

Oil and Gas Production Mississippi Curriculum Framework

Oil and Gas Production- CIP: 15.0903 (Petroleum Technology/Technician)

2018



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The Office of Curriculum and Instruction (OCI) was founded in 2013 under the Division of Workforce, Career, and Technical Education at the Mississippi Community College Board (MCCB). The office is funded through a partnership with The Mississippi Department of Education (MDE), who serves as Mississippi's fiscal agent for state and federal Career and Technical Education (CTE) Funds. The OCI is tasked with developing statewide CTE curriculum, programming, and professional development designed to meet the local and statewide economic demand.

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ADOPTION OF NATIONAL CERTIFICATION STANDARDS

At the time of publication, no national standards were identified for alignment with this curriculum framework. The Office of Curriculum, Instruction, and Assessment will continue to work with college faculty and the industry advisory committee to identify potential national standards and/or national certifications appropriate for this program of study.

INDUSTRY JOB PROJECTION DATA

The Oil and Gas Production occupation require an education level of short-term on-the-job training or work experience in a related field. There is expected to be an 8.28% increase in occupational demand at the regional level and 8.28% increase at the state level. Median annual income for this occupation is \$50,710.40 at the state level. A summary of occupational data from the State Workforce Investment Board Data Center is displayed below:

Table 1: Education Level

Program Occupations	Education Level
Geological and Petroleum Technicians	Associate Degree

Table 2: Occupational Overview

	Region	State	United States
2014 Occupational Jobs	314	314	16228
202 Occupational Jobs	340	340	16332
Total Change	26	26	104
Total % Change	8.28%	8.28%	0.64%
2014 Median Hourly Earnings	\$24.38	\$24.38	\$26.35
2014 Median Annual Earnings	\$50,710.40	\$50,710.40	\$54,808.00
Annual Openings	2	2	10

Table 3: Occupational Breakdown

Description	2010 Jobs	2020 Jobs	Annual Openings	2010 Hourly Earnings	2010 Annual Earnings 2,080 Work Hours
Geological and Petroleum Technicians	314	340	2	\$24.38	\$50,710.40
TOTAL	314	340	2	\$24.38	\$50,710.40

Table 4: Occupational Change

Description	Regional Change	Regional % Change	State % Change	National % Change
Geological and Petroleum Technicians	26	8.28%	8.28%	0.64%

ARTICULATION

There is currently no secondary program that articulates in the Oil and Gas Production framework to articulate to this program.

TECHNICAL SKILLS ASSESSMENT

Colleges should report the following for students who complete the program with a career certificate, technical certificate, or an Associate of Applied Science Degrees for technical skills attainment. To use the approved Alternate Assessment for the following programs of study, colleges should provide a Letter of Notification to the Director of Career Technical Education at the MS Community College Board. Please see the following link for further instructions: <http://www.mccb.edu/wkfEdu/CTDefault.aspx>.

CIP Code	Program of Study		
15.0903	Oil and Gas Production		
Level	Standard Assessment	Alternate Assessment	
Career	MS-CPAS-3		
Level	Standard Assessment	Alternate Assessment	
Technical/AAS	MS-CPAS-3		

ONLINE AND BLENDED LEARNING OPPORTUNITIES

Course content includes lecture and laboratory semester credit hours. Faculty members are encouraged to present lecture related content to students in an online or blended learning environment. Training related to online and blended learning will be available to faculty members through the MS Community College Board.

INSTRUCTIONAL STRATEGIES

Instructional strategies for faculty members implementing the curriculum can be found through the Office of Curriculum and Instruction's professional development.

ASSESSMENT STRATEGIES

The Office of Curriculum and Instruction's professional development offer assessment strategies to faculty members implementing the curriculum. Additionally, standards were included in course content when appropriate.

