

# Information Guide

## Natural Gas Compression Program

Associate in Applied Science Degree  
School of Energy Technologies

[http://go.osuit.edu/academics/energy\\_technologies/natural\\_gas\\_compression/  
www.gpaglobal.org](http://go.osuit.edu/academics/energy_technologies/natural_gas_compression/www.gpaglobal.org)  
<https://gpsa.gpaglobal.org>  
<http://www.gascompressor.org>



***INSTITUTE OF  
TECHNOLOGY***

Sponsored By:

Oklahoma State University Institute of Technology  
GPA Midstream 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**

**CONTACT PERSONS**

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## **Natural Gas Compression Program**

### **GPA Midstream/GPSA/GCA - OSU Institute of Technology Natural Gas Compression Technician Program**

As a service to the members of the GPA Midstream Association (GPA), the Gas Processors Suppliers Association (GPSA) and Gas Compressor Association (GCA), OSU Institute of Technology formed a partnership in 1999 to develop a Natural Gas Compression Technician Associate in Applied Science degree to train entry level technicians.

The purpose of this program is to develop a reliable and continuous source for technicians specifically trained in natural gas compression to enter the natural gas compression industry. The curriculum is 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 targets the recruitment of students from geographic areas in which Member Companies have a need for technicians and will incorporate a paid internship 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.

#### **About the GPA Midstream /GPSA/GCA**

To find out more about the GPA Midstream, GPSA or GCA organizations and their members view their web sites at the locations listed below.

[www.gpaglobal.org](http://www.gpaglobal.org)

<https://gpsa.gpaglobal.org/>

[www.gascompressor.org](http://www.gascompressor.org)

#### **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 School of Energy Technologies at Oklahoma State University Institute of Technology, working in close relationship with members of the Gas Processors Association, administer the program activities.

#### **PROGRAM PURPOSE**

The purpose of the program is to upgrade the technical competency and professional level of incoming natural gas compression technicians. It trains students to diagnose, service and maintain gas compression equipment using recommended procedures, special tools, and service information. It provides 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 five semester program incorporates four semesters designated for technical and academic education at Oklahoma State University Institute of Technology (OSUIT). The remaining semester is allocated for a paid internship, on-the-job experience, at sponsoring GPA Midstream/GPSA/GCA Member locations. Typically students will attend classes at OSUIT for four semesters, followed by an internship during the fifth semester. The internship may be taken any time after the 2<sup>nd</sup> semester has been completed.

Since considerable time is spent at the GPA Midstream/GPSA/GCA Member facility, it is a requirement of the program that students have a sponsoring GPA Midstream/GPSA/GCA Member for the internship. The primary responsibility for the GPA Midstream/GPSA/GCA Member is to provide training-related employment for the students during the 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 Midstream/GPSA/GCA Members may make other expense sharing agreements with students, at their discretion.

## **PROGRAM CURRICULUM**

Technical training on gas compression equipment and components includes: 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; 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 Midstream/GPSA/GCA 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 Midstream/GPSA/GCA Member Company admission, academic and employment 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 Midstream/GPSA/GCA Member Company sponsor.  
(NOTE: for many companies this is a requirement for employment)

## 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 OSU Institute of Technology Application for Admission on line at: <https://admissions.osuit.edu/apply/> or print, complete and mail the form provided at:
- Obtain a Federal Student Aid ID (FSA ID) at <https://fsaid.ed.gov/npas/index.htm> Complete the Free Application for Federal Student Aid (FAFSA) available at <https://fafsa.ed.gov> **The OSUIT school code is 003172.** Once our office receives your information, we will notify you if additional information is needed and/or send you your award letter.
- Submit official high school transcript/GED
- Submit ACT or SAT scores.
- COMPASS testing may be required for placement purposes (all students will be required to take compass assessment unless they can prove proficient in a subject area with ACT sub scores in math, reading, writing or science scores of 19 or above or have transfer credits. Compass testing is a computer generated assessment administered through the Assessment Center at OSUIT. (918-293-5254)  
[http://www.osuit.edu/academics/assessment\\_center.php](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](http://www.osuit.edu/academics/assessment_center.php)
- Provide a copy of Immunization records or complete the Immunization Record Form or the Certificate of Exemption. <http://go.osuit.edu/student/union/services/health>
- Residential Life: 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. (918-293-4939) [https://go.osuit.edu/student/residential\\_life/prospective\\_residents](https://go.osuit.edu/student/residential_life/prospective_residents)  
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) through the Bursar's office. (918-293-5226)
- Veterans need to visit with the OSUIT Veteran Service Office. (918) 293-4972.or email [vetservices@okstate.edu](mailto:vetservices@okstate.edu)
- Complete enrollment through the School of Energy Technologies (918) 293-3812, or (918) 293-3800.
- Have your student ID card made. Take your class schedule to the front desk of the Grady W. Clack Center.
- Visit MyOSUIT and activate your O-Key account. This allows you to access your OSUIT email account, check your grades, view your schedule, modify your enrollment, pay your bill, access the online classroom and receive OSUIT notifications/alerts this gives you 24/7 access to your information.  
[www.osuit.edu/my\\_osuit](http://www.osuit.edu/my_osuit)

