OGPT Advisory Committee Meeting
March 5, 2013
2:00 p.m. – 3:00 p.m.
Bossier Parish Community College – A230

Members Present
Ragan Dickens (LOGA)
Jeffrey Holliday (Chesapeake Energy)
Laura Goadrich (BPCC)
Sandra Partain (BPCC)
Carrie Salinas (BPCC)
Brittanie White (BPCC)
Rocky Duplichan (BPCC)
Ray Lasseigne (TMR Exploration)
Stan Wilkins (BPCC)
Linda Sonnier (BPCC)
Michelle Fayard (BPCC)
Allan Pratt (BPCC)
Cristi Hay (Halliburton)

Members absent

Meeting minutes

Call to Order: Meeting began at 2:00 p.m. with Linda Sonnier greeting all attendees.

Roll Call: Roundtable introductions begin.

Review of curriculum:
CTS Energy Services—Linda discusses the need to add another electronics course to this program. She suggests that we add the TEED 102 and TEED 102L (3 hours and 1 hour). Allan Pratt explains that this course would teach students about semiconductors (progression) for a total of four hours dealing with assembly and testing equipment analyzing. This will offer a well-rounded program in conjunction with TEED 203. No additional hours added thus removing four hours. Ray asks about the number of hours and could the theory be combined to allow us to keep our courses? Linda explains the small based core of classes allow us to keep the courses, but that we will look at a more compact Mechanical course/series.

Linda and the committee review the AAS OGPT program curriculum and program length. Current enrollment has increased and in the Fall will have 129 students with 11 graduates. OGPT has 9 graduates this Spring with 196 students enrolled. The percentage of students currently working is approximately 60%. Current students are encouraging new students. Ray asks do we get feedback from graduates and companies. Linda states yes, we receive good
feedback. *(Note: graduation and employer surveys underway in April, 2013 per committee request)* Ray asks how the experience students receive the new and lesser experience students. Carrie explains that the experience student care and share with the other students.

Linda discusses the OGPT 221 a television camera crew came to the class. The students were able to perform exercises for the television program. This was a plus for our students and our program. Rocky Duplichan has been able to share his work experience with his students and this allows them to work in situations that other students may not. Linda explains our rigorous program allow the students to use critical thinking. She also states that we do not have scholarships for the OGPT students and that this might hinder the number of students that will complete this program because of the financial strain on the working students.

Linda reviews the courses offered here at BPCC. The students have five speeches/events as well as debates (legacy and lawsuits are topics). We have two safety courses and 2 credentials. Linda asks if we should use the OSHA 30 hours instead of the OSHA Hazwoper (40 hour) or is this company based during orientation. Committee responds that having choices depends upon the company needs. Linda asks the committee do we want to broaden our offerings and think about adding credentials. Jeffrey states the more the better (industry specific). Ragan brings up that economy plays a role in who companies hire. Offering more credentials allows the companies to spend less. Credentials will increase the students hiring ability. Cristi mentions that 80% of Halliburton’s new hires will need to have both credentials and an AAS degree.

BPCC requests that company’s interview in February for Summer/Fall internships. Linda continues to explain that computer literacy is embedded in our curriculum as well as speech. Ragan mentions that speech/communications skills really help. He believes crisis skills will help as well (e.g. when accident/incidents happen having good public speaking skills is important). Linda sees the importance of guest speakers to show our students how to communicate effectively with the public. Cristi and Jeffrey explain the importance of communication with co-workers as well.

Capstone courses (Production and Recovery I & II) are a part of our ATMAE accreditation courses. These courses expand communication skills with internal and external customers. Dr. Wilkins adds that effective communication is important skill to have for all careers. Students should be able to articulate what they have learned. Carrie adds students who take the speech courses can build their confidence and Britannie states this part of the program makes learning fun.

