Crude-Oil Quality, Refining and Product Markets

GExperts Learning Academy | SC-012 | SC | 2 days

Course overview

2 days SC programme focused on Crude-Oil Quality, Refining and Product Markets, using energy-sector cases and applied decisions.

Designed for: Learners appropriate to the stated programme level

Learning outcomes

- Explain core principles and terminology for Crude-Oil Quality, Refining and Product Markets.
- 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-012

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: Crude oil quality and assay interpretation

Learning objectives

- Explain crude oil quality and assay interpretation, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Crude oil quality and assay interpretation
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Crude-Oil Quality, Refining and Product Markets

Detailed teaching notes

Teaching notes

Core explanation. Crude properties include density, sulfur, acidity, metals, salt, water and distillation behaviour. API gravity is a density scale, not a complete quality grade. Explain how crude assay and sampling representativeness affect refinery fit and valuation.

Decision logic. A light crude can still present processing or materials challenges. Compare whole-crude properties with fraction yields and contaminants. Distinguish a laboratory result, a contractual specification and a refinery's acceptable feed envelope.

Worked example. Two hypothetical crudes have similar API gravity but very different sulfur and metals contents.

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 the two fictional assays and list additional data needed for refinery selection.

Model answer guide. Include contaminant management, fraction yields, blending and sampling quality; avoid ranking by API gravity alone.

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

Applied activity

Compare the two fictional assays and list additional data needed for refinery selection.

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: 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: Crude-Oil Quality, Refining and Product Markets

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 3: Global petroleum markets and price formation

Learning objectives

- Explain global petroleum markets and price formation, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Global petroleum markets and price formation
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Crude-Oil Quality, Refining and Product Markets

Detailed teaching notes

Teaching notes

Core explanation. Crude markets connect producers, traders, refiners and transport providers. Prices often reference benchmarks adjusted for quality, location and contract terms. OPEC is a producers' organisation, not a buyer qualification or an assurance of payment.

Decision logic. Separate physical delivery, price exposure and credit exposure. A high headline price can be offset by freight, quality discounts, finance or default risk. No company is labelled reliable without current due diligence and an approved transaction basis.

Worked example. Offer A is USD 75/barrel with USD 5 freight; offer B is USD 73 with USD 1 freight, before other terms.

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 simplified netbacks and identify non-price checks.

Model answer guide. A gives 70 and B gives 72 USD/barrel; check credit, delivery, sanctions and quality terms before selection.

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

Applied activity

Compare simplified netbacks and identify non-price checks.

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: Offtaker qualification and crude sales

Learning objectives

- Explain offtaker qualification and crude sales, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Offtaker qualification and crude sales
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Crude-Oil Quality, Refining and Product Markets

Detailed teaching notes

Teaching notes

Core explanation. Offtake evaluation combines buyer identity, ownership, trading capacity, credit, compliance, logistics and contract performance. Explain nomination, measurement, quality adjustment, payment security and delivery terms. Evidence should be verified through authorised sources.

Decision logic. Score technical and commercial capability separately from mandatory compliance requirements. Consider payment timing, security enforceability and concentration risk. A letter of interest is not a binding purchase obligation. Legal and credit specialists approve actual counterparties and terms.

Worked example. An unknown buyer offers the highest price but cannot substantiate credit support or receiving 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 due-diligence checklist and conditional recommendation for three fictional buyers.

Model answer guide. Reject price-only ranking and document unresolved credit and delivery risks.

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

Applied activity

Prepare a due-diligence checklist and conditional recommendation for three fictional buyers.

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: Crude-Oil Quality, Refining and Product Markets: Work Planning

Learning objectives

- Explain crude-oil quality, refining and product markets: work planning, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Crude-Oil Quality, Refining and Product Markets: Work Planning
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Crude-Oil Quality, Refining and Product Markets

Detailed teaching notes

Teaching notes

Core explanation. Crude-Oil Quality, Refining and Product Markets: Work Planning describes a practical part of Crude-Oil Quality, Refining and Product Markets. 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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: Crude-Oil Quality, Refining and Product Markets: Data and Perform

Learning objectives

- Explain crude-oil quality, refining and product markets: data and performance, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Crude-Oil Quality, Refining and Product Markets: Data and Performance
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Crude-Oil Quality, Refining and Product Markets

Detailed teaching notes

Teaching notes

Core explanation. Crude-Oil Quality, Refining and Product Markets: Data and Performance describes a practical part of Crude-Oil Quality, Refining and Product Markets. 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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: Crude-Oil Quality, Refining and Product Markets: Applied Case

Learning objectives

- Explain crude-oil quality, refining and product markets: applied case, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Crude-Oil Quality, Refining and Product Markets: Applied Case
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Crude-Oil Quality, Refining and Product Markets

Detailed teaching notes

Teaching notes

Core explanation. Crude-Oil Quality, Refining and Product Markets: Applied Case describes a practical part of Crude-Oil Quality, Refining and Product Markets. 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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: Crude-Oil Quality, Refining and Product Markets: Communication a

Learning objectives

- Explain crude-oil quality, refining and product markets: communication and escalation, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Crude-Oil Quality, Refining and Product Markets: Communication and Escalation
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Crude-Oil Quality, Refining and Product Markets

Detailed teaching notes

Teaching notes

Core explanation. Crude-Oil Quality, Refining and Product Markets: Communication and Escalation describes a practical part of Crude-Oil Quality, Refining and Product Markets. 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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: Crude-Oil Quality, Refining and Product Markets: Knowledge Chec

Learning objectives

- Explain crude-oil quality, refining and product markets: knowledge check, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Crude-Oil Quality, Refining and Product Markets: Knowledge Check
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Crude-Oil Quality, Refining and Product Markets

Detailed teaching notes

Teaching notes

Core explanation. Crude-Oil Quality, Refining and Product Markets: Knowledge Check describes a practical part of Crude-Oil Quality, Refining and Product Markets. 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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: Crude-Oil Quality, Refining and Product Markets: Competence Re

Learning objectives

- Explain crude-oil quality, refining and product markets: competence review, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Crude-Oil Quality, Refining and Product Markets: Competence Review
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Crude-Oil Quality, Refining and Product Markets

Detailed teaching notes

Teaching notes

Core explanation. Crude-Oil Quality, Refining and Product Markets: Competence Review describes a practical part of Crude-Oil Quality, Refining and Product Markets. 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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 crude-oil quality, refining and product markets: 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.