years</td></tr>
<tr><td>Progression from the qualification</td><td>An individual may progress to the Supervisory Position</td></tr>
<tr><td>Planned arrangements for the Recognition of Prior learning (RPL)</td><td>Yes</td></tr>
<tr><td>International comparability where known</td><td>Study for the international comparability is yet to be done, however during desk research, qualification is mapped with the Qualification of Canada which is as follows:
<table>
<tr><td>NOC Title</td><td>NOC Title and Code</td></tr>
<tr><td>Industrial electricians</td><td>(7242)</td></tr>
</table></td></tr>
<tr><td>Date of planned review of the qualification.</td><td>2 years after approval of the Qualification</td></tr>
<tr><td colspan="2">Formal structure of the qualification</td></tr>
</table>

Title of component and identification code.	**Mandatory/ Optional**	**Estimated size (learning hours)**	**Level**
HYC/N 6101 Job requirements and related processes	M	1000 Hours	4
HYC/N 6102 Industrial Electrical wiring	M		4
HYC/N 6103 Work effectively in a team	M		4
HYC/N 6104 Follow health, safety and security procedures	M		4

Please attach any document giving further detail about the structure of the qualification – eg a Curriculum Document or a Qualification Pack.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information. Qualification Pack – Industrial Electrician (Oil & Gas)

SECTION 1
ASSESSMENT

Body/Bodies which will carry out assessment:

Bodies/Bodies empanelled by Hydrocarbon Sector Skill Council for conducting the assessment will carry out the assessment of learners

How will RPL assessment be managed and who will carry it out?

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 the assessment process and certification to awarded to the candidates who successfully clears the assessment. The tentative process of RPL would include the flowing stages:

1 Cluster Mapping and Mobilisation of the candidates
2 Counselling & Pre-Screening
4 Enrolment/Batch formation
5 Orientation, Impartation of minimum hour training program and Feedback
7 Assessment by HSSC empanelled body
8 Evaluation of Assessment Result
9 Issuance of the Certificate to successful candidates

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.

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 practical demonstration of skills and knowledge based on the performance criteria.

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, True/False Statement, audio-video question etc.

The Question Bank will be developed by Subject Matter Experts (SME) of the Oil & Gas sector and these Questions again be vetted by the Industry Experts, the assessments are designed so as to assess maximum parts during the practical hands on work.

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 on his/her practical knowledge on respective Qualification.

To ensure the maximum possible consistency in the assessment by different assessors at different locations, the assessors are to be elaborated about the stages involved in the assessment and the

assessor role in the assessment process, the following also elaborated to the assessor 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 made to undergo induction of Assessment Framework, competency based assessments etc.

Assessment strategy:

- For each Qualification Pack assessment criteria has developed, which describe the weightage for each NOS/Performance criteria (PC) and assigned marks based for each NOS separately for theoretical and practical skill
- The question bank will be developed by the subject matter expert 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 then after the result will be process for the generation of the certificates of passed candidates.
- Assessments can be conducted in the regional languages in case of any specific requirement form the concerned Training Provider.
- For ensuring the impartial assessment it will be ensured that the Assessment Bodies (AB) will not involve in training delivery.

Please attach any documents giving further information about assessment and/or RPL.
Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

ASSESSMENT EVIDENCE

Complete a grid for each component as listed in "Formal structure of the the qualification" in the Summary.

NOTE: this grid can be replaced by any part of the qualification documentation which shows the same information – ie Learning Outcomes to be assessed, assessment criteria and the means of assessment.