Linda discusses the progress toward NAPTA endorsement, and how the integration of NAPTA learning outcomes will enhance the program’s acceptance. This will be a first for an OGPT program to receive NAPTA endorsement. Refer to the PowerPoint Presentation for more details. NAPTA will offer a baseline industrial training (refer to PowerPoint presentation). NAPTA is the standard-bearer of the PTEC curriculum. Energy Services has 15 students enrolled for Spring and we will have our first graduates Summer 2013.
Linda explains that companies can come and observe the non-credit Industrial Readiness Training (this is geared toward manufacturing sector). This course will develop a pool of skilled entry level workers. We have received a positive response from this portion of the program. Ragan likes that this can develop a good relationship with companies. Jeff tells the committee that the railroad is leaning towards automation. Linda agrees and that she was able to meet with KCS (Kansas City Southern Railways).

Linda provides information about the NFWS grant and the TAACCT grant. She also provides information regarding the Siemens Level One Mechatronics certification (see PowerPoint presentation). The mechatronics instructor will be hired in April 2013 and will attend training in June 2013.

**Program Personnel** our students have a great amount of support from instructors and Warren Counseling. Warren Counseling is available to our students and their needs. The students have responded well to this type of support. The counseling sessions are private, however, the students may need assistance with their education and the counselor helps them seek out assistance (e.g. books, assignments, etc.).

**Equipment and Software**
Linda reviews the current equipment and software (LABVOLT 3531, PLC Software Trainer, etc.) The PLC provides a computer program, computer system and control system that allows for multitasking scenarios. Ragan and Jeff state this is great for the oil rigs. A grant enables us to purchase a mechanical simulator. Students have hands-on training. We hope to purchase in the near future a Well-bore hydraulic simulator. Rocky believe this will satisfy several aspects in the Oil and Gas industry (e.g. circulating and fracking as well as pressure situation and flexible equipment experience). More information can be found on the PowerPoint presentation.

H.O.T. Unit trainer—Production Platform will be with our new CIET building. This trainer allows our students to experience working in an all-weather situation. EnCana will help us purchase this trainer. When specified, this item will go out for bid.

Potential meet the employers in the last week of April sponsored by SOGO. Brittanie speaks about the community outreach. She explains the many projects and fundraising opportunities (t-shirts for sale, Sonic cards, and Smash Burger night, etc.). These project/fundraisers help us build a scholarship fund. Chesapeake provided scholarships in the past; would they consider making a donation/scholarship available again? SOGO has 79 student members at this time.

Linda speaks about how New Mexico has seen an increase in the oil business. Discussion leads to other job opportunities here in Louisiana. Linda adds that the API NCCER pipeline training is planned to start in the Fall 2013.

Motion to review and approve curriculum and length of program—Linda asks if we can get an approval for the curriculum and the length of program. All approved with no opposition.
Adjournment
Linda expresses her gratitude for all attendees and their feedback. We have a successful program from the committee’s dedication and communication. If the committee has further suggestions please feel free to email or bring up in the next meeting. The meeting adjourns at 3:00 p.m.

Minutes submitted by:  Michelle Fayard
Minutes approved by:  Linda Sonnier
Global Skills through local engagement

Siemens Mechatronic Systems Certification Program

Siemens is a leader in complex technologies, particularly in complex systems integrating electrical, mechanical, and computer engineering. The marriage of these three engineering fields, better known as mechatronic systems, plays an ever-increasing role in modern technology. Because technologies become more complex each year, we build relationships with qualified partner schools to educate competent and motivated personnel. The Siemens Technik Akademie has developed a comprehensive industry skill certification, the Siemens Mechatronic Systems Certification Program, offered together with our partner schools worldwide.

SIEMENS

Siemens Mechatronic Systems Certification Program

Against the backdrop of the technical dominance of Siemens in the automation and mechatronic sectors, as well as in the growing number of areas in which integrated mechatronic systems are being used around the world, the demand for qualified and competent personnel is increasing. To guarantee a world-class technical skills standard, the Siemens Technik Akademie Berlin cooperates with qualified colleges and universities to offer an industry-focused, multi-skilled certification to students. SMSGP technical content focuses on key industrial skill areas such as electrical components, semiconductors, control PLC, as well as hydraulics and pneumatics. In addition to teaching the technical knowledge, SMSGP content also stresses troubleshooting and system-based technical thinking via hands-on training. This technical training, paired with our certifications, creates well-grounded workers that can easily meet the challenges of high-tech and advanced manufacturing industries.