RESEARCH ABSTRACT

In the summer of 2017, the Office of Curriculum and Instruction (OCI) met with the different industry members who made up the advisory committees for the Oil and Gas Production program. An industry questionnaire was used to gather feedback concerning the trends and needs, both current and future, of their field. Program faculty, administrators, and industry members were consulted regarding industry workforce needs and trends.

Industry advisory team members from the college involved with this program were asked to give input related to changes to be made to the curriculum framework. Specific comments related to soft skills needed in this program include being able to determine pressure and flow backs, understand compressor stations, understand depress stations, have a willingness to learn, and understand basic computer skills.

REVISION HISTORY:

2018 Mississippi Community College Board

VALIDATION

PROGRAM DESCRIPTION

Graduates from this program will receive an associate of applied science degree and are prepared for internships, apprenticeships, and entry level positions at any operations processing facility. They will have acquired basic technical skills in equipment, instrumentation, and operation of production systems in oil and gas as well as other carbon based processing facilities. Graduates will have a broadened vocabulary along with basic industrial communication and computer skills to make job specific learning less difficult. Graduates will also possess team building, behavior based, safety awareness, and environmental awareness skills that are critical in the workplace of today. In addition, our graduates will have a working knowledge of federal and state regulations on worker safety, safety systems, and the environment.

VALIDATION

SUGGESTED COURSE SEQUENCE

Accelerated Integrated Career Pathway

Course Number	Course Name	Semester Credit Hours	SCH Breakdown			Total Contact Hours	Certification Information
			Lecture	Lab	Clinical		Certification Name
OGP1113	Safety Health & Environment	3	3	0			
OGP 1133	Introduction to Oil and Gas Operations	3	3	0			
OGP 1213	Oil and Gas Operations I	3	2	2			
OGP 1313	Oil and Gas Equipment I	3	2	2			
	Instructor Approved Elective	3					
	Total	15					

Career Certificate Required Courses

Course Number	Course Name	Semester Credit Hours	SCH Breakdown			Total Contact Hours	Certification Information
			Lecture	Lab	Clinical		Certification Name
OGP1113	Safety Health & Environment	3	3	0		45	
OGP 1133	Introduction to Oil and Gas Operation	3	3	0		45	
OGP 1213	Oil and Gas Production I	3	2	2		60	
OGP 1313	Oil and Gas Equipment I	3	2	2		60	
OGP 1324	Oil and Gas Equipment II	4	3	2		75	
OGP 1413	Pneumatic Instrumentation	3	2	2		60	
OGP 1614	Oil and Gas Systems	4	3	2		75	
OGP 2214	Oil and Gas Production II	4	3	2		75	
	Instructor Approved Electives	3					
	TOTAL	30					

VALIDATION

Technical Certificate Required Courses

Course Number	Course Name	Semester Credit Hours	SCH Breakdown		Total Contact Hours	Contact Hour Breakdown		Certification Information
			Lecture	Lab		Lecture	Lab	Certification Name
OGP 2113	Production Safety Systems	3	2	2	60			
OGP 2223	Production Troubleshooting	3	2	2	60			
OGP 2313	Electronic Instrumentation	3	2	2	60			
OGP 2513	Oil and Gas Flow Diagrams	3	3	0	45			
	Instructor Approved Elective	3						
	TOTAL	15						

VALIDATION

General Education Core Courses – Oil and Gas Production Technology

To receive the Associate of Applied Science Degree, a student must complete all of the required coursework found in the Career Certificate option, Technical Certificate option and a minimum of 15 semester hours of General Education Core. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester or provided primarily within the last semester. Each community college will specify the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college. The Southern Association of Colleges and Schools (SACS) Commission on Colleges Standard 2.7.3 from the Principles of Accreditation: Foundations for Quality Enhancement¹ describes the general education core.

Section 2.7.3 In each undergraduate degree program, the institution requires the successful completion of a general education component at the collegiate level that (1) is substantial component of each undergraduate degree, (2) ensures breadth of knowledge, and (3) is based on a coherent rationale. For degree completion in associate programs, the component constitutes a minimum of 15 semester hours or the equivalent. These credit hours are to be drawn from and include at least one course from the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics. The courses do not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession.

