Certificate in Petroleum Industry Fundamentals

GExperts Learning Academy | C-019 | C | 8 weeks

Course overview

8 weeks C programme focused on Certificate in Petroleum Industry Fundamentals, using energy-sector cases and applied decisions.

Designed for: Learners appropriate to the stated programme level

Learning outcomes

- Explain core principles and terminology for Certificate in Petroleum Industry Fundamentals.
- 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=C-019

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: Petroleum value chain

Learning objectives

- Explain petroleum value chain, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Petroleum value chain
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Certificate in Petroleum Industry Fundamentals

Detailed teaching notes

Teaching notes

Core explanation. Exploration tests whether a petroleum system exists; appraisal narrows uncertainty; development creates wells and facilities; production converts reservoir fluids into saleable streams. Transport, refining and marketing connect production to users. Show each interface on a reservoir-to-customer diagram, including ownership and custody transfer.

Decision logic. A discovery is evidence of hydrocarbons, not proof of an investable project. Commerciality also requires recoverable volume, deliverability, market access, finance, permits and acceptable impacts. Ask learners which organisation owns each decision and which evidence is still missing.

Worked example. A fictional discovery has oil samples but no flow test. Its next decision is appraisal, not a promised first-production date.

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. Draw seven value-chain stages and identify one supplier opportunity and one evidence requirement at each.

Model answer guide. Accept stage-specific evidence and distinguish sampling from sustained deliverability. Reject guaranteed employment or production dates.

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

Applied activity

Draw seven value-chain stages and identify one supplier opportunity and one evidence requirement at each.

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: 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: Certificate in Petroleum Industry Fundamentals

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 3: Deepwater development concept selection

Learning objectives

- Explain deepwater development concept selection, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Deepwater development concept selection
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Certificate in Petroleum Industry Fundamentals

Detailed teaching notes

Teaching notes

Core explanation. Compare subsea tieback, standalone floating production and shore-linked concepts against reservoir, metocean, water depth, distance and product requirements. A concept is an integrated system of wells, facilities, export and support infrastructure. Show the interfaces before scoring alternatives.

Decision logic. Apply mandatory constraints before weighted scoring. Document weighting, uncertainty and options that fail a hard requirement. Lowest capital cost may increase operating risk or reduce recovery. Revisit selection when appraisal or market evidence changes.

Worked example. Concept A costs less initially but cannot accommodate the high gas case; Concept B has expansion capacity.

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 concept matrix with technical, commercial, environmental and local-capability criteria.

Model answer guide. Reject infeasible options before ranking and include lifecycle cost, flexibility and uncertainty.

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

Applied activity

Prepare a concept matrix with technical, commercial, environmental and local-capability criteria.

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: Refining gas processing and product markets

Learning objectives

- Explain refining gas processing and product markets, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Refining gas processing and product markets
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Certificate in Petroleum Industry Fundamentals

Detailed teaching notes

Teaching notes

Core explanation. Refining separates crude into fractions and upgrades them to meet product needs. Distillation, conversion and treating perform different functions. Explain simple versus more complex configurations and the role of hydrogen, utilities and environmental controls.

Decision logic. A refinery investment requires feedstock security, product demand, scale, logistics, finance and regulatory feasibility. Local crude production does not by itself justify a refinery. Compare netbacks from export and processing under explicit assumptions.

Worked example. A fictional simple refinery produces fractions that do not match the domestic demand mix, requiring imports or exports anyway.

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. Develop a refinery-versus-export decision matrix.

Model answer guide. Include product specifications, market size, capital, utilities, emissions, feed assurance and logistics.

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

Applied activity

Develop a refinery-versus-export decision matrix.

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: Petroleum economics overview

Learning objectives

- Explain petroleum economics overview, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Petroleum economics overview
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Certificate in Petroleum Industry Fundamentals

Detailed teaching notes

Teaching notes

Core explanation. Economics translates technical scenarios into cash-flow consequences. Define decision alternatives and the perspective first, then estimate volume, timing, realised prices, costs, fiscal payments and closure. Compare value, affordability and exposure together.

Decision logic. Use transparent assumptions with units and source dates. A model's arithmetic can be correct while its development assumptions are implausible. Separate geological uncertainty, engineering uncertainty and market risk, and show which could reverse the decision.

Worked example. Two fictional projects have equal undiscounted cash surplus but one receives cash five years later.