SMSGP Benefits for Companies and Industries

- Well-Trained, Work-Ready Technical Workers
  - With its emphasis on in-demand industrial skills, troubleshooting, and hands-on practice, SMSGP training will provide you with knowledgeable workers, which are able to easily move into a variety of production, technical, and/or engineering roles.
- Objective Certification of Workers' Technical Skills
  - SMSGP certifications provide an objective, industry-aligned assessment of mechanical, electrical, and digital technical skills, troubleshooting, and mechatronic systems-thinking.
- Cost Savings on Training and Education
  - With SMSGP, companies and industries can receive much-needed skilled technical workers while saving on local education and training resources via partner schools. Our program partners offer SMSGP training at a fraction of the cost of private training companies and in many cases, the training may qualify for supporting funding from local government.
- Clear Job Profiles
  - To promote its relationship to industry needs, the SMSGP is divided into three qualification levels which each correspond to specific "job profiles". The job profiles clearly define the certified qualification and skills of the graduates. The three levels are:
    - Level 1: Siemens Certified Mechatronic Systems Assistant
    - Level 2: Siemens Certified Mechatronic Systems Associate
    - Level 3: Siemens Certified Mechatronic Systems Professional
  - Corresponding to university-level engineering education, at this level, emphasis is placed on system design and process optimization.

Interested? Contact us:
www.siemens-certifications.com

Siemens Technik Akademie Berlin
Certificate of Technical Studies in Energy Services

Learning Outcomes:

Recipients of a Certificate of Technical Studies in Energy Services will be able to:

A. Understand the principles of electricity and electronics, and perform basic electrical and electronics troubleshooting and repair;

B. Understand the principles of industrial mechanics and mechanical equipment, and perform basic troubleshooting and repair;

C. Understand the principles of industrial instruments and perform basic operations, troubleshooting and repair;

D. Demonstrate an understanding of the electro-mechanical industry and the basic tenants of how electronics and mechanics work together in an industrial setting; and

E. Perform work functions within the regulatory and safety systems established for industry.

Specific Program Information:

The Certificate of Technical Studies in Energy Services is a 34-semester hour curriculum to prepare students for support service careers in the energy industry. The program is an industry-driven response to the oil and gas resource discoveries in Northwest Louisiana since 2008 and the growing need for energy professionals for both production and energy delivery companies. A plan of study, specifically designed to prepare students with both knowledge and hands-on training experiences, will provide graduates with the foundation for a successful career with an energy service company.

Required courses for the Certificate of Technical Studies in Energy Services:

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEED 145: Industrial Mechanical Theory I</td>
<td>3</td>
</tr>
<tr>
<td>TEED 146: Industrial Mechanical Theory II</td>
<td>3</td>
</tr>
<tr>
<td>ISAF 210: Industrial Safety and the OSHA Standard</td>
<td>3</td>
</tr>
<tr>
<td>TEED 153: Hydraulics and Fluid Dynamics with Lab</td>
<td>3</td>
</tr>
<tr>
<td>MATH 129: Applied Technical Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 102: College Algebra</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td><strong>15</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEED 101: Basic Electricity with Lab</td>
<td>4</td>
</tr>
<tr>
<td>TEED 245: Pumps and Compressors with Lab</td>
<td>2</td>
</tr>
<tr>
<td>TEED 201: Basic Digital Electronics</td>
<td>3</td>
</tr>
<tr>
<td>TEED 203: Oil and Gas Instrumentation and Lab</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 102: Problem Solving and Programming Techniques</td>
<td>3</td>
</tr>
<tr>
<td>TEED 260: Mechatronics Level 1</td>
<td>3</td>
</tr>
<tr>
<td>or Approved Elective*</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>

* Approved Elective: OGPT 221 Field Processing of Natural Gas or TEED 252 Electric Motor Controls and Lab

Students must meet prerequisites before taking any given course.

