



Well Control Equipment Course Level 2

ModuSpec's Well Control Equipment Course – Level 2 (WCEC) is globally renowned within the operator community for those who are involved in daily rig operations, rig intake/inspection projects and those who want to understand how the blow out preventer (BOP) and well control equipment functions, what can go wrong and aspects of compliance.

The course presents the working principles of the BOP and well control equipment including explaining the correct inspection and maintenance procedures needed to ensure integrity and compliance, underpinned by ModuSpec's 39+ years of experience.

The WCEC covers equipment installed on conventional and new generation:

- Jack-ups
- Semi-submersibles
- Drillships
- Land rigs

Candidates will learn of the common equipment and system deficiencies and recurring problems, including correct standards (API etc.) and regulatory requirements of the industry.

Our knowledge. Your knowledge.

Who should attend

This course is aimed at candidates involved with drilling rigs including:

- Drilling managers, Superintendents, Supervisors and Engineers
- Rig managers, OIMs, Project engineers
- New entrant rig maintenance crew looking after surface equipment and trainee subsea engineers

Delivery method

The course is a highly interactive mix of PowerPoint presentations, videos, animations, exercises, and case studies.

Course duration

5 days

Course aims

After completion of the WCEC, attendees will be able to:

- Identify major items that may impact safety and operational capability of well control.
- Describe the criteria for the major items of well control equipment including the LMRP, ram preventers, annual preventers, hydraulic connectors, BOP control systems and the choke and kill manifold.
- Recognise indicators of overall condition and level of previous maintenance.
- Identify standards used in the drilling industry (e.g., API) and their application to well control equipment.
- Explain the purpose and meaning of an equipment certificate and understand the content of the certificate.

Course outline

Introduction to guidelines

- Introduction to API
- Introduction to Original Equipment Manufacturer and CEM and CEM

High-level overview of well control equipment components

- Components of an LMRP Components of an BOP
- Marine riser and diverter system

Line of defence when drilling either a surface or subsea well

- First line of defence Second line of defence

Ram preventers

- Ram blocks
- Hydraulic Ram operators
- Operation and sealing of ram BOPs
- Ram locking systems
- Test rams

Annular preventers

- Hydril annular preventers
- NOV shaffer annular preventers Cameron annular preventers

Hydraulic connectors

- Types of hydraulic connectors Operation of hydraulic connectors Sealing and seal rings
- Cameron hydraulic mini connectors
- Overall safety when working with connectors

BOP gate valves

- Gate valves

Conventional control systems

- Introduction to conventional control systems BOP control system
- Hydraulic system and equipment BOP hydraulic power unit (BOP HPU)
- BOP fluid cleanliness and management accumulator bottles
- Typical hose reel manifold function operation
- Hydraulic regulators
- BOP control system for shear blind rams on modern rigs
- Surface control valves in BOP systems
- Control pods

MUX control systems

- Introduction to MUX control systems Cameron multiplex control system Hydril MUX pods
- Shaffer MUX IV system Emergency circuits
- ROV hot stabs

Marine riser system and tensioner systems

- Marine riser joint
- Vessel heave compensation and tensioning systems
Marine riser tensioners

Choke and kill manifold

- Introduction of choke and kill manifold pressure testing
- Chokes and their operation
- Layout of the choke and kill manifold
- Target or no target?
- Material requirements as per API specification 6A Piping inspection and maintenance
- Flexible hoses