# International Well Control Forum


# IWCF Well Intervention Pressure Control Syllabus
# Level 2

October 2021
Version 9.0

# Contents

**Guidance Notes**

IWCF have created this revised syllabus using guidance from a variety of sources, including our stakeholders, candidates, and Well Intervention Pressure Control Taskforce. Together with the enhancements listed below, this revised syllabus aims to meet the principles outlined in IOGP Report 476 *Recommendations for enhancements to well control training, examination and certification (*August 2019) as a minimum.

The main enhancements contained within this revision provide:

- An improved structure that avoids duplication of topics in different syllabus components.
- In-depth learning outcomes to cover previously identified gaps in candidate knowledge.
- Defined progression between the levels, which ensures learning outcomes are now role specific.
- An increased emphasis on well integrity assurance during the well life cycle with reference to ISO 16530-1:2017 *Petroleum and natural gas industries – Well integrity – Part 1: Life cycle governance.*
- An improved focus on the common principles of Pressure Control Equipment (PCE), which is now consolidated within the completion operations component.

**Who takes the Level 2 Well Intervention Pressure Control course?**

We recommend assistant operators (wireline, coiled tubing, and Snubbing) should attend this course. IOGP Report 476 Well Control Training – Levels Guidance Chart has more specific job categories.

**How long is the course?**

The Level 2 Well Intervention Pressure Control training course must be a minimum of 20 hours.

**How many candidates can a Centre have on a training course?**

A course can have a maximum of fifteen candidates (depending on room size/ facilities).

**When can a candidate move from level 2 to level 3?**

IWCF recommends a minimum three-month period to build further industry experience and competence before the candidate moves onto the next level.

## The Syllabus

### Testing Understanding

IWCF expects candidates' knowledge and understanding of basic well intervention pressure control to develop so that they can competently perform their assigned well control duties. It is insufficient for any candidate on any level of the course to be coached to pass the assessment.

This approach follows the guidance within IOGP report 476. "*Training must be taught in line with the stipulated syllabus, and it will not be sufficient to base training on "test-similar" or "test-identical" exam questions to help personnel pass the written exam. Industry accreditation bodies should assure this is not happening"*.

### Learning Objectives

The learning objectives in the syllabus are based on the content (subject matter) the instructor must teach to meet the requirements of this level. The use of the wording "learning objective" is in line with the IOGP Report 476. It is a broad overview statement of what the student will be taught during the course.

Example: During the course students will gain an understanding of: Standard well intervention pressure control methods.

### Learning Outcomes

Learning outcomes have been developed for each of the learning objectives contained in the syllabus. The outcome indicates how each learning objective will be fulfilled with a detailed description of the skills a student must have at the end of the course. These learning outcomes are the basis for assessment questions.

Example: By the end of the course students will be able to…define and list well intervention pressure control methods.

## Syllabus Division

The written test syllabus is divided into two sections:

### Compulsory modules:

Completion operations
Completion equipment.

**Optional modules:** note, at least one optional module must be taken from the optional modules.

Wireline operations,
Coiled tubing operations
Snubbing operations

## Coding

| | |
|---|---|
| **Completion operations** | |
| Overview | WI-SF-COM-01 |
| Well integrity assurance | WI-SF-COM-02 |
| Introduction to well control | WI-SF-COM-03 |
| Barriers | WI-SF-COM-04 |
| Barrier verification testing | WI-SF-COM-05 |
| Influx characteristics and behaviour | WI-SF-COM-06 |
| Shut-in procedures | WI-SF-COM-07 |
| Well kill methods | WI-SF-COM-08 |
| **Completion equipment** | |
| Completion equipment | WI-SF-EQP-01 |

| | |
|---|---|
| **Wireline operations** | |
| Wireline application and equipment | WI-SF-WLO-01 |
| Pressure control | WI-SF-WLO-02 |
| Pressure control (barrier elements and envelopes) principles | WI-SF-WLO-03 |
| Well intervention operations | WI-SF-WLO-04 |
| **Coiled Tubing Operations** | |
| Coiled tubing application and equipment | WI-SF-CTO-01 |
| Pressure control | WI-SF-CTO-02 |
| Pressure control (barrier elements and envelopes) principles | WI-SF-CTO-03 |
| Well intervention operations | WI-SF-CTO-04 |
| **Snubbing operations** | |
| Snubbing application and equipment | WI-SF-SNO-01 |
| Pressure control | WI-SF-SNO-02 |
| Pressure control (barrier elements and envelopes) principles | WI-SF-SNO-03 |
| Well intervention operations | WI-SF-SNO-04 |