Title of Component:

Job Role: Industrial Electrician (Oil & Gas)
Qualification Pack: HYC/Q 6101
Sector Skill Council: Hydrocarbon Sector Skill Council

Guidelines for Assessment

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 proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on these criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 60% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Outcomes to be assessed		**Assessment criteria for the outcome**				
HYC/N 6101 Job requirements and related processes	Work related	PC1.Understand Health and safety legislation, obligations and documentation	45	1	1	0
		PC2.Diagnostic approaches to problem solving		1	0.5	0.5
		PC3. Diligently follow electrical safety procedures		1	0.5	0.5
		PC4. Follow the situations when personal protective equipment must be used		1	0.5	0.5
		PC5. Identify and use the appropriate personal protective equipment including safety footwear, ear and eye protection		1	0.5	0.5
		PC6. Introduce related trades to support customer requirements		1	0.5	0.5
		PC7. The common types of problem which can occur within the work process		1	0.5	0.5
		PC8.The importance of keeping a tidy work area		1	0.5	0.5
		PC9.The principles of working safely with electricity		1	0.5	0.5
		PC10. Trends and developments in the industry including new technology,		1	0.5	0.5

		PC11. Work efficiently and check progress and outcomes regularly		1	0.5	0.5
	Understand the basics drawings	PC12. Able to understand clearly the basics of Engineering drawing and how to make simple drawing.		1	0.5	0.5
		PC13. Able to draft and illustrate engineering drawing.		1	0.5	0.5
		PC14. Use Engineering drawing- Equipment, mini drafter etc		1	0.5	0.5
		PC15. Ability to prepare drawing as per standard.		1	0.5	0.5
		PC16. Understand Projections		1	0.5	0.5
		PC17.Understand Dimensioning and Tolerance and its importance		1	0.5	0.5
		PC18.Draw ,Read, interpret and revise drawings and documentation including:		1	0.5	0.5
		PC19.Make wiring diagram of DOL starter, star delta starter		1	0.5	0.5
		PC20.Able to make dimensional drawing of D.C machine parts		1	0.5	0.5
		PC21.Draw sketches of the following as per BIS specifications		1	0.5	0.5
		PC22.Generate single line diagram of distribution substation		1	0.5	0.5
		PC23.Ability to use the computer to generate CAD for Electrical Drawing		1	0.5	0.5
	Mathematical skills with respect to electrician	PC24. Understand basic mathematical calculation.		1	0.5	0.5
		PC25. Select and apply basic Calculation of area and volume		1	0.5	0.5
		PC26.use appropriate mathematical concepts and skills to solve problems in Fractions, Decimals, Percentage and ratio		1	0.5	0.5
		PC27.Develop ability to perform basics of Algebra and understand Simple algebraic equations and problem		1	0.5	0.5
		PC28.Acquire the techniques of solving simple Trigonometric problems		1	0.5	0.5
	Knowledge on different types of materials used	PC29.Ability to apply knowledge of Metals and non-metals		1	0.5	0.5
		PC30.Ability to identify Ferrous and non-ferrous metals		1	0.5	0.5
		PC31.Ability to integrate Steel - Properties and applications of the following Carbon Steels and Alloy Steels		1	0.5	0.5

		PC33.Explain the differences in properties of different materials, including metals, alloys, ceramics, polymers and composites		1	0.5	0.5
	Knowledge on basic workshop practice and tools used	PC 34.To be able to work independently or as part of a team in the following areas		1	0.5	0.5
		PC 35.Understand the task required and plan ahead what steps must be taken to achieve the outcome		1	0.5	0.5
		PC 36.Carry out marking on the materials as per the drawing using		1	0.5	0.5
		PC 37.Will be able to do the drilling		1	0.5	0.5
		PC 38.Set up and adjust metalworking tools and do threading		1	0.5	0.5
		PC 39.Set up and/or operate hand tools		1	0.5	0.5
		PC 40.Correctly use and maintain the tools		1	0.5	0.5
		PC 41.Measure and mark materials as per the drawing and Check accuracy and quality of finished parts		1	0.5	0.5
		PC 42. Knowledge and ability to use different hand tools and power tools in plumbing and appreciate the advantage of correct tools used.		1	0.5	0.5
	Knowledge on basic electronics	PC 43.Under the basics of Fundamentals of electronics and also to select and install		1	0.5	0.5
		PC 44.What do you mean Active & Passive components and where are they used		1	0.5	0.5
		PC 45.Different application and use of electronics devices ,Diode- Rectifier, Logic gate wave shaping circuits, Transistor – amplifier, switch, impedance matching, Oscillator circuit, UJT- relaxation oscillator.		1	0.5	0.5
		PC 46. Knowledge of the Basics of digital electronics		1	0.5	0.5
			total	45	23	22
HYC/N 6102 Industrial Electrical wiring	Basics of Electricity	PC1.Understand the principle of electricity	100	2	2	0
		PC1.Will be able to define ○ Voltage, ○ resistor, ○ current, power		1	0.5	0.5
		PC1.The importance of basic laws – Ohms law		1	0.5	0.5
		PC1.The principles D.C Circuits (Source		2	1	1