## Admission of Transfer Students

View admission criteria at: [http://go.osuit.edu/student/admissions/requirement\\_criteria](http://go.osuit.edu/student/admissions/requirement_criteria)

## Important Dates

New students may begin the classwork in the Fall, Spring, or Summer semester.

### **Fall Classes**

#### **January, 2016**

- 2016-2017 Financial Aid Applications are available
- Oklahoma State University Institute of Technology admission applications available

#### **January 31, 2016**

- Families receive W-2 forms and begin to prepare tax returns so financial aid applications can be completed.

#### **February 1, 2016**

- 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 27, 2016**

- Enrollment begins for fall 2016 term. Enrollment will continue through September 7, but these classes typically fill by mid-June.

#### **September 6, 2016**

- Move-in Day for Natural Gas Compression students beginning fall 2016 semester classes

#### **September 7, 2016**

- First day of classes for Natural Gas Compression students beginning fall 2016 term

#### **December 16, 2016**

- Final day of the fall term

### **Spring Classes**

#### **October 19, 2017**

- Enrollment begins for spring 2017 term. Enrollment will continue through January 6, but these classes fill early.

#### **January 5, 2017**

- Move-in day for Natural Gas Compression students beginning spring 2017 semester classes

#### **January 6, 2017**

- First day of Classes for Natural Gas Compression students beginning spring 2017 term

#### **April 22, 2017**

- Final day of spring 2017 term

### **Summer Classes**

#### **February 23, 2017**

- Enrollment begins for summer 2017 term. Enrollment will continue through May 3, but these classes fill early.

#### **May 2, 2017**

- Move-in Day for Natural Gas Compression students beginning summer semester classes

#### **May 3, 2017**

- First day of classes for Natural Gas Compression students beginning summer 2017 term

#### **August 26, 2017**

- Final day of summer 2017 term

#### ***For More Information please call:***

Roy Achemire.....	(918) 293-3800
Paula Harrold .....	(918) 293-3812
Student Financial Services.....	(918) 293-4684
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, OSU Institute of Technology is designated as a tobacco-free environment. **Smoking and the use of all tobacco products are prohibited. Tobacco use is even prohibited in vehicles on grounds owned or under the control of Oklahoma State University.**

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.

## **RESPONSIBILITIES OF PARTICIPANTS**

### ***OKLAHOMA STATE UNIVERSITY INSTITUTE OF TECHNOLOGY***

1. Provide faculty for the Natural Gas Compression Program.
2. Provide necessary time to train and update the faculty.
3. Provide facility dedicated 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 Midstream/GPSA/GCA Members of student progress.
8. Assist GPA Midstream/GPSA/GCA Members with student selection and recruitment.
9. Work with the GPA Midstream/GPSA/GCA Member Company to assure involvement in internship.
10. Assist students in obtaining internships with GPA Midstream/GPSA/GCA Member Companies.
11. Conduct student visitations during internships.
12. Establish a Natural Gas Compression Advisory Committee.
13. Schedule Advisory Committee meetings.

### ***GPA Midstream/GPSA/GCA***

1. Encourage GPA Midstream/GPSA/GCA 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.

### ***GPA Midstream/GPSA/GCA Member Companies***

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 internship 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 company policy.
7. Assist in obtaining equipment and training aids.
8. Participate in the Advisory Committee meetings.