## Levels

All learning outcomes have been given an ‘importance’ and a reference letter from A to C. This is shown in the right-hand column on the syllabus. The importance is based on their level of ‘criticality’ in the syllabus.

| Old importance level | New importance level | Explanation |
|---|---|---|
| 5 and 10 | A | Critical knowledge required to prevent major/catastrophic damage to life, limb, and environment or industry. |
| 3-4 | B | Necessary knowledge to prevent moderate/serious risk to life, limb, or environment. |
| 1-2 | C | Foundation-level knowledge to prevent minor risk to life, limb, or environment. |

## Assessment method

Level 2 WIPC candidates must complete one assessment for completion operations, one assessment for completion equipment and separate assessment papers for all optional modules taken.

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **COMPLETION OPERATIONS** | | | | |
| **OVERVIEW** | | | | |
| **Well intervention pressure control incidents** | | | | |
| WI-SF-COM-01.01.01 | WA01.01 | The impact of a well intervention pressure control incident. | Describe the potential impact of a well intervention pressure control incident on:<br>- personnel<br>- employment<br>- environment. | A |
| **WELL INTEGRITY ASSURANCE** | | | | |
| **Principles** | | | | |
| WI-SF-COM-02.01.01 | WA01.02 | Well integrity requirements throughout the well life cycle from construction to abandonment(reference: ISO 16530-1:2017). | Define the term “well integrity management” and explain why it is important throughout the well life cycle.<br><br>Identify the different phases of the well life cycle. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Annulus pressure monitoring in well intervention** | | | | |
| WI-SF-COM-02.02.01 | WEQJ01.01 | Monitoring annulus pressures. | Describe how to monitor annulus pressures. | C |
| WI-SF-COM-02.02.03 | NEW | Maximum allowable annulus surface pressure (MAASP) in well intervention operations. | Define MAASP. | C |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Risk management** | | | | |
| WI-SF-COM-02.03.01 | WD01.01 | Risk management principles and practices. | Describe the principles and practices of risk management including:<br>- hazard identification and mitigation<br>- crew meetings and handovers<br>- instructions and checklists<br>- toolbox talks. | B |
| WI-SF-COM-02.03.02 | WA03.02 | Well (pressure) control responsibilities of personnel involved in the task. | Explain why pre-job site planning, preparation and the 'stop work' authority are important. | A |
| **Management of change** | | | | |
| WI-SF-COM-02.04.01 | WD01.02 | The management of change (MOC) process. | Explain why it is important to recognise and manage change.<br><br>Explain why and when an MOC process is required. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Well (pressure) control drills** | | | | |
| WI-SF-COM-02.05.01 | WD02.01 | Well (pressure) control drills during completion and intervention operations. | Describe why well (pressure) control drills are important. | B |
| **Well intervention pressure control training and assessment** | | | | |
| WI-SF-COM-02.06.01 | WA02.01 | Well intervention pressure control training and assessment. | Explain "why are we here?" including:<br>- capability to apply well intervention pressure control skills<br>- responsibility to colleagues<br>- reduce the severity of a well intervention pressure control incident<br>- prevent a well intervention pressure control incident. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Well handover** | | | | |
| WI-SF-COM-02.07.01 | WA04.01/ WWD01.03 | The reasons for confirming well integrity status before handover/takeover of the well. | Explain why upstream and downstream pressure isolation is important before handover/takeover of the well. | A |
| **INTRODUCTION TO WELL CONTROL** | | | | |
| **Hydrostatic pressure** | | | | |
| WI-SF-COM-03.01.01 | WB01.01 | Factors that affect hydrostatic pressure. | Define hydrostatic pressure.<br><br>List the factors that affect hydrostatic pressure:<br>- true vertical depth<br>- fluid density. | C |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-COM-03.01.02 | NEW | Hydrostatic pressure calculations. | From a given depth, calculate hydrostatic pressure with no well pressure at surface. | B |
| WI-SF-COM-03.01.03 | NEW | The difference between tubing and annulus pressures. | Explain why it is important to know the differential pressure between the tubing and annulus. | C |
| **Formation pressure** | | | | |
| WI-SF-COM-03.02.01 | WB02.01 | Formation pore pressure. | Define formation pore pressure. | C |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Fracture pressure** | | | | |
| WI-SF-COM-03.03.01 | WB03.01 | Fracture pressure. | Define fracture pressure. | C |
| **Formation injectivity tests** | | | | |
| WI-SF-COM-03.04.01 | NEW | Formation injectivity tests. | Define formation injectivity testing. | C |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Primary well (pressure) control** | | | | |
