

Information Guide

Natural Gas Compression Program

Associate in Applied Science Degree
With Major in Diesel and Heavy Equipment Technology

http://www.osuit.edu/academics/diesel_and_heavy/natural_gas_compression/
www.gpaglobal.org
<http://gpsa.gpaglobal.org>
<http://www.gascompressor.org>



INSTITUTE OF TECHNOLOGY

Sponsored By:

Oklahoma State University Institute of Technology
Gas Processors Association & Member Companies
Gas Processors Suppliers Association & Member Companies
Gas Compressor Association & Member Companies

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Oklahoma State University Institute of Technology
Natural Gas Compression Program

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Natural Gas Compression Program

GPA/GPSA - OSU Institute of Technology

Natural Gas Compression Technician Program

As a service to members, GPA and GPSA has formed a partnership with Oklahoma State University Institute of Technology to develop a Natural Gas Compression Technician Associate Degree training program exclusively for GPA, Gas Processors Association, and GPSA, Gas Processors Suppliers Association, member companies.

The purpose of this program is to develop a reliable and continuous source for technicians specifically trained in natural gas compression to enter the gas processing industry. The curriculum will be structured to assure that the technical competency of the graduates will allow them to not only be high-caliber entry level technicians, but will also enable them to advance in position with additional experience and to understand new systems and processes as they are introduced.

The program will target the recruitment of students from geographic areas in which Members have a need for technicians and will incorporate internships as an ongoing part of the program to allow students to use and reinforce in a real world setting what they have learned in their classrooms and labs. If you have an interest in this program and would like further information, please contact Kenny Wheat, GPA staff, by email kwheat@gasprocessors.com, by phone at 918-493-3872, or Roy Achemire, Program Chair, OSU Institute of Technology, by email, roy.achemire@okstate.edu, by Phone at 918-293-4724.

About the GPA

Gas Processors Association (GPA) is an organization of operating and producing companies engaged in the processing of natural gas. GPA had its beginnings in 1921 and has developed and evolved along with the Gas Processing Industry. Throughout its history, GPA has had the same organizational structure and identical objectives acting as a stabilizing influence in the industry it serves. It has become the focal point of progress and the clearing-house of issues and developments in the gas processing industry.

GPA today is an incorporated, non-profit trade association made up of approximately 140 corporate members, all of whom are engaged in the processing of natural gas into a merchantable pipeline gas, or in the manufacture, transportation, or further processing of liquid products from natural gas.

The active membership as a group account for approximately 90% of all natural gas liquids produced in the United States. The active membership also includes a number of Canadian and international companies that produce natural gas liquids on a global scale.

PROGRAM OBJECTIVE

The Natural Gas Compression Program is a cooperative two-year college level student technician education program which leads to an Associate in Applied Science degree with a major in Natural Gas Compression Technology. The Heavy Equipment and Vehicle Institute at Oklahoma State University Institute of Technology, working in close relationship with members of the Gas Processors Association, administer the program activities. The Natural Gas Compression Programs are exclusively by and for members of the Gas Processors Association.

PROGRAM PURPOSE

The purpose of the programs are to upgrade the technical competency and professional level of incoming natural gas compression technicians. It will train students to analytically diagnose, service and maintain gas compression equipment using recommended procedures, special tools, and service information. It will provide course content that will enable successful graduates to advance in position after additional experience, and to understand new systems and components as they are introduced.

PROGRAM STRUCTURE

The two-year, six semester program incorporates four semesters of the time designated for technical / academic education at Oklahoma State University Institute of Technology. The remaining two semesters is allocated for on-the-job experience at sponsoring GPA/GPSA Members. Each block of technical education and general education course work is followed by an immediate work experience time period that reinforces the technical education. Students will attend classes at OSU Institute of Technology during the Fall and Spring semesters, followed by on-the-job internships during the summer semesters. It is essential for the success of the program that the students' education at OSU Institute of Technology and work experiences at GPA/GPSA Member facilities be closely aligned for maximum student learning and retention.

Since considerable time is spent at the GPA/GPSA Member facility, it is a requirement of the program that students have a sponsoring GPA/GPSA Member for the summer internships. The primary responsibility for the GPA/GPSA Member is to provide training-related employment for the students during their learning / work experience, internship.

All tuition, fees, textbooks, travel expenses and housing costs are the responsibility of the student. In addition to these costs, the students are required to purchase a prescribed tool set if they do not already have one. GPA/GPSA Members may make other expense sharing agreements with students, at their discretion.

PROGRAM CURRICULUM

Technical training on gas compression equipment and components includes the latest developments in: Engines; Compressors; Electrical and Electronic Systems; Test Procedures and Diagnostic Tools.

In addition to the technical curriculum, courses will be offered in areas such as Math; Composition/Technical Writing; Speech; Psychology, U.S. History; U.S. Government; Business and Ethics to provide students with the background necessary for effective communication of ideas and the development on interpersonal skills.