## ***Student***

1. Obtain and maintain a GPA Midstream/GPSA/GCA Member Sponsor throughout the internship.
2. Provide sponsoring GPA Midstream/GPSA/GCA 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 according to OSU Institute of Technology policy.
5. Adhere to GPA Midstream/GPSA/GCA 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. Those who wish to become students in the Natural Gas Compression Programs should make application early since there are typically more applicants the openings in the program.
2. ALL STUDENTS MUST HAVE A GPA/GPSA/GCA MEMBER SPONSOR FOR INTERNSHIPS.

## **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 program.

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](http://www.osuit.edu/academics/new_tuition.html)

## 2016-2018 - Estimated Cost Per Semester

\$2,000.00 - \$3900.00 Required Tools (dependent on manufacturer and tool box selected)

### Semester 1

\$1,926.00	Two Bedroom/One Bathroom Suite
\$150.00	\$150.00 single unit, \$500.00 family unit (refundable)
\$1,299.00	20 Meal Plan
\$2,720.00	Tuition & fees \$170.00/ch (16 credit hours)
	This is in-state tuition rate
\$550.00	Books (approximate per semester)
<b>\$6,645.00</b>	Estimated total semester educational expenses

### Semester 2

\$1,926.00	Two Bedroom/One Bathroom Suite
\$1,299.00	20 Meal Plan
\$2,550.00	Tuition & fees \$170.00/ch (15 credit hours)
	This is in-state tuition rate
\$550.00	Books (approximate per semester)
<b>\$6,325.00</b>	Estimated total semester educational expenses

### Semester 3

\$1,926.00	Two Bedroom/One Bathroom Suite
\$1,299.00	20 Meal Plan
\$3,060.00	Tuition & fees \$170.00/ch (18 credit hours)
	This is in-state tuition rate
\$550.00	Books (approximate per semester)
<b>\$6,835.00</b>	Estimated total semester educational expenses

### Semester 4

\$1,926.00	Two Bedroom/One Bathroom Suite
\$1,299.00	20 Meal Plan
\$2,550.00	Tuition & fees \$170.00/ch (15 credit hours)
	This is in-state tuition rate
\$550.00	Books (approximate per semester)
<b>\$6,325.00</b>	Estimated total semester educational expenses

### Semester 5

	<b>Internship</b>
\$1,530.00	Tuition & fees \$170.00/ch (9 credit hours)
	This is in-state tuition rate
<b>\$1,530.00</b>	Estimated total semester educational expenses

**\$27,660.00** Estimated total in-state 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, and Matco sets are approximately ½ retail price with school discount. The Natural Gas Compression Advisory Committee 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 Academic Scholarship

Choosing OSU Institute of Technology for your education sets you on the right path toward a promising career. As the University of Jobs, OSUIT is committed to making the transition from classroom to career seamless while at the same time offering an affordable education that will pay you dividends upon graduation.

As Oklahoma's only university of applied technology, OSUIT prepares you for a high return on your investment:

- Nearly 100% career placement rate in technical degree programs
- Low tuition costs, a wide variety of additional scholarship opportunities and financial aid available
- Paid internships that help pay for school as you go and often lead to full-time employment

In an effort to keep out-of-state costs low, OSUIT's Nonresident Academic Scholarship helps offset your educational expenses, making it the most affordable option in the region.

### OSUIT Scholarship Award by Credit Hour

Nonresident Incoming GPA	Total Tuition & Mandatory Fees	Scholarship per credit hour	Student portion per credit hour
3.50 to 4.00	\$357.00 -	\$155.00 =	\$202.00
3.00 to 3.49	\$357.00 -	\$145.00 =	\$212.00
2.50 to 2.99	\$357.00 -	\$135.00 =	\$222.00
2.00 to 2.49	\$357.00 -	\$125.00 =	\$232.00

*Calculations based on FY15 Undergraduate Tuition & Mandatory Fees. Number of scholarships awarded determined by availability of funding. Effective January 2014.*

Scholarship is available to full-time OSUIT students and is renewable for a maximum of 6 consecutive terms. Credit hour award will be recalculated according to student's OSUIT GPA during the fourth term, potentially increasing scholarship funding.

*Example: Incoming student Pistol Pete's GPA was 2.4, resulting in a scholarship of \$125 per credit hour. At the end of the third term, Pete's GPA is 3.2, resulting in a scholarship increase to \$145 per credit hour.*

Contact OSUIT Prospective Student Services at [information@okstate.edu](mailto:information@okstate.edu), or call 1-800-722-4471 for full scholarship details.

