ROV and Underwater Robotics Awareness

GExperts Learning Academy | SC-011 | SC | 1 days

Course overview

1 days SC programme focused on ROV and Underwater Robotics Awareness, using energy-sector cases and applied decisions.

Designed for: Learners appropriate to the stated programme level

Learning outcomes

- Explain core principles and terminology for ROV and Underwater Robotics Awareness.
- 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=SC-011

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: ROV and Underwater Robotics Awareness: Core Concepts

Learning objectives

- Explain rov and underwater robotics awareness: core concepts, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of ROV and Underwater Robotics Awareness: Core Concepts
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. ROV and Underwater Robotics Awareness: Core Concepts describes a practical part of ROV and Underwater Robotics Awareness. 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 rov and underwater robotics awareness: core concepts. 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 rov and underwater robotics awareness: core concepts 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 rov and underwater robotics awareness: core concepts: 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 rov and underwater robotics awareness: core concepts: 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 2: Umbilicals and subsea control systems

Learning objectives

- Explain umbilicals and subsea control systems, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Umbilicals and subsea control systems
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. Umbilicals transmit combinations of power, communications, hydraulic service and chemicals. Subsea controls command and monitor equipment. Use a signal-and-energy diagram to separate commands, feedback and physical actuation.

Decision logic. Control philosophy must address loss of power, communications and hydraulic supply, plus the intended safe response. Check compatibility and redundancy across surface and subsea equipment. A command acknowledgement does not necessarily prove final valve position.

Worked example. A control command is received, but independent position feedback disagrees. Investigate rather than assume successful actuation.

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. Trace one command path and identify three failure points and their indication.

Model answer guide. Include surface control, communication, power or hydraulic supply and feedback; distinguish received command from achieved state.

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

Applied activity

Trace one command path and identify three failure points and their indication.

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: Inspection planning and technologies

Learning objectives

- Explain inspection planning and technologies, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Inspection planning and technologies
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. Inspection seeks evidence of condition and degradation using methods fit for the expected damage. Coverage, access, resolution and operator competence affect confidence. Distinguish visual survey, thickness measurement and detailed examination.

Decision logic. Start with the question being answered, then select method and locations. A clean report from limited coverage does not prove the whole asset is defect-free. Record limitations, traceability, findings and required engineering disposition.

Worked example. An external visual survey cannot establish internal wall thickness beneath insulation.

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. Design an inspection brief with objective, coverage, method and reporting limits.

Model answer guide. Match technique to mechanism and state what cannot be concluded.

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

Applied activity

Design an inspection brief with objective, coverage, method and reporting limits.

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: ROV and Underwater Robotics Awareness: Evidence and Decision

Learning objectives

- Explain rov and underwater robotics awareness: evidence and decision gates, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of ROV and Underwater Robotics Awareness: Evidence and Decision Gates
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. ROV and Underwater Robotics Awareness: Evidence and Decision Gates describes a practical part of ROV and Underwater Robotics Awareness. 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 rov and underwater robotics awareness: evidence and decision gates. 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 rov and underwater robotics awareness: evidence and decision gates 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 rov and underwater robotics awareness: evidence and decision gates: 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 rov and underwater robotics awareness: evidence and decision gates: 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 5: ROV and Underwater Robotics Awareness: Work Planning

Learning objectives

- Explain rov and underwater robotics awareness: work planning, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of ROV and Underwater Robotics Awareness: Work Planning
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. ROV and Underwater Robotics Awareness: Work Planning describes a practical part of ROV and Underwater Robotics Awareness. 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 rov and underwater robotics awareness: work planning. 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 rov and underwater robotics awareness: work planning 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 rov and underwater robotics awareness: work planning: 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 rov and underwater robotics awareness: work planning: 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 6: ROV and Underwater Robotics Awareness: Data and Performance

Learning objectives

- Explain rov and underwater robotics awareness: data and performance, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of ROV and Underwater Robotics Awareness: Data and Performance
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. ROV and Underwater Robotics Awareness: Data and Performance describes a practical part of ROV and Underwater Robotics Awareness. 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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: ROV and Underwater Robotics Awareness: Applied Case

Learning objectives

- Explain rov and underwater robotics awareness: applied case, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of ROV and Underwater Robotics Awareness: Applied Case
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. ROV and Underwater Robotics Awareness: Applied Case describes a practical part of ROV and Underwater Robotics Awareness. 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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: ROV and Underwater Robotics Awareness: Communication and Es

Learning objectives

- Explain rov and underwater robotics awareness: communication and escalation, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of ROV and Underwater Robotics Awareness: Communication and Escalation
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. ROV and Underwater Robotics Awareness: Communication and Escalation describes a practical part of ROV and Underwater Robotics Awareness. 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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: ROV and Underwater Robotics Awareness: Knowledge Check

Learning objectives

- Explain rov and underwater robotics awareness: knowledge check, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of ROV and Underwater Robotics Awareness: Knowledge Check
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. ROV and Underwater Robotics Awareness: Knowledge Check describes a practical part of ROV and Underwater Robotics Awareness. 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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: ROV and Underwater Robotics Awareness: Competence Review

Learning objectives

- Explain rov and underwater robotics awareness: competence review, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of ROV and Underwater Robotics Awareness: Competence Review
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: ROV and Underwater Robotics Awareness

Detailed teaching notes

Teaching notes

Core explanation. ROV and Underwater Robotics Awareness: Competence Review describes a practical part of ROV and Underwater Robotics Awareness. 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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 rov and underwater robotics awareness: 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.