PURPOSE OF THE INTERNSHIP

The internship allows students to apply, in a real world setting, what they have learned during the previous classroom/lab sessions. In addition, students become familiar with the GPA/GPSA Member Company environment, its organizational structure, and the competencies that are expected of a professional service technician.

STUDENT QUALIFICATIONS

Prospective students must be:

1. 18 years of age (or older) by the time of the first internship.
2. High School graduate, or equivalent.
3. Able to meet OSU Institute of Technology and GPA/GPSA Member Company admission and academic requirements.
4. Possess a valid driver's license and maintain an employable driving record.
5. Willing to take a drug test if requested by GPA/GPSA Member Company sponsor.
(NOTE: for many companies this is a requirement for employment)
6. Sincere about becoming the best service technician he/she can be.

ADMISSIONS CHECKLIST

Regular Admission – applies to students who have never attended college. This also includes students who earned college credit through Cooperative Alliance or Concurrent Enrollment while in high school. GED, Home-Schooled, and students under 21 years of age who never attended college fall in this category.

- Complete and submit an Oklahoma State University Institute of Technology Application for Admission
http://www.osuit.edu/academics/forms/admissions_packet.pdf
- Obtain a Personal Identification Number (PIN) to sign online at www.pin.ed.gov. (If you are a dependent student, a parent will need a PIN as well) Complete the Free Application for Federal Student Aid (FAFSA) available at www.fafsa.ed.gov. **Our school code is 003172**. Once our office receives your information, we will notify you if additional information is needed and/or send your award letter.
- Complete and submit Scholarship Applications before March 1
<http://www.osuit.edu/admissions/scholarships>
- Submit official high school transcript/GED
- Submit ACT or SAT scores.
- COMPASS testing if math, reading, writing or science scores on the ACT are below a 19. Compass testing is a computer generated assessment administered through the Assessment Center at Oklahoma State University Institute of Technology http://www.osuit.edu/academics/assessment_center.php

Compass sample questions at: <http://www.act.org/compass/sample/>

Additional Compass Skills Reviews at: http://www.osuit.edu/academics/assessment_center.php
- Remove preparatory class needs prior to the start of the fall semester.
- Complete the Immunization Record Form or the Certificate of Exemption
http://www.osuit.edu/campus_community/campus_health/
- Complete room and board contract – Single and Nontraditional Students Room and Board Contract for single students, Family Housing University apartments Contract if you plan to have your family with you at OSUIT.
http://www.osuit.edu/campus_community/residential_life/prospective_residents.php
Students making application for campus housing are encouraged to apply early. To reserve space in campus housing students must make a deposit of \$150 (\$500 for family apartments).
- Pay \$50.00 enrollment Deposit at Bursars Office (918) 293-5226
- Complete enrollment through the HEVi Department (918) 293-4710 or (918) 293-4724

Transfer Student -Student with 24 or more college credits

Documents required:

Official college transcript(s) from every college attended
COMPASS testing (compass test may be waived with applicable transfer classes)
Immunization Records/Waiver
Complete room and board contract, pay deposit.
Pay \$50.00 enrollment deposit

Student with less than 24 college credits:

Official college transcript(s) from every college attended
Official high school transcript/GED

ACT scores
 COMPASS testing (may be waived with applicable transfer classes OR if ACT scores in math, reading, writing and science are 19 or above)
 Immunization Records/Waiver
 Complete room and board contract , pay deposit.
 Pay \$50.00 enrollment deposit

Important Dates

January, 2012

- 2012-2013 Financial Aid Applications Are Available
- Oklahoma State University Institute of Technology Scholarship Applications Available
- Oklahoma State University Institute of Technology Admission Applications Available

January 31, 2012

- Families Receive W-2 Forms And Begin To Prepare Tax Returns So Financial Aid Applications Can Be Completed.

February 1, 2012

- Students Begin Submitting Oklahoma State University Institute of Technology Admission Applications
- Begin Completing Free Application For Federal Student Aid (FAFSA)
- Students Should Be Making Plans To Take The ACT or SAT Test

May 1, 2012

- Enrollment Begins For Fall 2012 Term. Enrollment Will Continue Through September 4.

September 4, 2011

- Move-in Day for Natural Gas Compression Students Beginning Fall Semester Classes

September 5, 2011

- First Day of Classes for Natural Gas Compression Students Beginning Classes Fall 2012 Term

December 14, 2012

- Final Day Of Fall 2012 Term

For More Information please call:

Roy Achemire.....	(918) 293-4724
Heavy Equipment & Vehicle Institute.....	(918) 293-4710
Student Financial Services.....	(918) 293-5290
Admissions Office	(918) 293-4680

Tobacco use in University Buildings and Grounds

It is the intent of Oklahoma State University to promote the health, well-being and safety of all students, faculty, staff and visitors. As such, effective July 1, 2010, Oklahoma State University Institute of Technology is designated as a tobacco-free environment. Smoking and the use of all tobacco products are prohibited.

