

Course Summary

Casing and Tubular Design



Session	Day 1	Day 2	Day 3	Day 4	Day 5
08:00 to 10:15	Casing and tubular design <i>Self-test quiz</i>	Preliminary design (I) <i>Work examples</i>	Pipe rating burst and collapse	Biaxial and combined loads	Casing and tubular connections
15 mins	Break				
10:30 to 12:00	Conductor design <i>Work examples</i>	Preliminary design (II) <i>Work examples</i>	Pipe rating burst and collapse <i>Work examples</i>	Biaxial and combined loads <i>Work examples</i>	Special casing and tubular design considerations
12:00 to 13:00	Lunch Break				
13:00 to 14:30	Structural and surface casing design <i>Work examples</i>	Design loads and design factors <i>Work examples</i>	Pipe rating Axial loads <i>Work examples</i>	Tri-axial design	Work group design session (IV) Post course test (optional)
15 mins	Break				
14:45 to 16:30	Conductor, structural design <i>Debrief day 1</i>	Work group design session (1) <i>Debrief day 2</i>	Work group design session (2) <i>Debrief day 3</i>	Work group design session (3) <i>Debrief day 4</i>	Course debrief Feedback forms Close-out

Note: Work group design sessions will follow a complete well's casing and tubular design process



Course Details

Casing and Tubular Design



Course Introduction and Overview

Fundamental casing design

- Casing types and functions
- Design methodology
- Required information

Conductor and structural strings

- Structural string design
- Design criteria
- Top hole casing points
- Conductor setting depths
- Surface casing

Preliminary casing design

- Introduction
- Mud program
- Shoe setting depths
- Number of strings
- Hole and pipe diameters
- Top of cement
- Trajectory planning
- Pressure testing
- Well integrity assurance

Casing design Loads

- Introduction
- Constructions of load lines
- Burst, collapse load cases
- Axial load cases

Casing design Factors

- Operating design factors

Tubular pipe ratings

- Burst strengths
- Collapse strengths
- Axial strength
- Reduced wall vs nominal thickness
- Combine loads
- Yield temperature derating

Tri-axial design

- Theory
- Practical use

Casing and Tubular Connections

- Why connections fail
- Factors affecting connection performance
- General use guidelines
- API connection ratings
- Design factors for API connections
- Use of proprietary connections
- Thread compounds

Special design considerations

- Service loads and buckling
- Temperature effects
- Wear
- Corrosion
- Horizontal, ERD wells
- Deepwater, HP HT special considerations
- Other considerations

Appendix A: A Quick reference design

Appendix B: Load case equations

- Burst loads
- Collapse loads
- Axial loads

Appendix C: Supplementary Information

Note: Special and unique well situational conditions require specialised design variations from the principles addressed in this course.

A management of change would be initiated by the persons responsible to assure that compliant well integrity is maintained. Further design verification by a 3rd party casing and tubular design specialist is also frequently conducted.

Well Integrity

Drilling and Well Operations



⬡ Duration/Dates of Course

3 days (Classroom format)

Overview

A participative program to enable well operations personnel to develop the required knowledge to assure well integrity is maintained through a well's operating life cycle: drilling, completion, well testing, well services, intervention, work-over, to final well abandonment.

⬡ Target Participants

Personnel involved in the operational management, leadership, supervisory, engineering, technical or administrative support of a well's operational life cycle: drilling, completion, well testing, well services, intervention, work-over, to final well abandonment.

⬡ Purpose

- Assure compliant life of well integrity by assuring best operating practices, standards and guidelines are correctly managed and controlled.

⬡ Goals and Objectives

- To understand the importance of and grasp the process of well integrity management.
- Prevent well integrity issues using best practise design, planning and life of well execution.
- Acquire the technical skills to safely mitigate life of well integrity problems through appropriate planning, organisation, implementation and well control operations from project start to finish.
- Develop a multidisciplinary approach to deliver trouble free operations through compliant well integrity assurance.

⬡ Course Take Away

- View well integrity within the framework of key strategic operations efforts and maintain a compliant focus on the key areas of well integrity assurance.
- To understand the operational duties in regards to well integrity:
 - Ability to plan, design and engineer a well free from integrity problems during drilling and all associated well operations that follow.
 - Demonstrate a hazard and change management approach to reduce well integrity risks as low as reasonably practicable.
 - Be capable of recognizing and analyzing the warning signs and identify symptoms of well integrity issues that could arise within drilling and well operations.
 - How to employ best practice well integrity management throughout the operational life of wells.