| WI-SF-COM-03.05.01 | WB04.01 | Primary well (pressure) control and the difference between drilling and well intervention operations. | Explain the main principles of primary well control in drilling operations where pressure management contains fluids within the reservoir.<br><br>Explain the main principles of primary well (pressure) control in well intervention operations where pressure control equipment prevents the release of fluids at surface. | B |
| WI-SF-COM-03.05.02 | WI01.01/ WI01.05 | The different types of surface leaks due to loss of primary well (pressure) control. | Identify the different types of surface leaks due to loss of primary well (pressure) control including:<br>- gas (hydrocarbon, $H_2S$, $CO_2$)<br>- stimulation/pumping fluids (including acids and alkalis)<br>- oil<br>- water.<br><br>Identify the associated hazards when exposed to:<br>- temperature<br>- pressure<br>- fire<br>- explosion<br>- toxic vapours. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Secondary well (pressure) control** | | | | |
| WI-SF-COM-03.06.01 | WB05.01 | Secondary well (pressure) control. | Define secondary well (pressure) control. | A |
| **BARRIERS** | | | | |
| **Barrier philosophy** | | | | |
| WI-SF-COM-04.01.01 | WC01.01 | Well barrier philosophy in well intervention and completion operations. | Describe best practice of having two independently tested and verified barriers in place between the source of pressure in the well and atmosphere before breaking containment. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-COM-04.01.02 | WC02.01 | Well barrier elements and well barrier envelopes in well intervention and completion operations. | Define well barrier elements and well barrier envelopes.<br><br>Describe how well barrier elements combine to form well barrier envelopes during well intervention and completion operations. | A |
| WI-SF-COM-04.01.03 | WC02.07 | Different well barrier element types. | Describe the principles of different well barrier element types and explain the differences between:<br>- mechanical barriers<br>- hydrostatic (fluid) barriers. | A |
| WI-SF-COM-04.01.04 | NEW | Barrier terminology – primary and secondary barrier elements. | Describe the terms primary and secondary barrier elements during well intervention and completion operations. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-COM-04.01.05 | WC02.08 | Grouping well barrier elements into primary and secondary barrier envelopes. | Describe the principle of grouping well barrier elements into primary and secondary barrier envelopes. | A |
| **Barrier management** | | | | |
| WI-SF-COM-04.02.01 | WB06.01 | Blowout preventers (BOPs) and other pressure control equipment (PCE). | Describe the uses of the BOP and other PCE as barrier elements. | B |
| WI-SF-COM-04.02.02 | NEW | Shearing devices. | Explain the function of a shearing device.<br><br>From a given well diagram, identify the shearing devices including:<br>- single shear ram device<br>- shear/seal ram/valve device. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-COM-04.02.03 | WEQG03.03 | Non-shearable (and non-sealable) equipment across the BOP. | Explain the limitations of shearing devices when running non-shearable (and non-sealable) equipment across the BOP. | A |
| WI-SF-COM-04.02.04 | NEW | Maintaining BOP and associated equipment integrity during operations. | Outline the factors that can affect BOP integrity during operations:<br>- hydraulic pressure<br>- fluid composition<br>- maintenance. | A |
| WI-SF-COM-04.02.05 | WEQQA05.01 | Correct connection makes up for various joint types. | From a given diagram or description, identify different types of connections including:<br>- gaskets<br>- ring joints<br>- hammer unions<br>- swivel connections<br>- quick unions.<br><br>Explain why flange make up(including compatibility) is important. | C |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-COM-04.02.06 | NEW | Correct elastomers for the well conditions. | Explain why it is important to use the correct elastomers. | C |
| WI-SF-COM-04.02.07 | NEW | BOP control system. | Explain the function of a BOP control system including:<br>- hydraulic control panel<br>- accumulator bottles. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **BARRIER VERIFICATION TESTING** | | | | |
| **Verification** | | | | |
| WI-SF-COM-05.01.01 | WC02.04 | Verifying well barrier elements are in place and working. | Explain why well barrier elements must be verified once they are in place. | B |
| WI-SF-COM-05.01.04 | WC02.06 | What to do when a well barrier element test fails. | Explain why it is important to take the correct action when a well barrier element test fails. | A |