Residential Life will designate a limited number of facilities that will be exempt from this policy. Residential Life officials charged with oversight of the exempt areas of campus where tobacco use is permitted must adopt and post internal policies.

Tobacco use is prohibited in vehicles on grounds owned or under the control of Oklahoma State University.

Students will have access to cessation assistance.

RESPONSIBILITIES OF PARTICIPANTS

OKLAHOMA STATE UNIVERSITY INSTITUTE OF TECHNOLOGY

1. Provide faculty dedicated solely to the Natural Gas Compression Program.
2. Provide necessary time to initially train and update the faculty.
3. Provide facility dedicated solely to the Natural Gas Compression Program; classrooms, labs, etc.
4. Provide advisement for Natural Gas Compression Program students.
5. Maintain up-to-date tools and equipment.
6. Grant the Associate of Applied Science degree in Natural Gas Compression Technology to graduates.
7. Inform sponsoring GPA/GPSA Members of student progress.
8. Assist GPA/GPSA Members with student selection and recruitment.
9. Work with the GPA/GPSA Member Company Coordinator to assure involvement in internships.
10. Assist students in obtaining internships with GPA/GPSA Member Companies.
11. Conduct student visitations during internships.
12. Establish a Natural Gas Compression Advisory Committee.
13. Schedule Advisory Committee meetings.

Gas Processors Association/Gas Processors Suppliers Association

1. Encourage GPA/GPSA Members cooperation and support.
2. Provide Gas Compression training for faculty.
3. Furnish OSU Institute of Technology with equipment and components.
4. Provide OSU Institute of Technology with essential training materials, including audio visuals, student booklets, instructor guides, shop manuals, necessary mock-ups, simulators, software, etc.
5. In general, oversee student recruitment and selection and internship process.
6. Monitor all phases of the program to assure success.

Gas Processors Association/Gas Processors Suppliers Association Members

1. Agree to act as a sponsoring member.
2. Recruit, interview and select prospective student(s)
3. Provide internship experience in accordance with the program schedule.
4. Provide related work/learning experiences that supplement the student's most recent instruction.
5. Agree to pay the student during periods of internship.
6. Provide any other benefits in a manner consistent with other company employees.
7. Assist in obtaining equipment and training aids.
8. Participate in the Advisory Committee meetings.

Student

1. Obtain and maintain a GPA/GPSA Member Sponsor throughout the internships.
2. Provide sponsoring GPA/GPSA Member with responsible and productive work effort.
3. Participate in all learning activities at scheduled times.
4. Maintain academic standards and adhere to academic policies (minimum 2.0 GPA) according to OSU Institute of Technology policy.
5. Adhere to GPA/GPSA Member company policies and procedures.
6. Be responsible for program cost: tuition, fees, books, tools, housing, etc.
7. Wear proper work clothing, safety glasses and use required/recommended personal safety equipment during campus class/labs and internship experiences.

STUDENT SELECTION PROCEDURES

1. Students who wish to become members of the Natural Gas Compression Programs should make application in late spring or early summer semester. This will allow time for processing financial aid packages, identification of preparatory class needs, sponsorship acquisition, etc. The application process includes the following:
 - A) Complete OSU Institute of Technology Application for Admission.
 - B) Comply with OSU Institute of Technology Admission Policies.
 - C) Complete the student assessment process. (Includes both the ACT or SAT and Compass Assessment)
 - E) Submit an official High School/College Transcript(s)
 - F) Remove preparatory class needs prior to the start of the program.
2. Students who successfully complete the Admission process are eligible to interview with the GPA/GPSA Member of their choice. Check with the Natural Gas Compression faculty for a list of GPA/GPSA Members that have agreed to participate in the program. The interview should take place at the GPA/GPSA Member's location and participant's goals should be discussed. **ALL STUDENTS MUST HAVE A GPA/GPSA MEMBER SPONSOR FOR SUMMER INTERNSHIPS.**

Note: Since the Natural Gas Compression Programs may have more applicants than openings, the faculty will use the criteria listed above in the selection process.

FINANCIAL ASSISTANCE

Students deciding to be part of the Natural Gas Compression Programs may have a need for financial assistance. Students involved in these programs have the opportunity to earn while they learn during the internship portion of the programs. These earnings may be applied to program costs.

Additional financial aid, through loans or grants, for tuition, books, tools, on-campus room and board, etc., may be available through various financial assistance programs. Students needing financial assistance are encouraged to complete the applications for financial aid as early as possible. Following application submittal, allow an 8-10 week period for processing. Early application assures availability of funds, if qualified, and allows the Financial Aid Office to prepare a realistic financial aid package.

Financial Aid information may be obtained by calling the Student Financial Services at 918.293.4684.

Note: Tools required for the Natural Gas Compression Programs are considered an educational expense and should be included in education costs when applying for student financial aid.