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. Explain which may have greater present value and what additional information is required.

Model answer guide. Earlier comparable cash usually has greater present value at positive discount rates; require timing and risk details.

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

Applied activity

Explain which may have greater present value and what additional information is required.

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: Offshore hazards and safe working

Learning objectives

- Explain offshore hazards and safe working, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Offshore hazards and safe working
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Certificate in Petroleum Industry Fundamentals

Detailed teaching notes

Teaching notes

Core explanation. Hazards include moving machinery, hydrocarbons, pressure, electricity, weather, dropped objects and human exposure. Risk depends on likelihood and consequence in a defined task. Hazard recognition is the beginning of control, not permission to work.

Decision logic. Use elimination, substitution and engineered controls before relying only on procedures or PPE. Include manual handling and hazardous substances from the IMIST source themes. Train learners to stop and escalate unsafe conditions and remain within their authority.

Worked example. A walkway crosses a lifting zone. A helmet alone does not remove dropped-load exposure.

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. Identify five hazards in a fictional deck layout and propose controls in hierarchy order.

Model answer guide. Prefer segregation or changed routing over PPE alone; identify responsible verification.

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

Applied activity

Identify five hazards in a fictional deck layout and propose controls in hierarchy order.

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: Petroleum legislative architecture

Learning objectives

- Explain petroleum legislative architecture, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Petroleum legislative architecture
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Certificate in Petroleum Industry Fundamentals

Detailed teaching notes

Teaching notes

Core explanation. Distinguish legislation, regulations, licence conditions, contracts and internal procedures. Public-law obligations and private agreements serve different functions. A commercial agreement cannot be assumed to waive a statutory requirement. Identify which authority and jurisdiction govern each issue.

Decision logic. Teach a verification method rather than unverified current legal rules: locate the official instrument, record amendment and commencement status, confirm applicability, and obtain qualified review. Classroom comparisons of concessions and PSAs are not statements of Namibia's adopted system.

Worked example. A contract refers to an old environmental instrument; the legal register must check current requirements before relying on it.

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. Create a legal-register template for exploration, development and operations.

Model answer guide. Include instrument, version, duty, applicability, owner, evidence and next review date.

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

Applied activity

Create a legal-register template for exploration, development and operations.

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: Certificate in Petroleum Industry Fundamentals: Communication a

Learning objectives

- Explain certificate in petroleum industry fundamentals: communication and escalation, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Certificate in Petroleum Industry Fundamentals: Communication and Escalation

2. Systems and operating context

3. Evidence, assumptions and decision gates

4. Hazards, safeguards and escalation

5. Applied case: Certificate in Petroleum Industry Fundamentals

Detailed teaching notes

Teaching notes

Core explanation. Certificate in Petroleum Industry Fundamentals: Communication and Escalation describes a practical part of Certificate in Petroleum Industry Fundamentals. 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 certificate in petroleum industry fundamentals: 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 certificate in petroleum industry fundamentals: 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 certificate in petroleum industry fundamentals: 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 certificate in petroleum industry fundamentals: 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: Certificate in Petroleum Industry Fundamentals: Knowledge Check

Learning objectives

- Explain certificate in petroleum industry fundamentals: knowledge check, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Certificate in Petroleum Industry Fundamentals: Knowledge Check
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Certificate in Petroleum Industry Fundamentals

Detailed teaching notes

Teaching notes

Core explanation. Certificate in Petroleum Industry Fundamentals: Knowledge Check describes a practical part of Certificate in Petroleum Industry Fundamentals. 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 certificate in petroleum industry fundamentals: 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 certificate in petroleum industry fundamentals: 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 certificate in petroleum industry fundamentals: 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 certificate in petroleum industry fundamentals: 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: Certificate in Petroleum Industry Fundamentals: Competence Rev

Learning objectives

- Explain certificate in petroleum industry fundamentals: competence review, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Certificate in Petroleum Industry Fundamentals: Competence Review
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Certificate in Petroleum Industry Fundamentals

Detailed teaching notes

Teaching notes

Core explanation. Certificate in Petroleum Industry Fundamentals: Competence Review describes a practical part of Certificate in Petroleum Industry Fundamentals. 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 certificate in petroleum industry fundamentals: 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 certificate in petroleum industry fundamentals: 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 certificate in petroleum industry fundamentals: 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 certificate in petroleum industry fundamentals: 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.