		PC1.Understand the basics of Cell and Battery		2	1	1
		PC1.The correct operation of the electrical installation in accordance with the planned specification		1	0.5	0.5
	SINGLE PHASE AND POLY PHASE SYSTEM	PC2.Able to install of various electrical power supplies, such as single phase, three-phase, direct current and low voltage.		2	1	1
		PC2.Follow the terminologies like ○ amplitude, ○ phase angle, ○ cycle, ○ frequency, ○ power ○ power factor		1	0.5	0.5
		PC2.Read , understand and interpret drawings and documentation including ○ 1Ø System through RLC circuits with phase diagram ○ 3Ø System- generation of 3Ø system ○ 3 Ø type 1.Star, 2.Delta		2	1	1
		PC2.What is Conversion of Star to Delta And Conversion of Delta to Star		1	0.5	0.5
	INDIAN ELECTRICAL RULES (IE Rules)	PC3.Understand Indian Electrical standard rules.		2	1	1
		PC3.Awareness of Rules and Regulation of Electrical Inspectorate other standardize authority		1	0.5	0.5
		PC3.Industrial regulations and standards applicable to different types of installations		1	0.5	0.5
	DIFFERENT TYPES OF WIRING	PC5.Diligently follow electrical safety procedures		2	1	1
		PC5.Identify and use the appropriate personal protective equipment including safety footwear, ear and eye protection		1	0.5	0.5
		PC5.Select, use, clean, maintain and store all tools and equipment safely		1	0.5	0.5
		PC5.Read, interpret and revise drawings and documentation including: • Layout and circuit drawings • Follow written instructions		2	1	1
		PC5.Plan installation work using drawings and documentation provided		1	0.5	0.5
		PC5.Ducting and wiring systems for commercial, domestic, residential, godown, agricultural and industrial use and when and where to use a specific ducting and/or wiring		1	0.5	0.5

		system				
		PC5.The range of electrical switchboards used for commercial, domestic, residential, agricultural and industrial uses and when and where to use a specific switchboard system including staircase wiring and master control wiring		1	0.5	0.5
		PC5.Types of electric lighting and heating systems for commercial, domestic residential and industrial use		1	0.5	0.5
		PC5.Understand different control devices and socket outlets used for commercial, domestic, residential, agricultural and industrial uses		1	0.5	0.5
		PC5.Install structured cabling systems including: computer network cabling, fire/burglar alarm), control and monitoring, access control closed circuit television.		1	0.5	0.5
	INDUSTRIAL WIRING	PC6.Plan installation work using drawings and documentation provided Trends and developments in the industry including new technology, standards and working methods.		1	0.5	0.5
		PC6.Range of materials and installation techniques to be used in different environments		1	0.5	0.5
		PC6.Different types of standards, drawings, installation descriptions and manuals		1	0.5	0.5
		PC6.Ability to use • Direct ON Line start (Both power line and control) • Star – Delta Stator		2	1	1
	ILLUMINATION SPECIFICATION APPLICATION OF DIFFERENT ELEMENTS OF CIRCUITS	PC7.Different types of installations for ○ Fluorescent Light ○ Metal Halide ○ High Pressure Mercury Vapour ○ High Pressure Sodium Vapour ○ LED ○ Flame Proof Lighting Fixtures		2	1	1
	TRANSFORMER CARE AND MAINTENANC	PC8.Select and install equipment as per drawings and documentation provided		2	1	1
		PC8.Understand the following elements ○ Parts of transformer		3	1.5	1.5