The table below shows the additional non-resident costs and the estimated total program costs, assuming the student maintains the same GPA as the student entered OSUIT with.

	Tuition & Fees	Additional Non-Resident Tuition & Fee Costs	Estimated Total Cost
Oklahoma Resident tuition and fees	\$12,410.00		\$27,660.00
Non Resident with incoming GPA 3.50 to 4.00	\$14,746.00	\$2,336.00	\$29,996.00
Non Resident with incoming GPA 3.00 to 3.49	\$15,476.00	\$3,066.00	\$30,726.00
Non Resident with incoming GPA 2.50 to 2.99	\$16,206.00	\$3,796.00	\$31,456.00
Non Resident with incoming GPA 2.00 to 2.49	\$16,936.00	\$4,526.00	\$32,186.00



## **INSTITUTE OF TECHNOLOGY**

### **School of Energy Technologies**



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# **Natural Gas Compression**

**PROGRAM**

**School of Energy Technologies**  
Degree Awarded  
**Associate in Applied Science**

General Requirements  
**73 Credit hours**  
**2.0 Minimum Overall Grade Point Average**

**Typical Schedule for  
Natural Gas Compression  
Proposed Plan of Study  
SEGC-166**

#### **1st Semester - 16 Credit Hours**

SEGC	1113	Fundamentals of Maintenance
SEGC	1123	Engine Principles
SEGC	1133	Advanced Engine Technology
GTGE	1111	College Cornerstone
<b>MATH</b>	<b>2003</b>	<b>Business Mathematics</b>
<b>CS</b>	<b>1013</b>	<b>Computer Literacy &amp; Applications</b>

#### **2nd Semester - 15 Credit Hours**

SEGC	1213	Engine Air, Fuel & Starting Systems
SEGC	1243	Gas Compressors
SEGC	1233	Instrumentation & Controls
<b>HIST</b>	<b>1493</b>	<b>U.S. History Since 1865</b>
<b>ENGL</b>	<b>1033</b>	<b>Technical Writing 1 (or)</b>
<b>ENGL</b>	<b>1113</b>	<b>Freshman Comp 1</b>

#### **3rd Semester - 18 Credit Hours**

SEGC	2413	DC/AC Circuit Analysis
SEGC	2423	Electrical Devices & Controls
SEGC	2433	Electrical Motors, Generators & Alternators
<b>ENGL</b>	<b>2033</b>	<b>Technical Writing II (or)</b>
<b>ENGL</b>	<b>1213</b>	<b>Freshman Comp 2</b>
<b>POLS</b>	<b>1113</b>	<b>U. S. Government</b>
<b>SPCH</b>	<b>1113</b>	<b>Introduction to Speech</b>

#### **4th Semester - 15 Credit Hours**

SEGC	2513	Programmable Logic Controllers (PLC)
SEGC	2523	Engine Electrical
SEGC	2533	Gas Compression Capstone 2
<b>PHIL</b>	<b>1213</b>	<b>Ethics</b>
<b>BADM</b>	<b>1113</b>	<b>Introduction to Business</b>

#### **5th Semester - 9 Credit Hours**

SEGC	2609	Internship 2
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## First Year Gas Compression Courses

### SEGC 1113 - 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.

### SEGC 1123 - 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.

### SEGC 1133 - 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.

### SEGC 1213 - 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: SEGC 1123, SEGC 1133.

### SEGC 1243 - 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.

### SEGC 1233 - 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.



## Second Year Gas Compression Courses

### SEGC 2413 - 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.

### SEGC 2423 - 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.

### SEGC 2433 - 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.

### SEGC2513 - 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: SEGC 2423

### SEGC 2523 - Engine Electrical

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: SEGC1213, SEGC 2423.

### SEGC 2533 - Gas Compression Capstone

Students research employability skills, prepare and critique job applications, resumes, interview skills and portfolios. During preparation of the resumes and portfolios students will review and be tested over all previous technical classes and discuss how to best present the knowledge and skills acquired in the previous classes. This class prepares students for internship and full time employment at natural gas compression facilities. Theory/Lab. Prerequisites: SEGC 2413.

### SEGC 2609 - Internship

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 School of Energy Technologies Dean.

