# Professional Certificate in Integrated Reservoir-to-Surface Development

**GExperts Learning Academy | PC-033 | PC | 16 weeks**

## Course overview

16 weeks PC programme focused on Professional Certificate in Integrated Reservoir-to-Surface Development, 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 Integrated Reservoir-to-Surface Development.
- 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-033

## 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: Reservoir rock and fluid properties

## Learning objectives

- Explain reservoir rock and fluid properties, interpret a case, select appropriate controls and justify a documented decision.

## Lessons

1. Purpose and key terms of Reservoir rock and fluid properties
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Integrated Reservoir-to-Surface Development

## Detailed teaching notes

Teaching notes

Core explanation. Porosity measures pore volume; permeability describes flow capacity. Fluids vary in viscosity, density and phase behaviour with pressure and temperature. Explain why a porous rock may still flow poorly and why laboratory measurements need reservoir-condition interpretation.

Decision logic. Discuss effective permeability, wettability and relative permeability as multiphase-flow concepts. Scale matters: a small core sample may miss fractures or barriers. Integrate core, logs and dynamic evidence rather than assigning one uniform property to a whole field.

Worked example. Two rocks both have 20% porosity, but one has poorly connected pores and much lower permeability.

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. Compare fictional core and fluid data and identify likely production constraints.

Model answer guide. Use permeability, viscosity and connectivity; do not infer productivity from porosity alone.

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

## Applied activity

Compare fictional core and fluid data and identify likely production constraints.

## 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: Material balance and decline analysis

## Learning objectives

- Explain material balance and decline analysis, interpret a case, select appropriate controls and justify a documented decision.

## Lessons

1. Purpose and key terms of Material balance and decline analysis
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Integrated Reservoir-to-Surface Development

## Detailed teaching notes

Teaching notes

Core explanation. Material balance reconciles withdrawals with fluid expansion and influx under stated assumptions. Decline analysis describes rate trends under defined operating conditions. Both require quality-controlled time series and consistent fluid volumes.

Decision logic. A changing choke, workover or facility constraint can mimic reservoir decline. Segment the history before fitting curves and explain boundary assumptions. Material balance can be misleading if influx or compartmentalisation is ignored. Do not present a fitted curve as independent proof of reserves.

Worked example. Monthly oil rates of 100, 90 and 81 units suggest 10% interval decline only if intervals and operating conditions are comparable.

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. Fit the next rate and list three reasons the extrapolation could fail.

Model answer guide. 72.9 units under unchanged exponential decline; facility changes, intervention or reservoir behaviour can invalidate it.

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

## Applied activity

Fit the next rate and list three reasons the extrapolation could fail.

## 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: Production forecasting

## Learning objectives

- Explain production forecasting, interpret a case, select appropriate controls and justify a documented decision.

## Lessons

1. Purpose and key terms of Production forecasting
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Integrated Reservoir-to-Surface Development

## Detailed teaching notes

Teaching notes

Core explanation. Forecasts combine reservoir behaviour, well availability, ramp-up, capacity constraints and downtime. Distinguish potential reservoir production from saleable output. State units, time basis and whether rates are instantaneous, daily averages or annual totals.

Decision logic. Build low, base and high cases with internally consistent constraints. Bottlenecks can shift as water production rises. Compare forecast to observed history when available and track revisions with reasons. Do not assign actual Namibian first-oil dates from classroom scenarios.

Worked example. A system with 100,000 barrels/day potential and 90% availability yields 90,000 barrels/day average before other constraints.

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 one-year forecast with availability falling to 80% for three months.

Model answer guide. Calculate period-weighted output and explain facility versus reservoir constraints separately.

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

## Applied activity

Prepare a one-year forecast with availability falling to 80% for three months.

## 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: 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: Professional Certificate in Integrated Reservoir-to-Surface Development

## 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 5: Flow assurance

## Learning objectives

- Explain flow assurance, interpret a case, select appropriate controls and justify a documented decision.

## Lessons

1. Purpose and key terms of Flow assurance
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Integrated Reservoir-to-Surface Development

## Detailed teaching notes

Teaching notes

Core explanation. Flow assurance manages the ability to transport fluids through operating and transient conditions. Hydrates, wax, scale, corrosion and slugging can threaten performance. Explain the pressure-temperature-composition relationship qualitatively with a cooling pipeline sketch.

Decision logic. Assess startup, shutdown and restart as well as steady operation. Chemical treatment, insulation and operating strategies interact with facilities and environmental constraints. Classroom discussion does not prescribe inhibitor doses or live restart sequences.

Worked example. A pipeline flows normally when warm but cools during a long shutdown, changing restart risk.

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. Build a flow-assurance risk register for normal operation and shutdown.

Model answer guide. Include fluid data, thermal history, safeguards, monitoring and an authorised specialist review before restart.

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

## Applied activity

Build a flow-assurance risk register for normal operation and shutdown.

## 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 Integrated Reservoir-to-Surface Develop

## Learning objectives

- Explain professional certificate in integrated reservoir-to-surface development: data and performance, interpret a case, select appropriate controls and justify a documented decision.

## Lessons

1. Purpose and key terms of Professional Certificate in Integrated Reservoir-to-Surface Development: 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 Integrated Reservoir-to-Surface Development

## Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Integrated Reservoir-to-Surface Development: Data and Performance describes a practical part of Professional Certificate in Integrated Reservoir-to-Surface Development. 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 Integrated Reservoir-to-Surface Develop

## Learning objectives

- Explain professional certificate in integrated reservoir-to-surface development: applied case, interpret a case, select appropriate controls and justify a documented decision.

## Lessons

1. Purpose and key terms of Professional Certificate in Integrated Reservoir-to-Surface Development: Applied Case
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Integrated Reservoir-to-Surface Development

## Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Integrated Reservoir-to-Surface Development: Applied Case describes a practical part of Professional Certificate in Integrated Reservoir-to-Surface Development. 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 Integrated Reservoir-to-Surface Develop

## Learning objectives

- Explain professional certificate in integrated reservoir-to-surface development: communication and escalation, interpret a case, select appropriate controls and justify a documented decision.

## Lessons

1. Purpose and key terms of Professional Certificate in Integrated Reservoir-to-Surface Development: 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 Integrated Reservoir-to-Surface Development

## Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Integrated Reservoir-to-Surface Development: Communication and Escalation describes a practical part of Professional Certificate in Integrated Reservoir-to-Surface Development. 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 Integrated Reservoir-to-Surface Develop

## Learning objectives

- Explain professional certificate in integrated reservoir-to-surface development: knowledge check, interpret a case, select appropriate controls and justify a documented decision.

## Lessons

1. Purpose and key terms of Professional Certificate in Integrated Reservoir-to-Surface Development: Knowledge Check
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Integrated Reservoir-to-Surface Development

## Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Integrated Reservoir-to-Surface Development: Knowledge Check describes a practical part of Professional Certificate in Integrated Reservoir-to-Surface Development. 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 Integrated Reservoir-to-Surface Develo

## Learning objectives

- Explain professional certificate in integrated reservoir-to-surface development: competence review, interpret a case, select appropriate controls and justify a documented decision.

## Lessons

1. Purpose and key terms of Professional Certificate in Integrated Reservoir-to-Surface Development: Competence Review
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Professional Certificate in Integrated Reservoir-to-Surface Development

## Detailed teaching notes

Teaching notes

Core explanation. Professional Certificate in Integrated Reservoir-to-Surface Development: Competence Review describes a practical part of Professional Certificate in Integrated Reservoir-to-Surface Development. 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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 integrated reservoir-to-surface development: 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.