Professional Certificate in Well Engineering and Drilling Management

GExperts Learning Academy | PC-034 | PC | 16 weeks

Course overview

16 weeks PC programme focused on Professional Certificate in Well Engineering and Drilling Management, using energy-sector cases and applied decisions.

Designed for: Learners appropriate to the stated programme level

Learning outcomes

- Explain core principles and terminology for Professional Certificate in Well Engineering and Drilling Management.
- Interpret an applied case using evidence and stated assumptions.
- Identify risks, safeguards, role boundaries and escalation points.
- Prepare a clear recommendation for a multidisciplinary audience.

Course guide

Work through each module objective, lesson and teaching note, complete the applied activity and assessment, then use the separate Academy practice page for practice questions and answer feedback.

Separate practice questions:
https://www.globalexpertsconsultoria.com/training/academy/courses/questions/?course=PC-034

Academic and certification status

Draft learning resource for study and review. It does not confer accreditation, external certification, a regulated qualification, professional licence, safety-critical competence or site authorisation. Confirm approvals, current laws, standards, approved procedures and awarding-body requirements before delivery.

Module 1: Well architecture and drilling systems

Learning objectives

- Explain well architecture and drilling systems, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Well architecture and drilling systems
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. A well connects the reservoir to the surface through a designed sequence of hole sections, casing and barriers. Explain measured depth versus true vertical depth, wellhead functions and interfaces with rig, marine riser and subsea equipment.

Decision logic. Well design starts with reservoir objectives, pressures, temperature, hazards and data uncertainty. Casing depth and equipment ratings require engineering calculations and independent review. This course uses diagrams and educational calculations, never an executable drilling programme.

Worked example. A deviated well has greater measured depth than vertical depth; fluid hydrostatic head relates to vertical depth.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Label a fictional well schematic and list five missing design inputs.

Model answer guide. Include pore pressure, fracture limits, temperature, geology and service conditions; distinguish equipment identification from design approval.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Label a fictional well schematic and list five missing design inputs.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 2: Casing and cementing

Learning objectives

- Explain casing and cementing, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Casing and cementing
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. Casing supports the borehole and isolates formations; cement contributes to zonal isolation and structural support. Explain shoe, annulus, centralisation and displacement using a cutaway diagram. Distinguish design intent from evidence that a barrier has actually been established.

Decision logic. Assess cement placement uncertainty, contamination, losses and verification data together. Pressure tests and logs answer different questions and must be interpreted within an approved programme. Do not provide generic acceptance pressures or operational instructions that override site procedures.

Worked example. A calculated cement volume matches the plan, but returns indicate possible losses. Volume pumped alone cannot confirm isolation.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Review a fictional cementing quality dossier and identify acceptance evidence gaps.

Model answer guide. Require reconciled volumes, operational observations and appropriate verification reviewed by authorised engineers.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Review a fictional cementing quality dossier and identify acceptance evidence gaps.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 3: Directional and deepwater drilling

Learning objectives

- Explain directional and deepwater drilling, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Directional and deepwater drilling
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. Inclination, azimuth and trajectory define where the well travels. Directional tools support reservoir access while introducing torque, drag, survey and collision considerations. Deepwater adds long interfaces, marine exposure and limited intervention options.

Decision logic. Teach trajectory quality assurance through coordinate reference, survey uncertainty and target tolerances. Separate trajectory feasibility from safe execution. A plan should include independent checks and contingencies for geological or equipment changes rather than a single perfect line.

Worked example. Two planned wells appear separate on a map but their uncertainty envelopes overlap at depth.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Mark target and uncertainty envelopes and propose a review hold point.

Model answer guide. Check reference systems and uncertainty before approving proximity; refer collision analysis to competent well engineers.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Mark target and uncertainty envelopes and propose a review hold point.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 4: Well control and barrier management

Learning objectives

- Explain well control and barrier management, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Well control and barrier management
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. A barrier system prevents unintended fluid flow. Show primary and secondary barrier envelopes and the need for defined performance standards. Recognising indications, reporting promptly and following the authorised well-control programme are distinct from being certified to operate equipment.

Decision logic. Teach barrier status with evidence, not equipment names alone. An installed component may be unavailable, untested or outside its operating envelope. Barrier changes require controlled review. No live well-control drill or shut-in sequence is prescribed by this awareness content.

Worked example. A component appears on the drawing, but its required test record is missing. Treat its verified availability as unresolved.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Construct a barrier-status register from a fictional well diagram.