General Education Courses

Course Number	Course Name	Semester Credit Hours	SCH Breakdown		Total Contact Hours	Contact Hour Breakdown		Certification Information
			Lecture	Lab		Lecture	Lab	
	Humanities/Fine Arts	3	3					
	Social/Behavioral Sciences	3	3					
	Math/Science	3	3					
	Academic electives	6	3					
	TOTAL	15						

¹

Southern Association of Colleges and Schools Commission on Colleges. (2012). *The principles of accreditation: Foundations for quality enhancement*. Retrieved from <http://www.sacscoc.org/pdf/2012PrinciplesOfAccreditation.pdf>

VALIDATION

Electives listing

Course Number	Course Name	Semester Credit Hours	SCH Breakdown			Total Contact Hours	Contact Hour Breakdown		
			Lecture	Lab	Externship		Lecture	Lab	Externship
OGP 2913	Special Project in Oil and Gas Production I	3	3	0	45				
OGP 2933	Special Projects II	3	2	2	60				
WBL 191,192 193,291 292, 293	Supervised Work experience in Oil and Gas Production	1-3							

The breakdown of the semester hours of these electives could be different by student. These activities are designed for, instructor approved, hands on work activities when possible. During these sessions many times Team instruction is necessary.

VALIDATION

OIL AND GAS PRODUCTION COURSES

Course Number and Name: **OGP 1113** **Safety Health and the Environment**

Description: This course covers the development of knowledge and skills required to reinforce attitudes and behaviors required for safe and environmentally work habits in the oil and gas industry. Health, safety and environmental issues are stressed along with regulatory compliance issues.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	3	0	45

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Identify and describe common types of hazards in process technology
 - a. Describe hazards related to chemical agents
 - b. Describe hazards related to noise, heat, radiation, and electricity
 - c. Describe hazards related to fire, explosion, and detonation
 - d. Describe hazards related to biological and ergonomic factors

2. Identify and describe government regulations and agencies that regulate worker and environmental safety
 - a. Identify the role that the Occupational Safety and Health Administration (OSHA) plays in regulating and promoting worker safety in industry
 - b. Identify the role that the Environmental Protection Agency (EPA) and state agencies play in regulating and promoting environmental safety
 - c. Identify the role that other state, federal, and private regulatory agencies play in regulating and promoting safety

3. Describe policies, procedures, and controls that are designed to ensure and promote worker safety
 - a. Identify engineering controls including alarms, indications, process containment, and process upset controls
 - b. Identify administrative controls, including programs and practices
 - c. Identify personal protective equipment (PPE)
 - d. Identify monitoring and sensing equipment
 - e. Describe the use of permitting systems to protect workers and the environment
 - f. Describe the use of fire, rescue, and emergency equipment in industry
 - g. Explain permitting processes. (i.e. work permits, MS One Call, JSA, MOC)

VALIDATION

Course Number and Name: **OGP 1133 Introduction to Oil and Gas Production**

Description: This course introduces students to process operations within the oil and gas industry. Topics include history of the industry, duties and responsibilities of the process technician, basic process and utility systems, and physical and mental requirements of personnel. .

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	3	0	45

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Discuss the history and development of oil and gas operations
2. Identify and describe the duties, responsibilities, and expectations of an oil and gas production operator
3. Identify and describe the function of process equipment
4. Identify fundamental process systems
5. Identify Upstream, Midstream, and Downstream process of the oil and gas industry
6. Discuss the history of how a Barrel of oil is measured

VALIDATION

Course Number and Name: OGP 1213 Oil and Gas Operations I

Description: This course is an overview of the different phases of the oil and gas industry from exploration to distribution with a specific emphasis on the production segment.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Identify the typical flow of production fluids through a process system
2. Identify the basic safety equipment requirements for the process system
3. Demonstrate understanding of simple flow diagrams of an oil and gas processing facility
4. Identify process equipment and its function with relationship to downstream operations
5. Identify the relationship between drilling activities and top side operation
6. Demonstrate understanding well down-hole equipment and the importance of records keeping