| WI-SF-COM-05.01.06 | WEQG03.01/ /WSD01.01/WSA04.05/ | How to check pressure control equipment (PCE). | Describe why it is important to check that PCE is fit for purpose and to report any damage. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-COM-05.01.07 | WEQG03.02 | The correct make up of PCE hydraulic hoses and fittings and how to check them. | Describe the correct way to make up different types of PCE hydraulic hoses and fittings.<br><br>Explain how to check them for damage or wear. | B |
| **Inflow testing** | | | | |
| WI-SF-COM-05.02.01 | WP01.01/ WWA02.04/ WWA02.04 | Inflow testing a well barrier. | Explain what an inflow test is and why it is important to inflow test a well barrier. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Equipment integrity testing** | | | | |
| WI-SF-COM-05.03.01 | WH01.01 | Equipment integrity testing. | Explain why equipment integrity testing is important. | A |
| WI-SF-COM-05.03.02 | WWA02.02/WCE01.01/WCE01.02/WSE01/01/WSE01.02 | Intervention (wireline, coiled tubing and snubbing) BOP pressure tests and function tests. | Explain how intervention BOPs are pressure tested and function tested. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **INFLUX CHARACTERISTICS AND BEHAVIOUR** | | | | |
| **Principles** | | | | |
| WI-SF-COM-06.01.01 | NEW | The different types of influx. | Identify the different types of influx including:<br>- gas (hydrocarbon, $H_2S$, $CO_2$)<br>- oil<br>- water. | B |
| **SHUT-IN PROCEDURES** | | | | |
| **Principles** | | | | |
| WI-SF-COM-07.01.01 | WJ01.01 | Why it is important to have a shut-in procedure. | Explain why having a shut-in procedure is important.<br><br>Explain your role and the role of the equipment operator. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Procedures** | | | | |
| WI-SF-COM-07.02.01 | NEW | How to shut in the well. | Describe the steps to shut in the well if there is a primary barrier failure.<br><br>Explain why it is important to know the correct valve sequence, and the number of turns to close:<br>- with tools in the well<br>- without tools in the well. | B |
| WI-SF-COM-07.02.04 | WJ02.05 | Opening valves under differential pressure. | List the consequences of opening valves under differential pressure:<br>- valve damage<br>- hydrate formation<br>- uncontrolled flow. | C |
| WI-SF-COM-07.02.05 | WWE01.01 | Removing (bleeding down) hydrocarbons safely from (PCE). | Describe the dangers of removing (bleeding down) hydrocarbons into the atmosphere from PCE. | C |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Interpretation** | | | | |
| WI-SF-COM-07.03.01 | WJ04.01 | Shut-in well pressure. | Explain why it is important to record pressure after the well has been shut in. | B |
| WI-SF-COM-07.03.03 | WJ05.01 | The limits of pressure gauges and how to correctly interpret gauge readings. | Explain why it is important that gauges have the correct range, temperature rating, and are calibrated correctly. | B |
| WI-SF-COM-07.03.04 | WN02.01 | Problems with pressure gauge readings. | Describe different types of pressure gauge problems including:<br>- physical damage<br>- vibration damage<br>- loss of fluids within the gauge<br>- blockage. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **WELL KILL METHODS** | | | | |
| **Principles** | | | | |
| WI-SF-COM-08.01.01 | WK02.01 | The different well kill methods. | Define the following three well kill methods:<br>- bullheading<br>- reverse circulation<br>- lubricate and bleed. | A |
| WI-SF-COM-08.01.03 | WG01.01 | A kill system. | From a given description or diagram, identify the main items of a kill system including:<br>- pump unit<br>- storage tank<br>- mixing tank<br>- choke unit<br>- fluid disposal<br>- gas handling<br>- bleed off system<br>- pipework. | B |
| WI-SF-COM-08.01.04 | WCD01.06 | Use of chokes to control flow. | From a given diagram or description, explain the function of adjustable and fixed chokes and explain what they are used for. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Surface failures** | | | | |
| WI-SF-COM-08.07.01 | NEW | The source of surface failures and how to prevent them. | From a given diagram or description identify the possible source and cause of fluid or gas leaks, including:<br>- leaking flange/fitting connections<br>- leaking O-ring connections<br>- leaking weep holes<br>- damaged seals<br>- damaged hydraulic control line/hoses. | B |
| **Hydrates** | | | | |
| WI-SF-COM-08.08.01 | NEW | Hydrates, how they form and how to prevent and remove them. | Describe how hydrates form:<br>- availability of free water<br>- combine with natural gas<br>- high pressure<br>- low temperature.<br><br>Explain where hydrates can form and how to prevent and remove them:<br>- avoid pressure drop across blockage or partly closed valves<br>- use chemical inhibitors to prevent and remove them. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **COMPLETION EQUIPMENT** | | | | |
| **Introduction to well completion** | | | | |
| WI-SF-EQP-01.01.01 | NEW | The purpose of a well completion. | Identify the main reasons for installing a completion in the well:<br>- to transport hydrocarbons from reservoir to surface<br>- to transport injection fluid from surface to reservoir<br>- to run downhole tools. | C |