ESTIMATED STUDENT EXPENSES

http://www.osuit.edu/academics/new_tuition.html

2012-2014 - Estimated Cost Per Semester

\$1500.00 - \$3200.00 Required Tools (dependant on manufacturer and tool box selected)

Fall 2012 - Semester 1

\$1,815.00	Two Bedroom/One Bathroom Suite
\$150.00	\$150.00 single unit, \$500.00 family unit (refundable)
\$1,081.00	20 Meal Plan
\$2,160.00	Tuition & fees \$135.00/ch (16 credit hours)
	This is in-state tuition or with nonresident tuition waiver applied
\$350.00	Books (approximate per semester)
\$50.00	Enrollment Deposit
\$5,606.00	Estimated total semester educational expenses

Spring 2013 - Semester 2

\$1,815.00	Two Bedroom/One Bathroom Suite
\$1,081.00	20 Meal Plan
\$2,160.00	Tuition & fees \$135.00/ch (16 credit hours)
	This is in-state tuition or with nonresident tuition waiver applied
\$350.00	Books (approximate per semester)
\$5,406.00	Estimated total semester educational expenses

Summer 2013 - Semester 3

\$1,350.00	Tuition & fees \$135.00/ch (10 credit hours)
	This is in-state tuition or with nonresident tuition waiver applied
\$1,350.00	Estimated total semester educational expenses

Fall 2014 - Semester 4

\$1,815.00	Two Bedroom/One Bathroom Suite
\$1,081.00	20 Meal Plan
\$2,430.00	Tuition & fees \$135.00/ch (18 credit hours)
	This is in-state tuition or with nonresident tuition waiver applied
\$350.00	Books (approximate per semester)
\$5,676.00	Estimated total semester educational expenses

Spring 2014 - Semester 5

\$1,815.00	Two Bedroom/One Bathroom Suite
\$1,081.00	20 Meal Plan
\$2,430.00	Tuition & fees \$135.00/ch (18 credit hours)
	This is in-state tuition or with nonresident tuition waiver applied
\$350.00	Books (approximate per semester)
\$5,676.00	Estimated total semester educational expenses

Summer 2014 - Semester 6

\$1,350.00	Tuition & fees \$135.00/ch (10 credit hours)
	This is in-state tuition or with nonresident tuition waiver applied
\$1,350.00	Estimated total semester educational expenses

\$25,064.00 Estimated total educational expenses

Cost of tuition and fees may change after Oklahoma State Regents meet in July.

**If zero level courses are taken, a Remedial Supplemental Fee of \$18.50 per credit hour will be charged.

Tool costs for Snap-On, Mac, Matco and NAPA sets are approximately ½ retail price with school discount. The HEVi Advisory Committees and faculty establish the tool set available for purchase by students in the Natural Gas Compression Program.

NOTE: Costs are estimated and subject to change.

Nonresident Tuition Waiver

http://www.osuit.edu/forms/2010/nonresident_tuition_waiver.pdf

A full nonresident tuition waiver includes only a waiver of the nonresident portion of the semester credit hour enrollment fees, and the remaining fees, as paid by Oklahoma residents still apply. The criteria for non-resident tuition waiver of out of state students enrolling at OSU Institute of Technology:

To qualify for the Nonresident Tuition Waiver the student must be enrolled full-time (12 hours) in a degree-seeking AS, AAS or BT program. Additionally, students are required to live on campus to *be awarded and continue to receive* the non-resident tuition waiver unless ***at the time of application***:

- Student is 21 years of age or older
- Student is married
- Student has legal custody of a child

FIRST TIME FRESHMAN OR TRANSFER WITH LESS THAN 24 CREDIT HOURS (must meet at least one of the following criteria):

- 2.0 cumulative high school GPA
- 18 ACT composite or equivalent 860 on SAT
- Proficiency in at least 2 of 3 curricular areas (English - 81, Math - 46, Reading - 46) on COMPASS placement testing or demonstrated by college credit

TRANSFER WITH 24 OR MORE CREDIT HOURS:

- 2.0 cumulative college GPA

Continuing students will automatically receive the NRTW by meeting the following requirements:

- 2.0 cumulative graduation/retention GPA
- 75% completion rate of enrolled classes as of the end of the add/drop period

Continuing students who do not meet these standards each term will be placed on probation for one semester. Should the awarded students not meet the above requirements for a second term, the student will no longer be eligible for the Non-Resident Tuition Waiver for the following term. Awarded students will remain on probation until the cumulative graduation/retention GPA reaches the above standards.

Effective date: February 2010

GAS PROCESSORS ASSOCIATION MEMBER INFORMATION

How will the program benefit your Business?

This program is an answer to the skilled technician shortage. It responds to the needs of GPA/GPSA Members for highly qualified, motivated and skilled technicians. Technicians who are...

1. Trained on current gas compression and processing products.
2. Trained in the latest diagnostic and servicing procedures.
3. Trained to "do it right the first time!"
4. Trained with a positive attitude about their job.
5. Productive before they complete their training.
6. Educated in the important areas of communication, reading, mathematics, business management, business ethics, etc.