Students must meet the general competencies for the academic certificate.
The Nicholls bachelor's degree program in petroleum services combines work experience and academic coursework to prepare students for management positions in the drilling, production, service and supply segments of the petroleum industry.

The Nicholls Petroleum Services Program prepares students to:

- Interpret and apply governmental regulations and recommended practices applicable in drilling production and safety related operations.
- Evaluate and determine safe and environmentally compliant methods to extract hydrocarbons from geologic formations using current industry standards.
- Assess and respond to abnormal operation conditions during the drilling or production process where inherent catastrophic risks are involved.
- Design well bore specifications, well intervention strategies and enhanced oil and gas recovery methods using current industry practices with design and evaluation software.
- Achieve industry recognized certification for well control, production safety systems and health, safety and environmental practices.
- Seek gainful employment in the managerial and supervisory positions in local, state, national and global energy sectors.

The Bachelor Degree program offers upper-level courses in oil production, drilling practices, human resources and safety in addition to the technical and supervisory courses on the oil and gas industry's equipment, practices, problems and computations that are required for the associate degree.

The program includes courses that focus on:
- drilling equipment and practices,
- artificial lift methods,
- human resources management,
- multicultural communication,
- safety and control systems,
service and repair problems of land and offshore oil and gas wells,
well control,
standards established by governmental regulatory agencies,
safety and health program planning and
accident prevention.

Petroleum Services Bachelor Graduates will demonstrate the knowledge, skill and abilities to perform the following competencies directly related to the oil and gas industry and beyond:

I. Interpret and apply federal and state regulations, industry consensus standards and best practices pertaining to the oil and gas industry or operation using appropriate references (e.g., world wide web; Industry software; and API references) to acquire necessary data.

II. Explain the three main business segments that include upstream, midstream and downstream operations in the energy industry.

III. Formulate plans and strategies to locate petroleum deposits through the use of contemporary geophysical reservoir techniques.

IV. Design well bore plans, drilling methods that include drilling fluid specifications to control bottom hole pressures and maintain well integrity.

V. Select well completion techniques that includes cementing and other down hole methods to produce at targeted pay zones.

VI. Troubleshoot and solve problems relating to lost circulation, high pressure zones, fishing operations, and coring operations used during well drilling and completion.

VII. Design methods of secondary recovery using artificial lift and water flood application for enhanced oil recovery.

VIII. Complete technical reports and government compliance records relating to production and drilling operations.

IX. Design and evaluate well intervention techniques using industry simulation software to control flow, pressure, temperature and other variables involved in safe and environmentally complaint practices.

X. Design and conduct audits of safety management systems pertaining to the petroleum industry.

XI. Demonstrate leadership ability to be able to effectively work in interact in a team environment involving company initiatives.

XII. Design and conduct industry required operations, along with health, safety and environmental training using effective adult learning techniques.
Associate of Applied Science in Industrial Technology
(Automation and Controls Concentration)

The Associate of Applied Science in Industrial Technology with Concentration in Automation and Controls provides the graduate the opportunity to work as industrial electronic technicians in the growing Automation and Controls industry.

Learning Outcomes:
A. Provide industrial electronic technicians in the Automation and Controls industry.
B. Provide technicians capable of interacting with engineers, architects, and other technical professionals.
C. Provide a means by which students currently employed in related fields can improve their knowledge and skills in technology, stay abreast with the ever-increasing demands industry, and increase their opportunities for professional growth and advancement.
D. Provide graduates with diverse skills necessary to fill highly-specialized vacancies in industry, manufacturing, construction, and engineering.