VALIDATION

Course Number and Name: **OGP 1313 Oil and Gas Equipment I**

Description: This course is a study of the equipment instrumental in the production of oil and gas in both offshore and onshore facilities. Auxiliary equipment will also be presented.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Describe various types of production equipment commonly found in oil and gas production systems
2. Describe various types of rotating equipment commonly found in oil and gas production operations
3. Describe various types of fixed equipment commonly found in oil and gas production operations
4. Use process and piping diagrams and drawings to explain process flows and identify equipment in a unit/system
5. Describe Subsea equipment and Mooring systems
6. Demonstrate in writing Hazards Identification in Oil and Gas Operations, utilization of JSA's, and Behavior Based Safety processes
7. Demonstrate understanding of the relationships between Operations, Mechanical, Electrical, and SCADA Tech. personnel and each disciplines roll in the Operations process

VALIDATION

Course Number and Name: **OGP 1324 Oil and Gas Equipment II**

Description: This course is a continuation of Oil and Gas equipment I, including compressors, turbines, tanks, pressurized vessels and other specialized equipment such as lact and dehydration units. Maintenance, troubleshooting, and record keeping is also covered.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	3	2	75

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Identify and explain oil and gas equipment terminology
2. Explain basic hydraulic and pneumatic concepts that apply to oil and gas production equipment
3. Demonstrate knowledge related to the use of compressors, turbines, tanks, vessels, and other specialized equipment found in the oil and gas industry
4. Identify rolls and responsibilities of each discipline in a work order maintenance and record keeping system or CMMS
5. Demonstrate knowledge of the roll of a Management of Change (MOC) system and its relationship to the CMMS system and impact to each piece of the process

VALIDATION

Course Number and Name: **OPG 1413 Pneumatic Instrumentation**

Description: This is an introductory course focusing on the concepts of automatic control and instruments used to sense, measure, transmit and control the production process with emphasis on pneumatics. Terminology, control loops and instrumentation drawings are a basic part of this course.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Describe and apply the major elements of process technology
 - a. Define pressure, and apply related measurements and processes used in the process industry
 - b. Define temperature, and apply related measurements and processes used in the process industry
 - c. Define level, and apply related measurements and processes used in the process industry
 - d. Define flow, and apply related measurements and processes used in the process industry
 - e. Define analytical instrumentation, and apply related measurements and processes used in the process industry

2. Describe and explain the functions and components of process control.
 - a. Identify and describe the various pieces of equipment used in instrumentation (transmitters; transducers; differential pressure cells; analog, pneumatic, and digital instruments; etc.)
 - b. Describe valves used in instrumentation (globe, three-way, butterfly, etc.)
 - c. Explain the functions and components of a control loop, and contrast the differences between open and closed controls
 - d. Describe the relationship between measurement instruments and their role in the overall control loop process

3. Describe the role and function of advanced controls and controllers in process operations. a. Identify the different advanced controls and controllers and their primary function

4. Demonstrate testing and proper operation of pneumatic level, temperature, pressure, and flow instruments in a hands on lab setting

VALIDATION

Course Number and Name: **OGP 1614** **Oil and Gas Systems**

Description: A detailed breakdown of each system that makes up an entire offshore and onshore oil and Gas process facility and the relationship and impact to the systems. Emphasis is placed on the cascade effect, along with fluid dynamics, and oil and gas measurement. Also, the relationships and similarities between different industries. The concept of a process is a process no matter the industry.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	3	2	75