This program is a planned personnel development program. It combines the resources of the Gas Processors Association, the Gas Processors Suppliers Association, and GPA/GPSA Member companies with the expertise of the faculty at OSU Institute of Technology to build a true educational partnership! A partnership designed to focus on the success of your potential employee, the Natural Gas Compression student. This program, along with additional experience and guidance helps you develop future Master Technicians, Foremen and Managers.

It is cost-effective! The best news is that there is no required up-front cost for the GPA/GPSA member companies. Your investment is minimal. Here's why:

1. You select and supervise the student as a productive employee of your business. The cooperative educational work experience occurs in your location, under your supervision and direction.
2. The student is responsible for the cost of tuition, fees, books and the required basic tool set.
3. You and the student agree on the wage rate during the internship experience. You are not required to pay them while they are attending classes at OSU Institute of Technology.
4. You may elect to provide incentives or financial help to your student, at your option.

How are Natural Gas Compression students recruited?

OSU Institute of Technology and Gas Processors Association will assist in recruiting students. It is the GPA/GPSA member company's responsibility, however, to select the "right" student. You should actively recruit a student from your area. Some good sources are:

- | | | |
|----------------------|--------------------------------|-----------------|
| 1. Current employees | 2. Employees friends, families | 3. Customers |
| 4. High Schools | 5. Vo-Tech Schools | 6. FFA Chapters |
| 7. Skills USA | 8. High School Coaches | |

Once you have identified a student you believe will be a good applicant, bring the student to visit the campus at OSU Institute of Technology to tour the facilities, interview with the faculty, and complete assessment. Upon completion and with further discussion, a final decision should be made regarding sponsorship. It is also a good idea to offer the student some type of summer employment. This will allow both of you to verify that you have made the right decision, before the program begins.

What are the responsibilities of a participating GPA/GPSA Member Company?

1. Indicate interest in becoming a sponsoring company.
2. **Recruit**, interview and select prospective students.
3. Assign an in-company coordinator who will monitor the student during the internship.
4. Provide company coordinated educational work/learning experiences in areas of technical education that were conducted at OSU Institute of Technology.
5. Pay wages to the student during periods of internship with the company. This will instill in the student a sense that their employment is necessary to the company and promote company loyalty.
6. Provide uniforms for the student, consistent with company policy.
7. Complete student evaluation forms during each internship.
8. Advise school of concerns or changes in student status with the company.

What is the wage rate for Natural Gas Compression Students?

The Natural Gas Compression Advisory Committee will recommend a wage rate. The rate of pay is however, negotiable and is between you and the student. Natural Gas Compression students base their value to the company on two important factors; the quality of training that is provided while on internship and prevailing wages. Successful people are motivated by a variety of things, but most expect to be rewarded in the form of an increase in salary. This is especially true when they are performing jobs well and continue to improve their skills and abilities. Natural Gas Compression students are no different. A pay plan that rewards them for maintaining acceptable grades, doing good work, and improving productivity and efficiency is essential.

Natural Gas Compression students understand that they are trainees, and do not expect to be paid a journeyman wage during the training program. However, many of the best students have bills to pay, and families to support. Please consider the student's situation to arrive at an acceptable starting wage, and when developing a progressing pay plan or any incentive schedule.

What can the GPA/GPSA member company expect?

In today's increasingly competitive market, customer satisfaction and customer loyalty are the keys to success and survival. For GPA/GPSA member companies, the key to customer satisfaction is your level of service. Where do you find the right employees? The answer is to attract and develop new technicians through the Natural Gas Compression Programs.

At the completion of the Natural Gas Compression Programs, you have a potential employee that is familiar with you, and the equipment you maintain and service. You have selected individuals you want to hire and you have taught them your way of doing business. The objective of the Natural Gas Compression Programs is simple; to select the best people to work on the best equipment, and provide the best customer service possible.



INSTITUTE OF TECHNOLOGY



GAS PROCESSORS ASSOCIATION

Heavy Equipment and Vehicle Institute

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(918)293-4710
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www.osuit.edu

Natural Gas Compression

Program

Diesel and Heavy Equipment Technology

Degree Awarded

Associate in Applied Science

General Requirements

88 Credit hours

2.0 Minimum Overall Grade Point Average

**Typical Schedule for
Natural Gas Compression
Plan of Study
DHEG-126**

1st Semester - 16 Credit Hours

DHEG 1153	Fundamentals of Maintenance
DHEG 1243	Engine Principles
DHEG 1253	Advanced Engine Technology
GTGE 1111	College Cornerstone
MATH 2003	Business Mathematics
CS 1013	Computer Literacy & Applications

2nd Semester - 16 Credit Hours

DHEG 1313	Engine Air, Fuel & Starting Systems
DHEG 1323	DC/AC Circuit Analysis
DHEG 1144	Gas Compressors
DHEG 1213	Gas Compression Capstone 1
ENGL 1033	Technical Writing 1 (or)
ENGL 1113	Freshman Comp 1