Required courses for Associate of Applied Science in Industrial Technology with Concentration in Automation and Controls:

**FRESHMAN YEAR**

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 101</td>
<td>Applied Algebra for College Students **</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 102</td>
<td>College Algebra *</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 101</td>
<td>Composition and Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>TEED 101</td>
<td>Basic Electricity</td>
<td>3</td>
</tr>
<tr>
<td>TEED 101L</td>
<td>Basic Electricity Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>OGPT 101</td>
<td>Introduction to the Exploration and Production of Oil and Gas</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL FIRST SEMESTER</strong></td>
<td><strong>13</strong></td>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 129</td>
<td>Applied Technical Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 112</td>
<td>Trigonometry</td>
<td>3</td>
</tr>
<tr>
<td>TEED 102</td>
<td>Semiconductor Electronics</td>
<td>3</td>
</tr>
<tr>
<td>TEED 102L</td>
<td>Semiconductor Electronics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>TEED 142</td>
<td>Industrial Graphics</td>
<td>3</td>
</tr>
<tr>
<td>TEED 143</td>
<td>Introductory Computer Drafting</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Social Science Elective</td>
<td>3</td>
</tr>
</tbody>
</table>
Third Semester

TEED 201: Basic Digital Electronics 3
TEED 206: Electronics Equipment and Repair 3

SOPHOMORE YEAR

First Semester

PHSC 105: Elemental Physics 3
or PHYS 201: General Physics 1
TEED 153: Hydraulics/Fluid Dynamics with Lab 3
TEED 202: Introduction to Microprocessors 3
TEED 202L: Introduction to Microprocessor Laboratory 1
OGPT 203: Oil and Gas Instrumentation and Lab 4

Second Semester

TEED 208: Programmable Logic Controllers (PLCs) 3
TEED 208L: Programmable Logic Controllers Laboratory 1
TEED 252: Electric Motor Controls 3
TEED 252L: Electric Motor Control Laboratory 1
TEED 210: Robotic Control Systems 3

Total credit hours 63

* For transfer to a four-year institution, students are strongly advised to take MATH 102 instead of MATH 101. Students must seek the assistance of their advisor to determine the appropriate mathematics course.

Students must demonstrate competency in computer literacy and speech during the course of the degree program as integrated into the curriculum plan.
Associate of Applied Science in Oil and Gas Production Technology

Program Mission:

The Associate of Applied Science in Oil and Gas Technology provides the graduate with the knowledge and applied technical skills needed to compete within the energy sector.

Learning Outcomes:

Recipients of an Associate of Applied Science in Oil and Gas Production Technology will be able to:

A. relate the processes which lead to the geological origins of oil and gas and the process of its accumulation within the earth's crust;
B. explain the procedures and evaluate the options for fossil fuel exploration, drilling, well completion, production, recovery, and processing;
C. discuss all subject matter using industry terminology and prepare written summaries of industry issues;
D. demonstrate competent operational ability for basic electrical equipment, hydraulics and fluid dynamics equipment; pumps and compressors; oil and gas instrumentation equipment; and oil and gas processing equipment;
E. understand well analysis processes and procedures, the well decision process, the economics of production and recovery; and
F. perform work functions within the regulatory and safety systems established for the industry.

Specific Degree Information:

The Associate of Applied Science in Oil and Gas Production Technology is a 63-semester hour curriculum to prepare students for field operations careers in the oil and gas industry. The program is an industry-driven response to the oil and gas resource discoveries in Northwest Louisiana since 2008. A plan of study, specifically designed to prepare students with both knowledge and laboratory/field experiences, will provide graduates with the foundation for a successful career in the oil and gas industry.

Required courses for the Associate of Applied Science in Oil and Gas Production Technology:

**Freshman Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 129</td>
<td>Applied Technical Math</td>
<td>3</td>
</tr>
<tr>
<td>PHSC 111</td>
<td>Physical Geology</td>
<td>3</td>
</tr>
<tr>
<td>TEED 101</td>
<td>Basic Electricity</td>
<td>3</td>
</tr>
<tr>
<td>TEED 101L</td>
<td>Basic Electricity Lab</td>
<td>1</td>
</tr>
<tr>
<td>SAF 109</td>
<td>Basic Field Safety Orientation (Safe Land Cert)</td>
<td>2</td>
</tr>
<tr>
<td>OGPT 101</td>
<td>Introduction to the Exploration and Production of Oil and Gas</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Hours:** 15
# Second Semester
- **OGPT 103:** Drilling Complex Wells  
- **OGPT 131:** Well Completions and Workovers  
- **MATH 102:** College Algebra  
- **ENGL 101:** Composition and Rhetoric I  
- **TEED 153:** Hydraulics/Fluid Dynamics with Lab  

