

Oil and Gas Production II / Oil and Gas Production III YAG

Semester 1: Oil and Gas Production II | Semester 2: Oil and Gas Production III | Double-Blocked | 36 Weeks

Course Structure: Each one-credit course is completed in one 18-week semester through double-block scheduling. OGP2: = §127.353 Oil and Gas Production II; OGP3: = §127.354 Oil and Gas Production III. CTE Employability Skills are integrated throughout, and Oil and Gas Production II also incorporates the required Career and Technical Education Standards in Occupational Safety and Health. ACCESS may support career exploration, employability, credential preparation, and postsecondary planning.

GP	Wks	Unit & Focus	Major Learning Tasks & Assessments	Integrated TEKS	Extension Activities
1	1-2	Unit 1 – Industry Careers, Professionalism & Occupational Safety	- Review petroleum career pathways, education, credentials and entrepreneurship - Apply professional communication, teamwork, problem solving and ethical workplace expectations - Demonstrate personal/occupational safety, health and first-aid practices - Apply hazard recognition, prevention, PPE and emergency-response expectations - Begin electronic career/skills portfolio	- OGP2: content integration §127.15(d)(1) §127.17	- ACCESS: energy careers - Safety credential prep - Industry speaker
1	3-5	Unit 2 – Petroleum Transportation & Safety	- Describe evolution of petroleum transportation - Research ground transportation methods and petroleum logistics - Survey transportation health/safety policies, procedures, regulations and practices - Analyze transportation hazards and controls - Communicate findings using industry terminology and data	- OGP2: 1(A-C) §127.15(d)(1) §127.17	- Transportation systems map - Hazard-analysis project - DOT/regulatory research
1	6-9	Unit 3 – Petroleum Economics, Marketing & Supply Chain	- Research petroleum economics and market forces - Compare marketing, sales and distribution of petroleum products - Identify supply-chain businesses and supply-creation companies - Analyze investment decision factors - Calculate rates of return to evaluate prospects	- OGP2: 1(D-I) §127.15(d)(1)	- ROI calculation lab - Supply-chain case study - Petroleum market briefing
2	10-12	Unit 4 – Waste Management, Spill Response & Environmental Protection	- Discuss disposal methods for exploration/production wastes - Identify cleanup methods for blowouts and spills - Identify refining processes that minimize environmental impact - Apply safety/environmental standards to realistic scenarios - Develop a response plan for a simulated environmental incident	- OGP2: 2(A-C) §127.15(d)(1) §127.17	- Spill-response simulation - Waste-management plan - Environmental agency research
2	13-15	Unit 5 – Energy Sources, Industry Priorities & Emerging Technology	- Research renewable energy sources relevant to the petroleum industry - Present current challenges and priorities of the petroleum industry - Research critical technologies needed in the future - Evaluate nontechnical solutions to energy needs - Connect emerging energy trends to oil/gas careers and business decisions	- OGP2: 3(A-D) §127.15(d)(1)	- Emerging-tech briefing - Energy transition debate - Future workforce research
2	16-17	Unit 6 – Industry Certification & Integrated Operations Project	- Synthesize transportation, economics, supply chain, environmental and energy-priority knowledge - Apply occupational safety and health standards to an integrated petroleum scenario - Prepare for applicable industry credentials/certifications - Finalize professional portfolio evidence - Present recommendations for a petroleum operations/business problem	- OGP2: 1-3 §127.15(d)(1) §127.17	- Certification review - Integrated industry case - Portfolio review