| WI-SF-EQP-01.01.02 | NEW | Preparing for a well completion. | Recognise why the well must be cleaned before running a completion:<br>- to prevent damage to components<br>- to prevent well blockages.<br>- to prevent intervention tool holdup. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Xmas Tree** | | | | |
| WI-SF-EQP-01.02.01 | WEQG01.01A | The function of the Xmas Tree in pressure control. | Describe the primary function and operation of the Xmas Tree for pressure control.<br><br>From a given diagram or description, identify the Xmas Tree barrier elements and shearing devices:<br>- master, swab and wing valves<br>- wireline cutting ability. | A |
| **Wellhead and tubing hanger** | | | | |
| WI-SF-EQP-01.03.01 | WEQG01.05 | The function of the wellhead and tubing hanger in pressure control. | Describe the primary function of the wellhead and tubing hanger in pressure control:<br>- what they are<br>- what they do.<br><br>From a given diagram or description, identify the wellhead and tubing hanger barrier elements:<br>- wellhead body and seals<br>- annulus ports/valves<br>- casing seal assemblies<br>- tubing hanger seals. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Tubing including. flow couplings and tubing movement.** | | | | |
| WI-SF-EQP-01.04.01 | WEQG01.05 | Tubing selection, movement (compression and tension) and the use of flow couplings. | Describe the factors considered when selecting tubing:<br>- well products<br>- expected production (or injection) rate<br>- well geometry (depth, casing diameter)<br>- pressures and temperatures<br>- use of intervention methods.<br><br>Describe how tubulars expand and contract during:<br>- production<br>- injection<br>- testing/stimulation.<br><br>Describe the use of flow couplings in a completion:<br>- to protect critical downhole components. | C |
| **Subsurface safety valves and annular safety valves** | | | | |
| WI-SF-EQP-01.05.01 | WEQG01.03 | The function of subsurface safety valves (SSSVs) and annular safety valves (ASVs). | Describe the primary function of:<br>- surface controlled subsurface safety valves (SCSSSVs)<br>  - tubing retrievable (TRSCSSSVs)<br>  - wireline retrievable (WRSCSSSVs)<br>- subsurface controlled subsurface safety valves (SSCSSSV)<br>- annular safety valves (ASVs).<br><br>From a given diagram, recognise the different types of SSSVs. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Side pocket mandrels** | | | | |
| WI-SF-EQP-01.06.01 | WEQG01.07 | The function of side pocket mandrels. | Describe the primary function of side pocket mandrels:<br>- gas lift<br>- circulation<br>- equalisation<br>- chemical injection. | B |
| **Sliding sleeves, circulation and flow control devices** | | | | |
| WI-SF-EQP-01.07.01 | WEQG01.08 | The function of other circulating, communication and flow control devices. | Describe the other different type of circulating, communication and flow control devices and why they are used:<br>- sliding sleeves<br>- tubing punches. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Packers and associated equipment (polished bore receptacle (PBR) and extra-long tubing seal receptacle (ELTSR))** | | | | |
| WI-SF-EQP-01.08.01 | WEQG01.10 | The function and types of downhole packers. | Describe what downhole packers are, and why they are used.<br><br>Recognise the differences between the two primary types of packers:<br>- retrievable<br>- permanent. | B |
| **Landing nipples, plugs and wireline entry guides (wegs)** | | | | |
| WI-SF-EQP-01.09.01 | WEQG01.04 | The function of landing nipples, plugs and wireline entry guides (WEG). | Describe the primary function of completion:<br>- landing nipples<br>- bridge plugs.<br><br>Explain when they are used.<br><br>Explain why a WEG is used and its position in the well completion. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **OPTIONAL TOPICS** | | | | |
| **WIRELINE (WL)** | | | | |
| **Application WL** | | | | |
| WI-SF-WLO-01.01.01 | NEW | When wireline is used and the different types available. | Explain when wireline is used and the different types of wireline available:<br>- slickline<br>- braided line<br>- electric line<br>- fibre optic cable<br>- digital slickline. | B |
| **Equipment WL** | | | | |
| WI-SF-WLO-01.01.02 | NEW | Wireline equipment in different operating environments. | From a given surface layout diagram, identify the wireline equipment components used in well intervention. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **PRESSURE CONTROL** | | | | |
| **Surface PCE stack WL** | | | | |
| WI-SF-WLO-02.01.01 | WWA01.01 | PCE required for wireline operations. | From a given diagram or description, identify the function and positioning of the surface PCE components required for different wireline operations:<br>- slickline<br>- braided line<br>- electric line<br>- fibre optic cable<br>- digital slickline. | A |