**Hours:** 15

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# Third Semester
- **OGPT 260:** Computer Applications for Oil and Gas Industry  
- **or OGPT 270:** Cooperative Education (16 weeks)  
- **or OGPT 280:** Internship - Oil and Gas Technology/Technician (8 weeks)  

**Hours:** 3

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# Sophomore Year
## First Semester
- **OGPT 203:** Oil and Gas Instrumentation and Lab  
- **TEED 245:** Pumps and Compressors with Lab  
- **OGPT 150:** Regulatory Issues for the Oil and Gas Industry  
- **OGPT 207:** Production and Recovery I  
- **Humanities Elective:**  

**Hours:** 14

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# Second Semester
- **ISAF 209:** Safety Regulations and Hazwoper 40 Safety Certification  
- **OGPT 217:** Production and Recovery II  
- **OGPT 221:** Natural Gas Processing and Lab  
- **BADM 217:** Organizational Behavior  
- **POSC 202:** State and Local Government  

**Hours:** 16

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**Total credit hours:** 63

**Note:** Students entering the program must qualify at minimum for placement in MATH 099 and ENGL 099. Students required by academic policy to remediate in READ 099 and/or EDUC 099 will not be allowed to pursue any OGPT, ISAF, or TEED course until these requirements are completed. Students required by academic policy to remediate in MATH 099 will not be allowed to pursue any required TEED course until these requirements are completed. All program students must successfully complete a mathematics course each semester until mathematics requirements are complete. Computer competency will be assessed in OGPT 101. Speech requirements will be met in OGPT 217.
Oil and Gas Production Technology

ENERGY PROGRAMS Advisory Committee
AGENDA

- A.A.S. Oil & Gas Production Technology
  - Enrollment/Graduation
  - Programs/Certifications
- C.T.S. Energy Services
  - Enrollment/Graduation
  - Programs/Certifications
- Baseline Industrial Training
  - Industrial Readiness Certificate
  - Non-credit Industrial Readiness Training
- Personnel Update
- Equipment Update
- Facilities Update
- Articulation Agreements
- Student Organization
OGPT Enrollment/Graduation

- 63 Hour Associate of Applied Science
- Currently 196 m/l students enrolled
- 11 graduates for fall, 2012 and 9 graduates for spring, 2013
- Entering student profile
- Graduating student profile
- Graduate expectations for local employment
Oil & Gas Production Technology Curriculum

- **Lecture Courses**
  - Intro to Oil and Gas
  - Drilling Complex Wells
  - Workovers and Completions
  - Regulatory Issues
  - Production and Recovery I
  - Production and Recovery II

- **Lecture/Lab Courses**
  - Electricity for Electronics
  - Hydraulics/Pneumatics
  - Pumps and Compressors
  - Instrumentation
  - Field Process of Natural Gas
Oil & Gas Production Technology Curriculum

- Safety Courses
  - Industrial Safety/PEC SafeLand
  - OSHA Hazwoper 40

- Technical Courses
  - Internship
  - Physical Geology
  - Applied Technical Math
  - College Algebra

- Other Courses
  - Organizational Behavior
  - State and Local Government
  - English Composition
  - Humanities Elective
Oil & Gas Production Technology Industry Certifications

- Safety
  - PEC SafeLand
  - OSHA HazWoper 40

- Industry (in process)
  - NAPTA (PTEC) Endorsement

- Status of PTEC Endorsement
  - Endorsement from North American Process Technology Alliance (NAPTA)
  - Third of four annual advisory meetings
  - Review of Learning Outcomes underway
  - Report of potential curriculum changes at March, 2013 meeting
NAPTA Endorsement & PTEC Exam

The North American Process Technology Alliance (NAPTA) is an organization of the Process Technology (PTEC) education providers and their business, industry, and community advisors cooperatively working toward their common goals. The NAPTA is an active partner with the Center for the Advancement of Process Technology (CAPT).