# 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 as specified by faculty

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

## FINANCIAL AID WEB SITES

### Scholarship Resources on the Web

[www.fastweb.com](http://www.fastweb.com)

[www.collegefunds.net](http://www.collegefunds.net)

[www.wiredscholar.com/](http://www.wiredscholar.com/)

[www.freschinfo.com](http://www.freschinfo.com)

[www.mach25.com](http://www.mach25.com)

[www.scholarships.com/](http://www.scholarships.com/)

Mapping Your Future – [www.mapping-your-future.org](http://www.mapping-your-future.org)

College Board Scholarship Search – [http://apps.collegeboard.com/cbsearch\\_ss/welcome.jsp](http://apps.collegeboard.com/cbsearch_ss/welcome.jsp)

Oklahoma Student Loan Authority (OSLA) – [www.oslat.org](http://www.oslat.org)

### GRANTS AND SCHOLARSHIPS:

FAFSA Express – [www.FAFSA.ed.gov](http://www.FAFSA.ed.gov)

Missouri Higher Education Loan Association (MOHELA) – [www.mohela.com](http://www.mohela.com)

Oklahoma Guaranteed Student Loan Program (OGSLP) – [www.ogslp.org](http://www.ogslp.org)

Oklahoma State Regents for Higher Education – [www.okhighered.org](http://www.okhighered.org)

Oklahoma Tuition Aid Grant (OTAG) – [www.otag.org](http://www.otag.org)

### GENERAL INFORMATION:

National Association of Student Financial Aid Administrators – [www.nasfaa.org](http://www.nasfaa.org)

National Council of Higher Education Loan Programs – [www.nchelp.org](http://www.nchelp.org)

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

Project EASI – [www.easi.ed.gov](http://www.easi.ed.gov)

The Financial Aid Information Page – [www.finaid.org](http://www.finaid.org)

US Department of Education – [www.ed.gov](http://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.

A&H Inc.	<a href="http://www.aandhinc.com">www.aandhinc.com</a>
AG Equipment Company	<a href="http://www.agequipmentcompany.com">www.agequipmentcompany.com</a>
CDM Resource Management LLC	<a href="http://www.cdmm.com/">http://www.cdmm.com/</a>
Chevron	<a href="http://www.chevron.com">www.chevron.com</a>
Compass Compression	<a href="http://www.compasscompression.com">www.compasscompression.com</a>
CSI Compresco, L.P.	<a href="http://www.compressco.com">www.compressco.com</a>
ConocoPhillips	<a href="http://www.conocophillips.com">www.conocophillips.com</a>
Custom Compression Systems	<a href="http://www.customcompressionsystems.com">www.customcompressionsystems.com</a>
DCP Midstream	<a href="http://www.dcpmidstream.com">www.dcpmidstream.com</a>
Devon	<a href="http://www.dvn.com">www.dvn.com</a>
Enable Midstream Partners	<a href="http://www.enablemidstream.com">www.enablemidstream.com</a>
Energy Transfer	<a href="http://www.energytransfer.com">www.energytransfer.com</a>
Exterran	<a href="http://www.terran.com">www.terran.com</a>
Foley Equipment	<a href="http://www.foleyeq.com">www.foleyeq.com</a>
Gas Drive	<a href="http://www.gasdriveglobal.com">www.gasdriveglobal.com</a>
Great Plains Gas Compression	<a href="http://www.greatplainsgas.com">www.greatplainsgas.com</a>
J-W Power Company	<a href="http://www.jwenergy.com">www.jwenergy.com</a>
Kinder Morgan	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
KOCH Energy Services	<a href="http://www.kochenergyservices.com">www.kochenergyservices.com</a>
MESA Compression	
Midcon Compression	<a href="http://www.midconcompression.com">www.midconcompression.com</a>
ONEOK	<a href="http://www.oneok.com">www.oneok.com</a>
Shell	<a href="http://www.shell.com">www.shell.com</a>
Southern Star Central Gas Pipeline	<a href="http://www.sscgp.com">www.sscgp.com</a>
Targa Resources	<a href="http://www.targaresources.com">www.targaresources.com</a>
SWN Midstream Company	<a href="http://www.swn.com">www.swn.com</a>
USA Compression	<a href="http://www.usacompression.com">www.usacompression.com</a>