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Demonstrate understanding of the emergency notification and life-saving systems
2. Describe understanding of the Mooring systems and the difference fixed structures and floating processing facilities
3. Describe rolls and responsibilities of a (CRO) Control Room Operator are discussed with emphasis on (FBM) Flag Bypass Monitor of safety systems
4. Demonstrate understanding of various utility systems on a major production processing facility like Power Generation, Hypochlorite system, Cranes and Hoisting systems, Equipment Storage and Preservation processes, Warehousing and Transportation systems are discussed
5. Discuss proper utilization of the different communication systems along with basic understanding of the customer and supplier relationships within the industry are also discussed

VALIDATION

Course Number and Name: **OGP 2113 Production Safety Systems**

Description: This course is a study of the installation, operation, undesirable events, inspection, testing and maintenance of the safety devices and production equipment used on offshore platforms. Topics include flow, pressure, temperature and level sensors, gas and fire detection devices, surface and subsurface safety valves. Special emphasis will be on developing an understanding of Title 30 CFR parts 250 O & H and API Rp14-C as they relate to process safety.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Monitor and maintain equipment according to manufacturer/company operational parameters, safety standards and government regulations
2. Monitor and maintain equipment maintenance coordination according to mechanical requirements, maintenance schedule or equipment malfunction
3. Demonstrate equipment preparation for mechanical work including shut down and Lockout/Tagout according to company policy
4. Demonstrate equipment being returned to service following mechanical work including verifying work, completing Lockout/Tagout, completing paperwork and start-up according to company policy
5. Verify Process variables meet product and equipment parameters

VALIDATION

Course Number and Name: OGP 2214 Oil and Gas Production II

Description: This course is a continuation of OGP 1114 oil and gas Production II. It is also designed as a lead in to OGP 1614 Oil and Gas systems.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	3	2	75

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Discuss the processes of gas treatment, dehydration, and compression
 - a. Discuss the composition and physical properties of natural gas
 - b. Describe treatments of natural gas including separation, dehydration, and conditioning
 - c. Compare and contrast liquid and solid dehydration processes, including equipment and procedures
 - d. Describe the process, equipment, and procedures used in natural gas compression
2. Describe the processes, equipment, and procedures used in produced water treatment and handling
 - a. Describe techniques used to treat and/or dispose of produced water in an onshore and offshore facility
 - b. Identify and describe the functions of major components of the produced water treatment system
 - c. Describe activities associated with monitoring and maintaining produced water treatment systems
 - d. Describe safety, and environmental concerns associated with working with the produced water treatment process
3. Describe the purpose and operation of auxiliary systems
 - a. Discuss how auxiliary systems support a production facility, including instrument air systems, flare and relief systems, fuel gas systems, electrical distribution systems, and so forth
 - b. Discuss pigging operations including different types of pigs, launching and recovery, and safety
 - c. Discuss the process technician's role in operation and maintenance of auxiliary systems
4. Describe the purpose and operation of artificial lift and enhanced recovery techniques
 - a. Explain the different artificial methods available for lifting hydrocarbons
 - b. Describe the equipment used for each type of lift
 - c. Describe processes and equipment involved in different artificial and enhanced recovery processes including beam pumping, subsurface hydraulic pumping, electric submersible pumping, water flooding, and so forth
5. Describe the purpose and operation of pumping and transportation systems used in oil and gas production.
 - a. Identify methods used to transport oil and gas products, including barges, railway, motor transportation, pipelines.
 - b. Discuss pipeline construction procedures for onshore and offshore operations.
 - c. Discuss economic and safety issues associated with the transportation of oil and gas products.
6. Identify and describe safety, health, and environmental considerations associated with oil and gas production
 - a. Discuss governmental agencies and regulations associated with oil and gas production, including Coast Guard, Minerals Management Service, American Petroleum Institute, Department of Transportation, OSHA, 30 CFR, and EPA
 - b. Discuss safety issues related to oil and gas production including rigging and hoisting, helicopter and boat safety, and hazardous and nonhazardous waste disposal
7. Discuss refining and processing operations
 - a. Outline the process and products from refining
 - b. Outline the processes and products from natural gas production
 - c. Identify major petrochemicals that can be derived from petroleum
 - d. Explain the relationship of efficient oil and gas production to efficient crude oil refining, natural gas processing, and petrochemical processing

