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TRAINING

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NEBOSH Certificate in Oil and Gas Operational Safety

Your expert trainer:



Patrick Casken (UK)
Armada OSH
Health & Safety consultant

14 - 19 August 2023 | Maputo, Mozambique

Key topics

- ⚙ Hazards Inherent in Oil and Gas
- ⚙ Process Safety Management (PSM)
- ⚙ Risk Management
- ⚙ Failure modes
- ⚙ Safety critical equipment controls
- ⚙ Safe storage of hydrocarbons
- ⚙ Fire protection and emergency response

IN ASSOCIATION WITH



Meet The Course Leader:



Patrick Casken (UK)

Armada OSH
Health & Safety consultant

Pat has over 25 years' experience within the health and safety field, during this time he has worked for the Health and Safety executive, Health and Safety manager, senior trainer and a director and consultant. He has worked in a wide variety of industries including mining, quarrying, engineering through to the maritime industry. He has successfully delivered Health and Safety training to oil and gas personnel on shore and offshore in Kazakhstan and for BP in Angola. Pat is a key training provider meeting the exacting standards required by Armada OSH and international accreditation bodies. He also has the experience to delivery various types of Health and Safety courses in an exciting and interesting way.

Course Overview

The NEBOSH International Technical Certificate in Oil and Gas

Operational Safety covers the principles of process safety management in the oil and gas industries, it provides an excellent foundation in health and safety allowing those within the oil and gas industries to manage oil and gas operational risks effectively. The qualification focuses on on hydrocarbon process safety, so that candidates can effectively discharge workplace health and safety responsibilities both onshore and offshore throughout the world. It also highlights the importance of process safety management.

Course Objectives

A safer workplace – The NEBOSH International Technical Certificate in Oil and Gas Operational Safety is all about keeping people safe from injury and loss of life. For employers this also means protecting valuable assets and avoiding prosecution, litigation and loss of reputation.

Assurance – An employer whose workers are NEBOSH qualified is an employer committed to health and safety. The NEBOSH International Technical Certificate in Oil and Gas Operational Safety can help employers achieve international standards and can even help win new business.

Return on investment – An employee with a NEBOSH International Technical Certificate in Oil and Gas Operational Safety has practical knowledge that brings real value, wherever they operate.

Who is the Course for?

The NEBOSH International Certificate in Oil and Gas Operational Safety is suitable for managers, supervisors, safety staff, and safety representatives with safety responsibilities in the oil and gas industry, both within and outside the UK.

Delegates should already have an underpinning knowledge of health and safety issues and may already have studied one of NEBOSH 's Certificate-level qualifications. It should be noted that currently the examination is offered, and must be answered, in English only. The standard of English required by candidates must be such that they can both understand and articulate the concepts in the syllabus.



NEBOSH Pass Rate

Countries

- South Africa 78%
- Kenya 76%
- Ghana 71%
- Mozambique 75%
- Rwanda 80%
- Uganda 84%
- Tanzania 80%
- Malaysia 86%



Training Methodology and Course Structure:

The syllabus takes a risk approach based on best practice and international industry standard and management systems, enabling delegates to effectively discharge workplace safety responsibilities both onshore and offshore.

The NEBOSH International Technical Certificate in Oil and Gas Operational Safety (Unit IOGC1) is divided into 5 Elements:

Element 1:

Health, safety and environmental management in Context

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- ✓ Explain the purpose of and procedures for investigating incidents and how the lessons learnt can be used to improve health and safety in the oil and gas industries
- ✓ Explain the hazards inherent in oil and gas arising from the extraction, storage, and processing of raw materials and products
- ✓ Outline the risk management techniques used in the oil and gas industries
- ✓ Explain the purpose and content of safety cases and safety reports in the oil and gas industries

Element 2:

Hydrocarbon process safety 1

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- ✓ Explain the principles of assessing and managing contractors, including the roles of parties involved
- ✓ Outline the tools, standards, measurement, competency requirements and controls applicable to Process Safety Management (PSM) in the oil and gas industries
- ✓ Explain the role and purpose of a permit-to-work system
- ✓ Explain the key principles of safe shift handover
- ✓ Explain the importance of safe plant operation and maintenance of hydrocarbon containing equipment and processes
- ✓ Outline the hazards, risks and controls to ensure safe start up and shut down of hydrocarbon containing equipment and processes



Element 3:

Hydrocarbon process safety 2

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- ✓ Outline types of failure modes that may lead to loss of containment from hydrocarbon
- ✓ Outline types of failures that may lead to loss of containment from hydrocarbon
- ✓ Outline the controls available to maintain safety critical equipment
- ✓ Outline the hazards, risks and controls available for safe containment of hydrocarbons offshore and onshore
- ✓ Outline the fire hazards, risks and controls relating to hydrocarbons
- ✓ Outline the hazards, risks and controls available for operating boilers and furnaces

Element 4:

Fire protection and emergency response

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- ✓ Outline appropriate control measures to minimise the effects of fire and explosion in the oil and gas industries
- ✓ Outline the principles, procedures and resources for effective emergency response

Element 5:

Logistics and Transport Operations

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- ✓ Identify the main hazards of and suitable controls for marine transport in the oil and gas industries
- ✓ Identify the main hazards of and suitable controls for land transport in the oil and gas Industries

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Are you looking for something more specific? Create your own In-House Training customized to the specific issues your company and your employees need to understand and resolve. Save time and cost while increasing implementation with an In-House Training held in the privacy of your company.