| **Primary barrier elements WL** | | | | |
| WI-SF-WLO-02.02.01 | WWA01.06/ WWA01.08 | Primary barrier elements used during wireline operations. | From a given diagram or description, identify the function and positioning of primary barrier elements used during different wireline operations:<br>- slickline<br>- braided line<br>- electric line<br>- fibre optic cable<br>- digital slickline. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-WLO-02.02.04 | NEW | Primary barrier element integrity during wireline operations. | Outline the factors that can affect the integrity the primary barrier element during wireline operations.<br>- hydraulic pressure<br>- roughness of the wireline<br>- fluid composition<br>- maintenance<br>- running speeds. | A |
| **Secondary barrier elements – BOPs (ram type preventers) WL** | | | | |
| WI-SF-WLO-02.03.01 | WWA01.03 | Secondary barrier elements (wireline BOPs) used during wireline operations. | From a given diagram or description, identify the function and positioning of secondary barrier elements (wireline BOPs) used during different wireline operations:<br>- slickline<br>- braided line<br>- electric line<br>- fibre optic cable<br>- digital slickline.<br><br>Explain why it is important to consider equipment access for loading various toolstring configurations. | A |
| WI-SF-WLO-02.03.02 | WWA01.04 | BOP ram configurations for different types of wireline. | Explain why BOP ram configurations must change when using different types of wireline. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Shearing devices WL** | | | | |
| WI-SF-WLO-02.04.01 | NEW | Wireline shearing devices. | Explain the function and positioning of the wireline:<br>- shear ram<br>- shear/seal ram/valve<br>- wirecutting valve. | B |
| **PRESSURE CONTROL (BARRIER ELEMENTS AND ENVELOPES) PRINCIPLES WL** | | | | |
| WI-SF-WLO-03.01.01 | WWF01.03 | Grouping barrier elements into barrier envelopes during wireline operations. | From a given wireline situation or surface rig-up diagram, identify primary barrier elements and group them into envelopes. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **Other operations - PCE stack WL** | | | | |
| WI-SF-WLO-03.02.01 | WWA01.01 | The PCE rig up during wireline fishing operations. | Explain why PCE rig up must change for wireline fishing operations. | B |
| **Safely repair or replace a failed primary barrier element WL** | | | | |
| WI-SF-WLO-03.03.01 | WWA01.07 | Secondary barrier elements and envelopes for slickline operations if a primary barrier element fails. | Describe the use of equipment as secondary barrier elements/envelopes during slickline operations.<br><br>From a given diagram or description identify double barrier protection while repairing and/or replacing failed components | A |
| WI-SF-WLO-03.03.02 | WWA01.06 | Secondary barrier elements and envelopes for braided line/electric line operations if a primary barrier element fails. | Describe the use of equipment as secondary barrier elements/envelopes during braided line and electric line operations.<br><br>From a given diagram or description, identify double barrier protection while repairing and/or replacing failed components | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
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| **PCE testing WL** | | | | |
| WI-SF-WLO-03.05.02 | WWL01.01 | Testing the BOP with test rods. | Explain why test rods are used to test the wireline BOP instead of cables.<br><br>Explain why it is important to test correctly. | A |
| **WELL INTERVENTION OPERATIONS WL** | | | | |
| **Operational considerations (with well control consequences) WL** | | | | |
| WI-SF-WLO-04.01.01 | WWK01.01 | The reason for wireline drift runs. | Explain what a wireline drift run is, and why it is done before other well intervention operations. | C |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-WLO-04.01.02 | NEW | Surface controlled subsurface safety valve (SCSSSV) integrity during a wireline operation. | Explain why the integrity of the SCSSSV is important during a wireline operation. | B |
| **Controlled Well shut in WL** | | | | |
| WI-SF-WLO-04.02.01 | WWA01.03 | Toolstring positioning across the wireline BOP. | Describe the correct positioning of wireline BOPs in the pressure control rig up including:<br>- equipment access for loading various toolstring configurations. | A |
| WI-SF-WLO-04.02.03 | NEW | How to shut in the well quickly and safely with or without wireline in the well. | Outline why it is important to safely shut in the well during a wireline operation:<br>- with wireline in the well<br>- without wireline in the well. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
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| **COILED TUBING (CT)** | | | | |
| **Application CT** | | | | |
| WI-SF-CTO-01.01.01 | NEW | When coiled tubing is used. | Explain when coiled tubing is used and the different sizes available. | B |
| **Equipment CT** | | | | |