VALIDATION

Course Number and Name: **OGP 2313 Electronic Instrumentation**

Description: This course places emphasis on control schemes, switches, annunciators, signal conversion and transmission, digital control systems, programmable logic control systems, and distributed control systems.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Identify digital control systems
2. Explain PLC distributed Control System
3. Explain Emergency shutdown procedures as they relate to electronic instrumentation
4. Apply operation of pneumatic and hydraulic power and control systems
5. Apply computation methods to more complex control loop applications
6. Demonstrate testing and proper operation of electronic level, temperature, pressure, and flow instruments in a hands on lab setting
7. Demonstrate proper procedure while using the Simtronics Simulator in a hands on lab setting to remotely operate and control a processing facility to;
 - Start up
 - Shut down
 - Place devices in test
 - Utilize historian feature, for decision making and possible control changes.

VALIDATION

Course Number and Name: **OGP 2513 Oil and Gas Flow Diagrams**

Description: Course topics include identification and application of electrical, piping, instrumentation mechanical and process drawings used in job planning. Identification of lines, symbols, lean symbols; interpretation of view, dimensions, and tolerances. Includes PFD, P&ID, Safe Charts, PE &I, electrical and electrical one-line drawings. Study instruments symbols, terminology, controllers, regulators, control loops and other instrument drawings.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	3	0	45

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Recognize, interpret, and follow flow systems based on process drawings
2. Describe typical process technician responsibilities for the following:
 - a. Operating systems
 - b. Monitoring systems
 - c. Troubleshooting systems
 - d. Completing rounds
 - e. Communication between inside and outside operators
 - f. Communication between process technician and other departments
3. Describe typical process technician responsibilities for the following:
 - a. Implementing established procedures and specifications
 - b. Completing maintenance tasks as assigned
 - c. Monitoring and maintaining auxiliary equipment
 - d. Completing related sampling and analysis tasks and responding appropriately to results
 - e. Communicating problems to appropriate personnel
 - f. Communicating relevant information to other units
 - g. Identifying system problems
 - h. Comparing and contrasting control systems used in utility, auxiliary, and process systems
 - i. Listing factors that can affect plant economics

VALIDATION

Course Number and Name: **OGP 2913 Special Project in Oil and Gas Production I**

Description: This course is designed to provide the student with practical application of skills and knowledge gained in other vocational –technical courses. The instructor works closely with the student to ensure that the selection of a project will enhance the student’s learning experience.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Apply technical skills needed to be a viable member of the workforce
 - a. Prepare a description of technical skills to be developed in the supervised work experience
 - b. Develop technical skills needed to be a viable member of the workforce

2. Apply skills developed in other program area courses
 - a. Perform skills developed in other program area courses

3. Apply human relationship skills
 - a. Use proactive human relationship skills in the supervised work experience

4. Apply and practice positive work habits and responsibilities.
 - a. Perform assignments to develop work habits and responsibilities

5. Work with the instructor and employer to develop written occupational objectives to be accomplished
 - a. Perform written occupational objectives in the supervised work experience

6. Assess accomplishment of objectives
 - a. Prepare daily written assessment of accomplishment of objectives
 - b. Present weekly written reports of activities performed and objectives accomplished to the instructor

7. Utilize a set of written guidelines for the supervised work experience
 - a. Develop and follow a set of written guidelines for the supervised work experience

VALIDATION

Course Number and Name: **OGP 2933 Special Project in Oil and Gas Production II**

Description: A course which is a cooperative program between industry and education designed to integrate the student's technical studies with industrial experience.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Apply technical skills needed to be a viable member of the workforce
 - a. Prepare a description of technical skills to be developed in the supervised work experience
 - b. Develop technical skills needed to be a viable member of the workforce