[Read more about In-House Training opportunities](#)



Day 1

14 August 2023

8:30 Registration

9:00 **Session 1**

- Introduction
- NEBOSH requirements

10:30 Morning Coffee & Networking Session

11:00 **Session 2: Health & Safety Management**

- Why investigate accidents theories and techniques
- Learning from previous incidents / accidents
- Piper Alpha / Buncefield / Texas City (video later in course) / Macondo blowout (Deepwater Horizon) / Esso Longford

12:30 Luncheon

13:30 **Session 3: Hazards Inherent in Oil and Gas**

- Key definitions
- Flammability / toxicity
- LPG / oil / drilling muds / sludges / radiation
- Management systems ISO / iso 18001 / OGP HSEMS / HS(G)65

15:00 Afternoon Coffee & Networking

15:30 **Session 4: Risk Management**

- Risk assessment – definitions and process
- HAZID / HEMP

17:00 **Wrap-up Day 1**

Day 2

15 August 2023

9:00 **Session 1: Risk Management (continued)**

- Contractor management
- Selection / hazards / types of contracts / management of contractors

10:30 Morning Coffee & Networking Session

11:00 **Session 2: Process Safety Management**

- Assessment of risk / 14 key points from Texas City disaster / Plant design

12:30 Luncheon

13:30 **Session 3: Review of Process Accidents**

- Flixbrough / Bhopal Maintenance
- PTW / isolation procedures

15:00 Afternoon Coffee & Networking

15:30 **Session 4: Plant Operations**

- Critical communications / shift handover / plant operations / maintenance / inspection and test

17:00 **Wrap-up Day 2**



Day 3

16 August 2023

9:00 **Session 1: Hydrocarbon Safety 1**

Management

- Training / competence

Maintenance

- Risk based maintenance frequency / high risk activities and controls
 - Live electrical work / confined spaces / work at height
-

10:30 Morning Coffee & Networking Session

11:00 **Session 2**

- Control of ignition / hot work safety
 - Start up / shut down operations / commissioning
 - Hydrates – hazards / controls
-

12:30 Luncheon

13:30 **Session 3: Hydrocarbon Safety 2**

Mechanics of materials

- Stress / strain / Young's Modulus

Failure modes

- Brittle / ductile / creep / stress corrosion cracking / metal fatigue / thermal shock
-

15:00 Afternoon Coffee & Networking

15:30 **Session 4: Safe Operating Envelope**

Weld failures

- Alexander Kielland review

Non-destructive testing techniques

- Radiation / ultrasonic / dye penetration / magnetic particles / visual
-

17:00 **Wrap-up Day 3**

Day 4

17 August 2023

9:00 **Session 1: Process Safety 2**

- Programmable electronic systems / safety integrity level / emergency shut down systems / flares & blow-down

Process drains

- Open / sewers / inceptors
-

10:30 Morning Coffee & Networking Session

11:00 **Session 2: Containment of Hydrocarbons**

- Design / tanks / floating roof / filling / emptying / bunds / pressurised gas storage / cryogenic gas storage
-

12:30 Luncheon

13:30 **Session 3: Fire Types**

- Pool / jet / fire ball / boil over / vapour cloud explosions / BLEVE / Hicksons & Welsh incident review / drainage of LPG storage

Pipelines

- Operation / security / instrumentation / cleaning

Process plant

- Demolition / decommissioning / SIMOPS
-

15:00 Afternoon Coffee & Networking

15:30 **Session 4: Fire**

- Fire triangle / ignition sources / electrostatic / classification and zoning

Boilers

- Types / operation / hazards and controls
-

17:00 **Wrap-up Day 4**



Day 5

18 August 2023

**9:00 Session 1: Fire Protection and Control /
Emergency Procedures**

- Gas leak detection / fire fighting systems / equipment / emergency plans / detection
-

10:30 Morning Coffee & Networking

**11:00 Session 2: Fire Protection and Control /
Emergency Procedures (continued)**

- Alarm / defeat of alarm systems / medical evacuations / escape and evacuation / response teams
-

12:30 Luncheon

13:30 Session 3: Logistics and Transport

Maritime

- Work over water / vessels / maritime operations / loading / unloading / personnel transfers / security
-

15:00 Afternoon Coffee & Networking

15:30 Session 4: Land

- Road / rail / documents / loading / unloading
- Diving operations**
- Types of operations / remove vehicles / risks/ controls

17:00 Wrap-up Day 5

Assessment and Certification:

Day 6, 19 August 2023 at 1:30pm

Unit IOGC1 is assessed by a 2 hour written examination marked by external examiners appointed by NEBOSH. NEBOSH issue a qualification certificate once a Candidate has achieved at least a Pass grade.



*Do you need a different topic,
venue or date?*

*Create your own
custom-made training.*

In-House Training

- ✔ Specific industries face specific problems. They require niche information and solutions. **In-House Training** is precisely tailor-made to your needs.
- ✔ Taking place in the privacy of your company, including real-life case studies and best practices, the course is led by an independent industry expert.
- ✔ We find a trainer, draft topics, and then find the premises and dates which match your needs.
- ✔ Provide your employees a unique learning experience without having to leave the office.

*"Knowledge is important,
but implementation is crucial."*