The NAPTA is the standard-bearer of the PTEC curriculum. The NAPTA audits PTEC degree programs in the United States and endorses those that meet its criteria.
Energy Services Enrollment/Graduation

- 34 Hour Certificate of Technical Studies
- 15 students enrolled for spring
- First graduates in summer, 2013
- Part of NFWS grant and TAACCCT grant
- Siemens Level One Mechatronics Certification

Handwritten note: $2,000 for graduates to take test.
Siemens Mechatronics

**Level 1:** Certified Mechatronic Systems Assistant
Operators help operating plants, perform routine maintenance and assist in the resolution of problems. They change the loading of turbines/generators as required through the electronic control system. Furthermore, they are responsible for troubleshooting, servicing, and installing equipment under supervision.

**Level 2:** Certified Mechatronic Systems Associate (FUTURE)
System Technicians do major repairs and installations, respond to breakdowns, perform preventive maintenance and ensure efficient operation of different equipment/machines. They troubleshoot, maintain and adjust precision electronic and pneumatic instrumentation, process controllers and process control loop components including sensor, transmitters, converters, valve positioners and actuators.
Baseline Industrial Training

- **Industrial Readiness Technical Competency Area**
  - 12 credit hours
  - One semester
  - Courses
    - Applied Technical Math
    - Mechanical Theory I & II
    - Basic Electricity w/Lab
  - Can continue in OGPT or Industrial Technology

- **Non-credit Industrial Readiness Training**
  - Pre and post-test – mechanical aptitude
  - 40 contact hours
    - Mechanical and electrical
    - Soft Skills with Industry observer
  - Selected and paid for by Workforce Investment Boards

Choose one or do both.

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- Degree matter to industry.
Program Personnel

- **Energy Programs Counselor** –
  **William Warren**
  - Academic support
  - Social support
  - Straight talk

- **Siemens Mechatronics Certified Instructor** –

  **New Position**
  - Attending 12 day certification training in June
  - Teaching electronics and mechanical courses
  - Program administration for Energy Services
  - Mechatronics program design
Equipment and Software

- Training Software – LABVOLT 3531
Equipment and Software

- PLC Software Trainer– ITS PLC by REAL GAMES

ITS PLC is a didactic software for automation. With ITS PLC you will get top quality simulations of industrial systems so you can learn and practice automation technologies through a lifelike interactive experience. ITS PLC is a whole new concept that makes learning automation a realistic, easy and fun experience.
Mechatronics
Well Bore Hydraulic Simulator – DARBY TECH

The Well-Bore Demonstrator is designed to replicate many of the hydraulic conditions encountered in drilling operations. These conditions are produced in a replica well-bore manufactured from industrial clear PVC that allows students to observe the flow patterns. The demonstrator is capable of replicating many of the flows encountered in a drilling and production operation including:

- Well Production
  - Tubing Production
  - Casing (Annular) Production
- Tubing on bottom condition
- Tubing off bottom condition
- Circulation
  - Circulation up the tubing
  - Circulation down the tubing
- Oil/Water/Gas flow from the formation into the wellbore

$28,000
UNDER CONSIDERATION
H.O.T. Unit Trainer – Production Platform

Discussing with Design Firm
Facilities

- Coming Soon – a New OGPT/Energy Lab
- $22M from State & College resources
- Part of the Benteler Steel training project
- Will house a large double height training space along with labs and classrooms.
- Break ground in April.
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- **AAS - OGPT to BS - Petroleum Services**
  - Nicholls State has formalized one articulation agreement.
  - Should BPCC pursue this formal articulation?
A Guide to Level Instrumentation for Oil & Gas Field Processing
Level & Flow Applications for OIL & GAS Field Processing

These leading level and flow applications are found onshore and offshore in oil and natural gas fields. Level and flow controls in these applications are crucial for both process control and safety shutdown systems.