3rd Semester - 10 Credit Hours

DHEG 1310	Internship 1
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4th Semester - 18 Credit Hours

DHEG 2413	Engine Electrical & Pneumatic Systems
DHEG 2623	Instrumentation & Controls
DHEG 2423	Electrical Motors, Generators & Alternators
ENGL 2033	Technical Writing II (or)
ENGL 1213	Freshman Comp 2
POLS 1113	U. S. Government
SPCH 1113	Introduction to Speech

5th Semester - 18 Credit Hours

DHEG 2513	Electrical Devices & Controls
DHEG 2523	Programmable Logic Controllers (PLC)
DHEG 2633	Gas Compression Capstone 2
PHIL 1213	Ethics
HIST 1493	U.S. History Since 1865
BADM 1113	Introduction to Business

6th Semester - 10 Credit Hours

DHEG 2610	Internship 2
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First Year Gas Compression Courses

DHEG 1153 - Fundamentals of Maintenance

Students will gain a basic understanding of the natural gas industry by tracing the flow of gas from the well to the end user. The course includes natural gas properties, equipment identification and function, safety, OSHA, EPA, Hazardous Materials, and Waste regulations. Tools, fasteners, pipe, pipe fittings, valves, tubing, tubing fittings and precision measurements will be studied. Students will take a technical pretest to determine their entry-level technical knowledge. Theory/Lab.

DHEG 1243 - Engine Principles

This course is a study of operation and application of two and four stroke cycle engines to include engine cooling and lubrication systems, lube oil analysis, startup procedures, tune-up procedures, preventive and predictive maintenance. Proper alignment and installation of large stationary engines will be included. Theory/Lab. Prerequisite: DHEG 1144.

DHEG 1253 - Advanced Engine Technology

This course introduces overhaul procedures for reciprocating natural gas engines. This includes disassembly, inspection, measurements, failure analysis, and reassembly. The use of hand tools, special tools, precision measurement tools, shop safety, and usage of manuals is stressed throughout the course. Theory/Lab. Prerequisite: DHEG 1144.

DHEG 1313 - Engine Air, Fuel and Starting Systems

Students will study the intake, exhaust, fuel and starting systems plus mechanical and hydraulic governors used on natural gas engines including an introduction to air/fuel ratio control systems. Theory of operation and development of skills in the repair, adjustment and testing of the component parts of these systems is also included. The effects of fuel properties, air/fuel ratio, and emissions on both rich burn and lean burn natural gas engines will be studied. Theory/Lab. Prerequisites: DHEG 1243, DHEG 1253.

DHEG 1323 - DC/AC Circuit Analysis

This course covers the basic principles of DC/AC electrical circuits. Subjects to be included: operating characteristics of the circuits various components, electrical laws, series circuits, parallel circuits, series-parallel circuits, magnetism, impedance, and resonance. Theory/Lab.

DHEG 1144 - Gas Compressors

This course introduces the theory, application, maintenance, and repair of the reciprocating, rotary, and centrifugal natural gas compressor including operating principles, identification of the component parts and their functions, design characteristics, methods of balancing, and lubrication systems. Calculations of gas flow, rod loads, compressor sizing, horsepower ratings and compressor analysis charts will be included. Safety, precision measurement, use of the manuals, use of tools, and proper adjustments will be included with overhaul exercises. Theory/Lab.

DHEG 1213 - Gas Compression Capstone I

This course is the culmination of the mechanical portion of the Natural Gas Compression program and preparation for the first full summer semester internship. Students will research employability skills. During this course students will prepare and critique job applications, resumes, interview skills and portfolios. During preparation of the resumes and portfolios students will discuss how to best present the skills they have acquired in the previous classes, as well as how to describe the safety training they have received in preparation for the summer internship as natural gas compression facilities. Theory/Lab.

DHEG 1310 - Internship I

An internship is a cooperative agreement between industry and education which allows students to utilize and refine skills previously learned in their educational process. All work is to be performed in accordance with industry standards and guidelines and will be supervised by industry and school representatives. Lab. Prerequisites: Student must be in good academic standing and have successfully completed all required Natural Gas, and Arts and Sciences courses. Exceptions only with written approval of Natural Gas Compression faculty and HEVI program chair.

Second Year Gas Compression Courses

DHEG 2413 - Engine Electrical and Pneumatic Systems

Students will study the theory and application of the ignition systems from magnetos to CPUs, electronic governors, air fuel ratio control systems and control panels used on natural gas engines with emphasis on maintenance, diagnostics, and repair of the systems and components. Theory/Lab. Prerequisites: DHEG 1313, DHEG 1323.

DHEG 2623 - Instrumentation and Controls

This course is the study of basics of pneumatics, electrical analog and digital modes of control; and hands-on practical exercises in calibrating, tuning, aligning and troubleshooting. Data acquisition and data communications are also included. Theory/Lab. Prerequisites: DHEG 2513, DHEG 2523.