2. Apply skills developed in other program area courses
 - a. Perform skills developed in other program area courses

3. Apply human relationship skills
 - a. Use proactive human relationship skills in the supervised work experience

4. Apply and practice positive work habits and responsibilities.
 - a. Perform assignments to develop work habits and responsibilities

5. Work with the instructor and employer to develop written occupational objectives to be accomplished
 - a. Perform written occupational objectives in the supervised work experience

6. Assess accomplishment of objectives
 - a. Prepare daily written assessment of accomplishment of objectives
 - b. Present weekly written reports of activities performed and objectives accomplished to the instructor

7. Utilize a set of written guidelines for the supervised work experience
 - a. Develop and follow a set of written guidelines for the supervised work experience

VALIDATION

Appendix A: RECOMMENDED TOOLS AND EQUIPMENT

CAPITALIZED ITEMS

1. Dynamic Simulator Oil & Gas
2. Simulations Modules
3. Computers
4. Level Process Control Trainer
5. File cabinet with lock
6. Printer
7. Projector
8. Digital Camera
9. Walk & Talk Whiteboard
10. Dehydrator
11. Pressure Process Control Learning System
12. Temperature Process Control Learning System
13. Level Process Control Learning System.
14. LEL Meter
15. Line Locator

NON-CAPITALIZED ITEMS

1. Hand Tools
2. Thread lubricants
3. Rags
4. Spray Penetrate
5. O-Rings
6. Gasket Material
7. Filters
8. Hand Pumps
9. Small flow safety valves
10. Donated Lab equipment
11. Probing Rod
12. Hydrometer
13. Thermometer
14. Voltmeter
15. Snoop Kit

RECOMMENDED INSTRUCTIONAL AIDS

1. DVD player and data projector
2. Computer with internet connection
3. Printer
4. Digital camera with movie capability
5. Access to E-learning and E-books program (Amatol through Siviad)
6. Equipment cut-a-ways
7. Donated Oil and Gas processing equipment
8. Other learning aids provided by vendors and manufactures.

VALIDATION

APPENDIX B: CURRICULUM DEFINITIONS AND TERMS

- Course Name – A common name that will be used by all community colleges in reporting students
- Course Abbreviation – A common abbreviation that will be used by all community and junior colleges in reporting students
- Classification – Courses may be classified as the following:
 - Career Certificate Required Course – A required course for all students completing a career certificate.
 - Technical Certificate Required Course – A required course for all students completing a technical certificate.
 - Technical Elective – Elective courses that are available for colleges to offer to students.
- Description – A short narrative that includes the major purpose(s) of the course
- Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course
- Corequisites – A listing of courses that may be taken while enrolled in the course
- Student Learning Outcomes – A listing of the student outcomes (major concepts and performances) that will enable students to demonstrate mastery of these competencies

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75% of the time allocated to each course. The remaining 25% of each course should be developed at the local district level and may reflect the following:
 - Additional competencies and objectives within the course related to topics not found in the state framework, including activities related to specific needs of industries in the community college district
 - Activities that develop a higher level of mastery on the existing competencies and suggested objectives
 - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed or revised
 - Activities that include integration of academic and career–technical skills and course work, school-to-work transition activities, and articulation of secondary and postsecondary career–technical programs
 - Individualized learning activities, including work-site learning activities, to better prepare individuals in the courses for their chosen occupational areas
- Sequencing of the course within a program is left to the discretion of the local college. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors. Programs that offer an Associate of Applied Science Degree must include all of the required Career Certificate courses, Technical Certificate courses **AND** a minimum of 15 semester hours of General Education Core Courses. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester. Each community college specifies the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college.

VALIDATION

- In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:
 - Adding new student learning outcomes to complement the existing competencies and suggested objectives in the program framework
 - Revising or extending the student learning outcomes
 - Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the Mississippi Community College Board [MCCB] of the change)