| WI-SF-CTO-01.02.01 | NEW | The coiled tubing equipment in different operating environments. | From a given surface layout diagram, identify the coiled tubing components used in well intervention. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **PRESSURE CONTROL** | | | | |
| **Surface PCE stack CT** | | | | |
| WI-SF-CTO-02.01.01 | NEW | PCE required for coiled tubing operations. | From a given diagram or description, identify the function and positioning of the surface PCE components required for coiled tubing operations. | A |
| **Primary barrier elements CT** | | | | |
| WI-SF-CTO-02.02.01 | WCF01.03 | Primary barrier elements (strippers) used during coiled tubing operations. | From a given diagram or description, identify the function and positioning of primary barrier elements (strippers) used during coiled tubing operations:<br>- side door<br>- radial. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-CTO-02.02.03 | WCA01.05 | Primary barrier element integrity during coiled tubing operations. | Outline the factors that can affect the integrity of the primary barrier elements during coiled tubing operations.<br>- hydraulic pressure<br>- roughness of the coiled tubing<br>- fluid composition<br>- maintenance<br>- running speeds. | A |
| **Secondary barrier elements – BOPs (Ram type preventers) CT** | | | | |
| WI-SF-CTO-02.03.01 | WCA02.01 | Secondary barrier elements (coiled tubing BOPs) used during coiled tubing operations. | From a given diagram or description, identify the function and the positioning of secondary barrier elements (coiled tubing BOPs) used during different coiled tubing operations:<br>- combi<br>- triple<br>- quad.<br><br>Explain why it is important to consider equipment access for loading various toolstring configurations. | A |
| WI-SF-CTO-02.03.02 | NEW | BOP ram configurations for different coiled tubing operations. | Explain why BOP ram configurations must change for different types of coiled tubing operations. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
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| **Shearing devices CT** | | | | |
| WI-SF-CTO-02.04.01 | WCF01.03 | Coiled tubing shearing devices. | Explain the function and positioning of coiled tubing<br>- shear ram<br>- shear/seal ram/valve. | B |
| **Other well control devices CT** | | | | |
| WI-SF-CTO-02.05.01 | WCA01.02/ WCD01.05 | Downhole check valves (backpressure valves) in a bottomhole assembly (BHA) during coiled tubing operations. | From a given diagram or description identify the function and positioning of downhole check valves (backpressure valves) used in a coiled tubing BHA. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
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| **PRESSURE CONTROL (BARRIER ELEMENTS AND ENVELOPES) PRINCIPLES CT** | | | | |
| WI-SF-CTO-03.01.01 | NEW | Grouping barrier elements into barrier envelopes during coiled tubing operations. | From a given coiled tubing situation or surface rig-up diagram, identify primary barrier elements and group them into envelopes. | A |
| **Safely repair or replace a failed primary barrier element CT** | | | | |
| WI-SF-CTO-03.03.01 | WCD01.07 | Maintaining a double barrier when changing a coiled tubing stripper rubber during intervention operations. | Explain why two barriers must be maintained when changing coiled tubing stripper rubber during intervention, in line with industry good practice. | A |
| WI-SF-CTO-03.03.02 | NEW | Secondary barrier elements and envelopes for coiled tubing operations if a primary barrier element fails. | Describe the use of equipment as secondary barrier elements/envelopes during coiled tubing operations.<br><br>From a given diagram or description identify double barrier protection while repairing and/or replacing failed components. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
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| **WELL INTERVENTION OPERATIONS CT** | | | | |
| **Operational considerations (with well control consequences) CT** | | | | |
| WI-SF-CTO-04.01.02 | WCH01.02 | The forces on coiled tubing created by well pressure. | Explain the forces on the coiled tubing caused by well pressure:<br>- buckling<br>- collapse. | B |
| **Controlled well shut in CT** | | | | |
| WI-SF-CTO-04.02.01 | WCA04.05 | Coiled tubing shear ram equipment operating limits. | Explain when the coiled tubing shear ram equipment will shear and when it will not. | A |
| WI-SF-CTO-04.02.02 | WCH01.01 | How to shut in the well quickly and safely with or without coiled tubing in the well. | Outline why it is important to safely shut in the well during a coiled tubing operation:<br>- with coiled tubing in the well<br>- without coiled tubing in the well. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
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| **SNUBBING (SN)** | | | | |
| **Application SN** | | | | |
| WI-SF-SNO-01.01.01 | NEW | When snubbing is used. | Explain when snubbing is used. | B |