DHEG 2423 - Electrical Motors, Generators and Alternators

This course is a study of the operation, design and analysis of various DC motors, AC motors, Power Transformers and AC power generators. This course also covers load requirements and sharing, environmental conditions, national electrical code, generator operation, and electric motor and generator wiring diagram. Theory/Lab. Prerequisite: DHEG 1323.

DHEG 2513 - Electrical Devices and Controls

This course is a comprehensive study of the principles and techniques of electromechanical devices such as switches, circuit protection devices, relays, and solenoids. In addition, the course will cover the national electric code, ladder logic and wiring diagrams. Theory/Lab. Prerequisites: DHEG 1323, DHEG 2423.

DHEG 2523 - Programmable Logic Controllers (PLC)

This course is a study of PLC programming, PLC ladder logic diagrams, sensor input, output, control devices, rack configuration and programming rungs with addresses. PLC configuration and troubleshooting techniques are also covered. Theory/Lab. Prerequisites: DHEG 1323, DHEG 2423.

DHEG 2633 - Gas Compression Capstone II

This course includes an applied research project identified during internships, as a work-based problem in need of improvement. Research could include improvements in; diagnostic, service, and maintenance processes, technical support systems, sales, inventory control, cataloging systems, customer service, etc. The theory and application of equipment used in the conditioning of natural gas in gathering systems which will include separators, dehydration units, and chemical treatment units will be

studied. The theory and application of equipment used in a natural gas processing plant. Students will take a post-test to determine competency gain in their technical area. Theory/Lab. Prerequisites: DHEG 2513, DHEG 2523.

DHEG 2610 - Internship II

An internship is a cooperative agreement between industry and education which allows students to utilize and refine skills previously learned in their educational process. All work is to be performed in accordance with industry standards and guidelines and will be supervised by industry and school representatives. Lab. Prerequisites: Student must be in good academic standing and have successfully completed all required Natural Gas, and Arts and Sciences courses. Exceptions only with written approval of Natural Gas Compression Faculty and HEVI program chair.

REQUIRED Gas Compression

Tool List

1/4" drive 6 point standard and deep chrome socket set

6 point standard 3/16" - 9/16"

6 point deep 3/16" - 9/16"

3" extension, 1/4" ratchet, socket storage

1/4" drive 6 point standard metric chrome socket set 4mm - 13mm

3/8" drive 12 point standard chrome socket set 1/4" - 7/8"

3/8" drive 6 point chrome socket set

6 point deep 3/8" - 7/8"

6 point flex 3/8" - 3/4"

Spark plug 13/16", 5/8"

Universal joint, 3", 6" & 10" extension,

11-12" flex head 3/8 ratchet, socket storage

3/8" drive 6 point chrome metric socket set

10mm - 19mm

3/8" drive Torx Bit Driver Set (T-27 - T-55)

1/2" drive socket set

6 point standard chrome 3/8" - 1 1/4"

12 point standard chrome 3/8" - 1 1/4"

1/2" drive ratchet, socket storage

1/2" drive break over bar 21"-24"

1/2" drive Impact socket set

6 point deep impact 1/2" - 1 1/4"

2" & 6" impact extension

1/2" drive impact universal joint

1/2" drive 12 point chrome standard metric socket set

10mm - 19mm

Flair nut wrench set 3/8" - 7/8"

Metric flair nut wrench set 9mm - 21mm

Groove joint pliers 10"- 12"

Slip joint pliers 7"- 9"

Needle nose pliers 7"- 9"

Heavy-duty diagonal cutting pliers 7"- 9"

Vice-grip curved jaw locking pliers 10"

Combination screwdriver set 4 slotted tips;

3 Phillips, size 1, 2, 3;

Stubby slotted; stubby Phillips

Ratcheting Screwdriver set (magnetic preferred) with minimum

of: Phillips 1,2,3; Slotted 5/32", 7/32", 1/4";

Torx T10-25

Allen SAE short arm hex key set (.028" - 3/8")

Allen metric hex key set (1.5 mm - 10 mm)

12 point combination wrench set 1/4" - 1 1/4"

12 point metric combination wrench set 7mm - 19 mm

16oz. ball-pein hammer

2lb soft face dead blow hammer

3 lb cross-pein hammer

5/8x6-1/2x1/2 cold chisel

3/8x5 center punch

5/32x5x3/8 taper punch

3/16x5-1/2x5/16 pin punch

3/4" - 1" diameter Brass drift

18"-21" rolling head (lady foot) pry bar

18"-24" pry bar with plastic handle and angled blade

Safety Glasses (clear)

25' tape measure

Feeler gauge set 0.0015 to 0.035"

Valve-tappet feeler gauge set .008" - .026"