Model answer guide. Record function, verification, owner, limitation and escalation; do not mark an unverified barrier healthy.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Construct a barrier-status register from a fictional well diagram.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 5: Drilling economics and performance

Learning objectives

- Explain drilling economics and performance, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Drilling economics and performance
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. Well cost includes rig time, services, materials, logistics and uncertainty. Distinguish productive time, planned non-drilling activity and non-productive time. A time saving has value only if safety, integrity and data objectives remain satisfied.

Decision logic. Benchmark like-for-like intervals and account for geology, water depth and well objectives. Use a time-depth curve to identify variance, then test causes before attributing blame. Avoid rewarding speed that suppresses necessary verification.

Worked example. At a fictional rig-related spread cost of USD 400,000 per day, two avoided days save USD 800,000 before other effects.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Analyse a three-day delay and propose an evidence-based improvement.

Model answer guide. Separate controllable causes, external constraints and prevention cost; preserve required verification activities.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Analyse a three-day delay and propose an evidence-based improvement.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 6: Professional Certificate in Well Engineering and Drilling Managem

Learning objectives

- Explain professional certificate in well engineering and drilling management: data and performance, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Professional Certificate in Well Engineering and Drilling Management: Data and Performance
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Well Engineering and Drilling Management: Data and Performance describes a practical part of Professional Certificate in Well Engineering and Drilling Management. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for professional certificate in well engineering and drilling management: data and performance. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans professional certificate in well engineering and drilling management: data and performance while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for professional certificate in well engineering and drilling management: data and performance: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for professional certificate in well engineering and drilling management: data and performance: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 7: Professional Certificate in Well Engineering and Drilling Managem

Learning objectives

- Explain professional certificate in well engineering and drilling management: applied case, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Professional Certificate in Well Engineering and Drilling Management: Applied Case
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Well Engineering and Drilling Management: Applied Case describes a practical part of Professional Certificate in Well Engineering and Drilling Management. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for professional certificate in well engineering and drilling management: applied case. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans professional certificate in well engineering and drilling management: applied case while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for professional certificate in well engineering and drilling management: applied case: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for professional certificate in well engineering and drilling management: applied case: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 8: Professional Certificate in Well Engineering and Drilling Managem

Learning objectives

- Explain professional certificate in well engineering and drilling management: communication and escalation, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Professional Certificate in Well Engineering and Drilling Management: Communication and Escalation
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Well Engineering and Drilling Management: Communication and Escalation describes a practical part of Professional Certificate in Well Engineering and Drilling Management. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for professional certificate in well engineering and drilling management: communication and escalation. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans professional certificate in well engineering and drilling management: communication and escalation while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for professional certificate in well engineering and drilling management: communication and escalation: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for professional certificate in well engineering and drilling management: communication and escalation: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 9: Professional Certificate in Well Engineering and Drilling Managem

Learning objectives

- Explain professional certificate in well engineering and drilling management: knowledge check, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Professional Certificate in Well Engineering and Drilling Management: Knowledge Check
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Well Engineering and Drilling Management: Knowledge Check describes a practical part of Professional Certificate in Well Engineering and Drilling Management. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for professional certificate in well engineering and drilling management: knowledge check. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans professional certificate in well engineering and drilling management: knowledge check while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for professional certificate in well engineering and drilling management: knowledge check: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for professional certificate in well engineering and drilling management: knowledge check: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 10: Professional Certificate in Well Engineering and Drilling Managem

Learning objectives

- Explain professional certificate in well engineering and drilling management: competence review, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Professional Certificate in Well Engineering and Drilling Management: Competence Review

2. Systems and operating context

3. Evidence, assumptions and decision gates

4. Hazards, safeguards and escalation

5. Applied case: Professional Certificate in Well Engineering and Drilling Management

Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Well Engineering and Drilling Management: Competence Review describes a practical part of Professional Certificate in Well Engineering and Drilling Management. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for professional certificate in well engineering and drilling management: competence review. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans professional certificate in well engineering and drilling management: competence review while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for professional certificate in well engineering and drilling management: competence review: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for professional certificate in well engineering and drilling management: competence review: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Facilitator close-out and resources

Facilitator close-out

Record attendance, assessment evidence, learner support needs, incidents and improvement actions according to approved provider processes. Do not sign learners off for regulated or safety-critical work without the authorised assessment and certification route.

Resources and references

- Supplied GExperts/IUM reference materials; verify reuse rights and currentness.
- Current applicable Namibian legislation, standards and approved site procedures supplied by the provider.
- Case worksheet and instructor slides must be produced and reviewed before course release.