	ES	○ Working principle and construction ○ Types of transformer and its use (Single phase & Poly phase) ○ Spatial Transformer (Auto, CT, PT) construction and its application ○ Maintenance of transformer oil testing and filtration ○ Inspection of silica gel, breather, conservator, temperature ○ Maintenance of HT and LT Transformers yards				
	MOTOR	PC9.Connect A.C Motor as per instructions provided to include: structured cabling systems as per manufacturer's instructions and current industrial standards and regulations		3	1.5	1.5
		PC9Understand the working A.C Motor and its Construction		2	1	1
		PC9How the classification of A.C motor (Synchronous and Asynchronous) is done		1	0.5	0.5
		PC9The working and type of single phase motor and its working and poly phase (3 phase) and its working		1	0.5	0.5
		PC9Set-up equipment to Speed control and torque control of AC motor		1	0.5	0.5
		PC9Advantage of AC drive system		2	1	1
		PC9Ability for assembling and replacing of bearing with proper equipment's, referring to the standard catalogue.		1	0.5	0.5
		PC9Troubleshoot and take general care maintenance of AC motor		1	0.5	0.5
	D.C Motor	PC10.Different types of DC motors and the following details ○ Motor construction and working ○ Type of DC motor ○ Torque equation of DC motor ○ Characteristics of DC motor ○ Application of DC motor ○ Speed control of DC motor ○ DC drive system ○ General care maintenance of DC motor		2	1	1
		PC11.The importance of Special Electrical Motor in relation to petro chemical industry ○ Universal motor		2	1	1

		○ Servo motor ○ Stepper motor ○ Brush Less A.C motor and Brush Less D.C motor Flame proof motors, Specification, Application, Care & maintenance				
	GENERATOR	PC12. Install the required electrical supply systems including transformers, generators, circuit breakers, isolators, bus bars, measuring equipment for voltage, current, power, energy, frequency, RPM, wiring, fuses, earthing, switchboard, control panels, relays etc. as per the required specifications.		2	1	1
		PC12Conduct a test process to ensure the performance of installed electrical equipment as per the defined specifications		2	1	1
		PC12 Understand the different elements of generator as below: ○ Construction and working of generator ○ Characteristics of generator ○ Type of DC generator ○ EMF equation ○ Application of DC generator ○ Maintenance with ABC type ○ Alternator construction & characteristics ○ Types, Application & Maintenance of alternator ○ Diesel Generator Care & Maintenance ○ Basics of engine ○ Basics of fuel system, Basics of air system, Basics of lubrication system, Basics of cooling system ○ DG control panel. ○ General maintenance		2	1	1
	STUDY OF SINGLE LINE DIAGRAM OF ELECTRICAL WIRING SYSTEM	PC13.Read, interpret and study drawings and documentation including: • Layout and circuit drawings • Follow written instructions		3	1.5	1.5
		PC13.Plan installation work using drawings and documentation provided		1	0.5	0.5
		PC13.Understand and read the Symbol of electrical parts		1	0.5	0.5
		PC13.Ability to connect and track of electrical diagram		1	0.5	0.5
		PC13.Able to properly layout structure of substation and work instruction		1	0.5	0.5
	CIRCUIT BREAKER/ SWITCH GEAR	PC14.Install electrical switchboards onto a surface in a secure way and assemble switchboard apparatus in a switchboard as per		1	0.5	0.5