| **Equipment SN** | | | | |
| WI-SF-SNO-01.02.01 | NEW | The snubbing equipment in different operating environments. | From a given surface layout diagram, identify the snubbing components used in well intervention (including escape systems). | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| **PRESSURE CONTROL** | | | | |
| **Surface PCE stack SN** | | | | |
| WI-SF-SNO-02.01.01 | NEW | PCE required for snubbing operations. | From a given diagram or description identify the function and positioning of the surface PCE components required for snubbing operations. | A |
| **Primary barrier elements SN** | | | | |
| WI-SF-SNO-02.02.01 | WSF01.03 | Primary barrier elements used during snubbing operations. | From a given diagram or description, identify the function and positioning of primary barrier elements used during snubbing operations:<br>- stripper bowl or annular preventer<br>- upper and lower stripper rams. | A |
| WI-SF-SNO-02.02.03 | WSA06.01 | Primary barrier element integrity during snubbing operations. | Outline the factors that can affect the integrity of the primary barrier elements during snubbing operations.<br>- hydraulic pressure<br>- roughness of the workstring<br>- fluid composition<br>- maintenance<br>- running speeds. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
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| **Secondary barrier elements – BOPs (Ram Type Preventers) SN** | | | | |
| WI-SF-SNO-02.03.01 | WSA04.02 | Secondary barrier elements (snubbing BOPs) used during snubbing operations. | From a given diagram or description, identify the function and positioning of secondary barrier elements (snubbing BOPs) used during snubbing operations.<br><br>Explain why it is important to consider equipment access for loading various toolstring configurations. | A |
| WI-SF-SNO-02.03.02 | NEW | BOP ram configurations for different snubbing operations. | Explain why BOP ram configurations must change for different types of snubbing operations. | A |
| **Shearing devices SN** | | | | |
| WI-SF-SNO-02.04.01 | NEW | Snubbing shearing devices. | Explain the function and positioning of snubbing:<br>- shear ram<br>- shear/seal ram/valve. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
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| **PRESSURE CONTROL (BARRIER ELEMENTS AND ENVELOPES) PRINCIPLES SN** | | | | |
| WI-SF-SNO-03.01.01 | NEW | Grouping barrier elements into barrier envelopes during snubbing operations. | From a given snubbing situation or surface rig-up diagram, identify primary barrier elements and group them into envelopes. | A |
| **Safely repair or replace failed primary barrier elements SN** | | | | |
| WI-SF-SNO-03.03.01 | WSA02.02 | The reasons for changing worn elastomers and temporary suspension of work. | Explain why maintaining elastomer integrity is important. | A |
| WI-SF-SNO-03.03.02 | NEW | Secondary barrier elements and envelopes for snubbing if a primary barrier element fails. | Describe the use of equipment as secondary barrier elements/envelopes during snubbing operations.<br><br>From a given diagram or description identify double barrier protection while repairing and/or replacing failed components. | A |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
|---|---|---|---|---|
| WI-SF-SNO-03.03.03 | WSA05.04 | Maintaining a double barrier when changing the annular element during intervention. | Explain why two barriers must be maintained when changing annular element during intervention in line with industry good practice. | A |
| **WELL INTERVENTION OPERATIONS SN** | | | | |
| **Operational Considerations (with well control consequences) SN** | | | | |
| WI-SF-SNO-04.01.01 | WSI01.01 | The forces on the workstring created by well pressure. | Explain the forces on the workstring created by well pressure:<br>- pipe light and pipe heavy<br>- buckling. | B |
| WI-SF-SNO-04.01.02 | NEW | Snubbing pipe in and out of a live well (with square collars/ram to ram). | From a given diagram or description, explain how the components of the jacking system work to snub the pipe with square collars in and out of a live well. | B |

| New syllabus category | Old syllabus category | Learning objective. During this course the student will gain an understanding of: | Learning outcome. By the end of this course the student will be able to: | Importance |
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| **Controlled well shut in SN** | | | | |
| WI-SF-SNO-04.02.01 | WSH01.01 | How to shut in the well quickly and safely with or without workstring in the well. | Outline why it is important to safely shut in the well during a snubbing operation:<br>- with workstring in the well<br>- without workstring in the well. | A |
| WI-SF-SNO-04.02.02 | WSA04.06 | Snubbing shear ram equipment operating limits. | Explain how running different types of toolstring through the shearing device can affect its shearing capability. | A |