2	18	Oil and Gas Production II Semester Exam	• Cumulative written/performance assessment • Petroleum economics/transportation/environmental application • Occupational safety and industry-readiness performance task	• Cumulative: OGP2: 1–3 • §127.15(d)(1); §127.17	• Targeted remediation/enrichment
3	19–21	Unit 1 – Oilfield Hydraulics: History, Industry Impact & Careers	• Identify companies and innovations that contributed to oilfield hydraulics/fracturing • Explain hydraulic-fracturing history and importance to North American well production • Analyze the impact of hydraulics on North American energy • Connect new oil/gas production to technology • Explore advanced careers, education and entrepreneurship	• OGP3: 1(A–D) • §127.15(d)(2)	• Hydraulics history case study • Technology timeline • ACCESS: advanced career planning
3	22–24	Unit 2 – Pneumatic & Hydraulic Fundamentals	• Identify basic pneumatic components and interpret pneumatic schematics • Explain pneumatic pressure and units of measure • Identify five basic hydraulic-system components and their functions • Define hydraulics and appropriate units of measure • Compare pneumatic and hydraulic applications in petroleum engineering	• OGP3: 2(A–D) • §127.15(d)(2)	• Component identification lab • Pressure measurement lab • System comparison
3	25–27	Unit 3 – Pneumatic Safety, Regulators & Circuit Construction	• Explain and demonstrate the six pneumatic safety rules • Use required safety equipment and safe operating procedures • Explain and demonstrate pressure-regulator importance • Build/operate basic pneumatic circuits safely • Document safe work practices in technical portfolio	• OGP3: 3(A–C), 4(A,D) • §127.15(d)(2)	• Pneumatic safety practicum • Circuit build lab • Safety performance assessment
4	28–30	Unit 4 – Pneumatic Cylinders, Valves & Quick-Connect Systems	• Explain operation/functions of a double-acting pneumatic cylinder • Describe five-way three-position directional control valves • Describe pneumatic quick-connect fitting functions • Safely connect and test pneumatic circuits • Troubleshoot circuit behavior using schematics and observations	• OGP3: 4(A–D) • §127.15(d)(2)	• Cylinder circuit lab • DCV investigation • Troubleshooting challenge
4	31–32	Unit 5 – Hydraulic Schematics & ISO Symbols	• Describe ISO hydraulic symbols • Interpret hydraulic schematics used in oilfield applications • Draw accurate hydraulic schematics • Translate physical components into schematic representations • Communicate system operation using technical diagrams	• OGP3: 5(A–B) • §127.15(d)(2)	• ISO symbol assessment • Hydraulic schematic project • Peer design review
4	33–35	Unit 6 – Hydraulic Pressure, Flow, Pumps, Motors & Cylinder Circuits	• Calculate extending-cylinder force and cylinder retraction force • Explain Pascal's Law and its relevance to hydraulics • Identify/discuss hydraulic motors and pumps • Analyze hydraulic cylinders in single- and double-acting circuits • Integrate pneumatic/hydraulic skills in a final oilfield systems project	• OGP3: 6(A–D) • §127.15(d)(2)	• Force calculation lab • Hydraulic circuit build/simulation • Integrated systems capstone
4	36	Oil and Gas Production III Semester Exam & Systems Showcase	• Cumulative written/performance assessment • Pneumatic/hydraulic schematic and calculation application • Final systems demonstration and portfolio reflection	• Cumulative: OGP3: 1–6 • §127.15(d)(2)	• Industry/stakeholder showcase

TEKS Coverage Checklist

Semester 1 – Oil and Gas Production II

Strand/Standard	Student Expectations	YAG Placement	Coverage
OGP2: 1	A–I	Units 2–3, 6	100%
OGP2: 2	A–C	Units 4, 6	100%
OGP2: 3	A–D	Units 5–6	100%
CTE Employability	§127.15(d)(1)	Units 1–6	100%
Occupational Safety	§127.17	Units 1–2, 4, 6	100%

Semester 2 – Oil and Gas Production III

Strand/Standard	Student Expectations	YAG Placement	Coverage
OGP3: 1	A–D	Units 1, 6	100%
OGP3: 2	A–D	Units 2, 6	100%
OGP3: 3	A–C	Units 3, 6	100%
OGP3: 4	A–D	Units 3–4, 6	100%
OGP3: 5	A–B	Units 5–6	100%
OGP3: 6	A–D	Unit 6	100%
CTE Employability	§127.15(d)(2)	Units 1–6	100%

Implementation Notes

- Oil and Gas Production II is completed during Semester 1 in a double-block schedule and requires Oil and Gas Production I. Oil and Gas Production III is completed during Semester 2 in a double-block schedule and requires Oil and Gas Production II.
- Oil and Gas Production II integrates the required Career and Technical Education Standards in Occupational Safety and Health (§127.17) along with CTE Employability Skills §127.15(d)(1).
- Oil and Gas Production III integrates CTE Employability Skills §127.15(d)(2) and emphasizes safe, hands-on application of pneumatic and hydraulic systems, schematics, pressure, flow, cylinders, pumps, motors, and control components.
- Weeks 18 and 36 are reserved for cumulative semester exams. No instructional unit crosses the semester boundary, and no calendar-specific dates are included.