	CARE AND MAINTENANCE	layout drawings				
		PC14.Test installations before energizing and check for proper connection PC14.Test installations when energized by checking complete function on all equipment PC14.installed to ensure correct operation of new installation as per instructions		2	1	1
		PC14.Understand the working of the following elements • Definition and use of circuit breaker • Type of switch • SPST, SPDT, DPST, DPDT, Toggle switch, pushbutton switch, level actuator, limit switch, selector switch, flame proof switch • Types of circuit breaker ○ MCB ○ MCCB ○ ELCB ○ Air circuit breaker (ACB) ○ SF6 ○ Vacuum Breaker (VCB) ○ Flame Proof Switch gear ○ Specification, Application, Care & maintenance.		4	2	2
	CABLE AND CABLE JOINTS	PC15.Identify cable types and sizes Types of cables, specification current rating, application		2	1	1
		PC15.Identify sub-circuits and determine cable for connection of security control panel.		1	0.5	0.5
		PC15.Install and terminate cable to connect security control panel to existing sub-circuit.		1	0.5	0.5
		PC15.Knowledge of Flame proof cables Specification, Application, Care & maintenance.		2	1	1
		PC15.Inspect, test, rectify abnormal conditions, and commission connection of circuit		1	0.5	0.5
		PC15.The ability to different joints in the cable ○ Straight through, long routes and repaired section ○ Branch Y joints – for branch of a sector ○ T- Joint – for branching of a sector ○ Transition Joints – Special joint between two different types of cable		3	1.5	1.5
		PC15. Troubleshoot electrical installations and		1	0.5	0.5

		identify faults in cable				
	EARTHING SYSTEM	PC16.Understand earth attachment positions on conductors, plant and equipment and the local earth are described in terms of earthing terminals, tail clamp attachment points, clamp rating and compatibility.		3	1.5	1.5
		PC16.Check earting in terms of portable earths, voltage rating, fault level, and conductor rating.		1	0.5	0.5
		PC16.Ability to do earthing compliance requirements are described in terms of acceptable surface condition and cleanliness; and clamps, leads, fittings, sticks and poles, and terminations.		1	0.5	0.5
		PC16. Understand the importance of ○ Importance of earthing in electrical and hazard system ○ Types of earthing system desired value ○ Measurement of earth resistance ○ Earthing in Transformer ○ Earthing in substation		2	1	1
	POWER SYSTEM AND MEASUREMENT	PC17.Explain the type and working of different stand by power systems like ○ Basics of UPS, online and offline ○ Basics of inverter and its controls ○ Basics of cells and battery and rating ○ Care and maintenance of battery banks and its controls		2	1	1
		PC18. Ability to use different measuring instruments and their calibration ○ Digital multimeter and adaptor ○ Power meter ○ Phase sequence meter ○ Clamp on multi meter ○ Continuity tester ○ Ground Fault tester ○ Insulation tester (meger) Versatile Data logger Ability to handle the following equipment's, their function, care and calibration ○ Study of CRO ○ Study of Tacho meter and speed measurement using proximity ○ Study of vibration analyser ○ Study of frequency analyser ○ Study of phase sequence analyser ○ Study of Temperature controller ○ Study of pressure measurement		2	1	1

			total	100	51	49
HYC/N 6104 Use basic, health, safety and security procedures	**Health and safety**	PC1.use protective clothing/equipment for specific tasks and work Conditions	100	2	1	1
		PC2.state the name and location of people responsible for health and safety in the workplace		2	1	1
		PC3.state the names and location of documents that refer to health and safety in the workplace		2	1	1
		PC4.identify job-site hazardous work and state possible causes of risk or accident in the workplace		2	1	1
		PC5.carry out safe working practices while dealing with hazards to ensure the safety of self and others		2	1	1
		PC6.state methods of accident prevention in the work environment of the job role **Methods of accident prevention**: training in health and safety procedures; using health and safety procedures; use of equipment and working practices (such as safe carrying procedures); safety notices, advice; instruction from colleagues and supervisors		3	1	2
		PC7.state location of general health and safety equipment in the workplace		2	1	1
		PC8.inspect for faults, set up and safely use steps and ladders in general use		2	1	1
		PC9.work safely in and around trenches, elevated places and confined areas		2	1	1
		PC10. lift heavy objects safely using correct procedures		2	1	1
		PC11. apply good housekeeping practices		2	1	1
		PC12. identify common hazard signs displayed in various areas		2	1	1
		PC13.retrieve and/or point out documents that refer to health and safety in the workplace		2	1	1