Telescoping magnetic retrieving tool

Flexible retrieving tool

Gasket scraper

2"- 3" telescoping mirror

Seal Pick Set

Flashlight: minimum 2D cell, prefer MSHA approved, explosion proof

Rollaway tool cabinet: Minimum 5 drawer, 8000 - 12000 cubic inch storage capacity with ball bearing slides

Digital Volt-Ohm Meter and case with specifications as the Knight Electronics K-260

3 1/2 Digit, 2000 Count-High resolution on volts 20mV current 20µA Ohm ranges

DC Volt: **0-20/200mV/2/20/200/1000V** ±0.5%

AC Volt: **0-20/200mV/2/20/200/750V** ±1.5%

DC Current: **0-20/200µA/2/20mA/2/20A** ±1.5%

AC Current: **0-20/200µA/2/20mA/2/20A** ±2%

Resistance: 0-20/200 ohm/2K/20K/200K/2000K ohm/20M ohm/2000M ohm ±1%

Capacitance: 0-200P/200P/20nF/200nF/2µF/20µF/ ±3%

20A fused protection

Frequency: **Auto ranging** up to 15MHz ±0.5%

Continuity: < 40 ohm±20 ohm

Diode Test function

100VDC/750VAC overload protection in DCV, ACV above 2V

Outside Micrometer 0-1" (.0001" grad.) **or** 0-25mm (.001mm grad.)

Swiss Style (not digital) with ratchet stop or friction thimble, lock lever and carbide tips

Dial Caliper 0-6" **or** 0-150mm

6" stainless steel rule - english 1/32 & metric 1mm

Heavy Duty Oil Filter Strap Wrench 1/2 inch drive up to 9" diameter

Optional

Top tool chest

1/2" impact wrench

1/2" drive standard impact sockets

1/2" drive metric standard impact sockets

1/2" drive metric deep impact sockets

1/2" ratchet drive micrometer torque wrench 30-250 ft-lb

3/8" ratchet drive micrometer torque wrench 50-250 in-lb

12" pipe wrench

3/4" drive socket set

Need Money?

Check out these Scholarship Resources on the Web



Also try searches on web search engines like “Free+scholarships” or “free+grants”

Vary the search to include the job you would like to do and scholarships, i.e.
“Medical+free+scholarships”

Or the major you would like to pursue, i.e.
“accounting+scholarships+free”

Some Popular Search Engines:



FINANCIAL AID WEB SITES

FINANCIAL AID SEARCHES:

FastWeb Financial Aid Search – www.fastweb.com

Mapping Your Future – www.mapping-your-future.org

College Board Scholarship Search –

http://apps.collegeboard.com/cbsearch_ss/welcome.jsp

GRANTS AND SCHOLARSHIPS:

FAFSA Express – www.FAFSA.ed.gov

Missouri Higher Education Loan Association (MOHELA) – www.mohela.com

Oklahoma Guaranteed Student Loan Program (OGSLP) – www.ogslp.org

Oklahoma State Regents for Higher Education – www.okhighered.org

Oklahoma Tuition Aid Grant (OYAG) – www.otag.org

GENERAL INFORMATION:

Coalition for Student Loan Reform – www.cslr.org

National Association of Student Financial Aid Administrators – www.nasfaa.org

National Council of Higher Education Loan Programs – www.nchelp.org

Oklahoma State Department of Vo-Tech – <http://www.okcareertech.org/>

Project EASI – www.easi.ed.gov

The Financial Aid Information Page – www.finaid.org

US Department of Education – www.ed.gov

Sponsoring Companies

The companies listed below participate in Natural Gas Compression program career fairs, advisory meetings, and/or internship sponsors.

These companies employ graduates from the Natural Gas Compression Program.

Anadarko	www.anadarko.com
Ariel Corporation	www.arielcorp.com
BP	www.bp.com
Caterpillar	www.cat.com
Center Point Energy	www.centerpointenergy.com
Chesapeake Energy Corporation	www.chkenergy.com
Chevron	www.chevron.com
Compressor Systems, Inc.	www.compressor-systems.com
Conoco	www.conoco.com
DCP Midstream	www.dcpmidstream.com
Dresser-Rand	www.dresser-rand.com
Dynegy	www.dynegy.com
Enbridge Energy	www.enbridge.com
Encana Corporation	www.encana.com
Energy Transfer	www.energytransfer.com
Enogex	www.enogex.com/Pages/Home.aspx
Exterran	www.exterran.com
Exxon	www.exxon.com
FW Murphy	www.fwmurphy.com
J-W Operating Company	www.jwoperating.com
Linde Corporation	www.linde-gas.com
MarkWest Energy	www.markwest.com
Miratech Corporation	www.miratechcorp.com
Midcon Compression	www.chk.com
ONEOK	www.oneok.com
SCFM Compression systems	www.scfm.com
Southern Star Central Gas Pipeline	www.sscgp.com
SWN Midstream Company	www.swn.com
Toromont	www.toromont.com
USA Compression	www.usacompression.com
Valerus Compression Services, LP	www.valerus-co.com