	Fire safety	PC14. use the various appropriate fire extinguishers on different types of fires correctly		3	1	2
		PC15. demonstrate rescue techniques applied during fire hazard		3	1	2
		PC16. demonstrate good housekeeping in order to prevent fire hazards		3	1	2
		PC17. demonstrate the correct use of a fire extinguisher		3	1	2
	Safety systems	PC18. List issue concerning the safety and familiar in your work style		3	1	2
		PC19. Empower to address the unsafe condition in your work place or to stop the unsafe behaviour		3	1	2
		PC20. Record all miss incidents ,damages, illness or injury		2	1	1
		PC21. Comprehend the applicable laws, regulations and codes as per standard		3	1	2
		PC22. Promote and maintain a positive safety culture		2	1	1
		PC23. Apply and appraise the use and storage of hazardous substance and their safety		3	1	2
		PC24. Assess the threats and to protect from the threats		2	1	1
		PC25. Awareness of own safety and safety of others		3	1	2
		PC26. Bring the concern and report the HSE concern		2	1	1
		PC27. Report all incident to the supervisor		3	1	2
		PC28. Identifies and describes the property of different petroleum products.		2	1	1
		PC29. Operates and handle spills and respond to the spills		3	1	2
	Emergencies ,rescue and first-aid	PC30. demonstrate how to free a person from electrocution		2	1	1
		PC31. Administer appropriate first aid to victims were required eg. in case of bleeding,		3	1	2

	procedures	burns, choking, electric shock, poisoning etc.				
		PC32. demonstrate basic techniques of bandaging		2	1	1
		PC33. respond promptly and appropriately to an accident situation		3	1	2
		PC34. perform and organize loss minimization or rescue activity during an accident in real or simulated environments		3	1	2
		PC35. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases		3	1	2
		PC36. demonstrate the artificial respiration and the CPR Process		2	1	1
		PC37. participate in emergency procedures		2	1	1
		PC38. complete a written accident/incident report or dictate a report to another person, and send report to person responsible **Incident Report includes details of**: name, date/time of incident, date/time of report, location, environment conditions, persons involved, sequence of events, injuries sustained, damage sustained, actions taken, witnesses, supervisor/manager notified		5	2	3
		PC39. demonstrate correct method to move injured people and others during an emergency		2	1	1
		TOTAL		100	41	59
HYC/N 6103 Work effectively in a team	**Compulsory**	PC1. maintain clear communication with colleagues	50	5	2	3
		PC2. work with colleagues as a team		5	2	3
		PC3. pass on information to in line with organisational requirements		6	2	4
		PC4. work in ways that show respect for colleagues		5	2	3
		PC5. carry out commitments made to colleagues		6	2	4

		PC6. let colleagues know in good time if cannot carry out commitments, explaining the reasons		6	2	4
		PC7. identify problems in working with colleagues and take the initiative to solve these problems		5	2	3
		PC8. follow the organisation's policies and procedures for working with colleagues		6	3	3
		PC9. ability to share resources with other members as per priority of tasks		6	3	3
		TOTAL		50	21	29

Means of assessment 1

The assessment comprises of:

- Theory/Knowledge test
- Practical/Demonstration Test

Means of assessment 2

Add boxes as required.

Pass/Fail

As per the NSDC, SSC guidelines, the passing percentage will be on aggregate 60%.

SECTION 2
EVIDENCE OF LEVEL

Industrial Electrician (Oil & Gas) - HYC/ Q 6101					
Process required	**Professional Knowledge**	**Professional Skills**	**Core Skills**	**Responsibility**	**Level**
The individual at Industrial Electrician (Oil & Gas) trade is responsible for installation, maintenance and performs repair work of electrical, electronic, and electrical wiring for well-functioning in an industrial environment and Demonstrable ability to use electrical and hand tools and electrical drawings and blueprints He has a thorough knowledge of safety procedures and legal regulations and guidelines The individual should able to Understand understand the principle of electricity and expected to process correct operation of the electrical installation in accordance with the planned specification	The individual is expected to have factual knowledge of processes and understand the risk of not following defined procedures. The Industrial Electrician (Oil & Gas) on the Job Needs To Know And Understand Basics Of Electricity/ Single Phase And Poly Phase System/ Indian Electrical Rules/ Different Types Of Wiring/ Industrial Wiring/ Illumination Specification Application Of Different Elements Of Circuits/ Transformer Care And Maintenances/Motor /Dc Motor/ Generator/ Single Line Diagram Of Electrical Wiring System/ Circuit Breaker/ Switch Gear Care And Maintenance/ Cable And Cable Joints/ Earthing System And	The individual should able to Identify problems with work planning, procedures, practical skill, output and behavior and their implications also able to Plan, prioritize and sequence work operations as per job requirements also expected to know the usage of appropriate tools required to perform the job by applied quality concepts The individual should must able to read and interpret information correctly from various job specification documents, manuals, health and safety instructions, memos, etc. applicable to the job in English and/or local language and also able to fill up appropriate technical forms, process charts, activity logs as per organizational format in English and/or local	The individual is expected to have basic communication skills to fill appropriate forms, process charts and activity logs, etc. and also understand application of basic arithmetic principles. The individual expected to execute task, schedules, and work-loads with co-workers and supervisors and able to convey and share technical information clearly using appropriate language and expected to work in a team, communicate and cooperate with others in team in order to achieve better results The individual is expected to conduct themselves in ways, which show a basic understanding of the social and professional environment of	The individual is responsible for installation, maintenance and performs repair work of electrical, electronic, and electrical wiring for well-functioning in an industrial environment specially in petroleum refinery , the individual is completely responsible for own learning and continuously engaged in the self-learning process The Industrial Electrician (Oil & Gas) is majorly responsible for his own job and self-learning process which justifies the pegging of the QP at level 4.	4

The individual expected to Plan installation work using drawings and documentation provided and keep himself update on the trends and developments in the industry including new technology, standards and working methods The activities for this Qualification are the familiar and routine activities in nature and he handles all this independently (with minimal or no supervision).	Power System And Measurement	language The individual should have the capacity to apply professional skills needed to operate equipment with the understanding of principles needed to explore and adapt systems.	working		
Level 4	Level 4	Level 4	Level 4	Level 4	

SECTION 3
EVIDENCE OF NEED

What evidence is there that the qualification is needed?

The Industrial Electrician (Oil & Gas) work in the petroleum refinery, there are no standard training / Qualification Pack all across the Oil Industry, which the work force should possess at the time of recruiting / enrolling the work force for performing the job role. Hence there was need felt by the Ministry of Petroleum & Natural Gas (MOP&NG) in consultation with the members of Industry Task force (Members representing Oil & Gas PSU's), to develop Qualification Pack for this trade.

What is the estimated uptake of this qualification and what is the basis of this estimate?

Since Skill Gap study of the Hydrocarbon Sector yet to take place to figure out the estimated uptake of this qualification, However the estimated uptake of Industrial Electrician (Oil & Gas) would be of around 5400 Nos. in next five year. The basis of this estimate is emerged out from the Task Force.

What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF?

Qualifications for Various related trades of other Sector studied to ensure that there is no duplicity.
The QP of this trade is required because of the nature of Oil & Gas Industry as the individual will be handing inflammable and hazardous product. QP is very specific to Petroleum Industry and the individual under this Qualification will be handling hazardous and inflammable products therefore requires specialised safety tasks

What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?

The Qualification Pack was circulated among the industry members for their inputs and feedback, however the Qualification shall be reviewed by the industry members after two years of the approval.

Please attach any documents giving further information about any of the topics above.
Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

SECTION 4
EVIDENCE OF PROGRESSION

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

An individual may progress to the Supervisor Position

Please attach any documents giving further information about any of the topics above.
Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.