### Liquid Level Applications:

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### Flow Applications:

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### Chemical Injection Applications:

A wide assortment of chemicals are used onshore and offshore in processing crude oil, natural gas and produced water. The chemical skids are located in the individual process units.
FIELD PROCESSING SCHEMATIC

The instruments recommended in this guide are based on field experience with similar applications and are included as a general guide to level and flow control selection. Because all applications differ, customers should determine suitability for their own purposes.

12 NGL Recovery

4 NGL Storage

13 Compression → To injection well

8 Stabilization

4 15
Crude Collection and Storage Tanks

9 Vapor Recovery → To export pipeline

5 Secondary Water Treatment

13 Pumps & Compressors*

14 Liquids and Gases**

15 Tank Blanketing

16 Flare Operations

Flow Applications for GAS, CRUDE and WATER

*Pumps are located throughout field operations.

**Liquids and gases may be monitored throughout field operations.
1 **DRILLING FLUID TANKS**

Application: A cement slurry prepared on location (or trucked in) cements the well casing. Drilling fluids lubricate the drill bit, remove cuttings, prevent open wellbore collapse and maintain hydrostatic equilibrium for blowout protection. Water- and oil-based “muds” are used. Dispersants, flocculants, surfactants and rust inhibitors may be added to the drilling fluid.

Challenges: Drilling fluids are typically stored in a series of partitioned, rectangular steel tanks. The tank fluid volume should be continuously monitored since level variations may indicate a pending blowout. Tank conditions include agitated media, suspended solids and media that will coat floats, displacers and probes.

2 **CHEMICAL INJECTION SKIDS**

Application: Chemical agents employed in field processing include drilling fluid additives, methanol injection for reservoir stimulation, glycol injection for hydrate inhibition, produced water treatment chemicals, foam and corrosion inhibitors, de-emulsifiers, desalting chemicals and drag reduction agents (DRAs). Chemicals are frequently administered by way of chemical injection skids.

Challenges: Level monitoring controls chemical inventory and determines when the tanks require filling. Though the precise measurement often comes from chemical metering pumps, it is important for the tanks not to run out or overflow. (See Flow Application #14).
3 WELL STREAM SEPARATION

Application: The first step in processing the well stream is to separate the crude oil, natural gas and water phases into separate streams. Oil and gas fields utilize two-phase gas/oil and gas/condensate separators as well as three-phase gas/oil/water separators. Units are classified according to horizontal or vertical configuration, operating pressure, turbulent or laminar flow, and test or production separation.

Challenges: Interface level measurement will actuate a valve to adjust vessel level. An emulsion layer along the oil/water interface can contaminate the oil with water or the water with oil. Foaming along the gas/liquid interface, if entrained, can cause liquid carryover or gas blow-by.

4 FIELD STORAGE TANKS

Application: Crude oil, natural gas liquids (NGLs) and water are stored in oil and gas fields. Unlike midstream tank farms at terminals and refineries, field storage consists of smaller vessels associated with oil, gas and water processing. Diesel generator fuel, potable water, and fire water are also stored offshore. NGLs are stored at atmospheric pressure in double-walled tanks.

Challenges: Tank level monitoring can be provided with overflow control and alarm systems or shutdown pumps when level falls below the specified low level. Interface controls will sense the beginning of an oil/water interface during tank dewatering and control the water draw-off.
5 WATER PROCESSING

Application: Produced water, wash-down water or rainwater (collected offshore) require treatment whether they’re re-used for reservoir flooding or simply disposed of. Water collected from process operations contains hydrocarbon concentrations too high for safe discharge. Suspended hydrocarbon droplets in water also hinders well-injection.

Challenges: Treatment equipment is similar to three-phase separators except that water is the main product. Level control is found on skim tanks, precipitators, coalescers, flotation units, and collection tanks and sumps. Interface level measurement is essential for proper draining of clean water and removal of the residual oil.

6 CRUDE DEHYDRATION

Application: Not all water is removed from crude oil during the first stage of gravity separation. Separated crude may contain up to 15% water which exists in an emulsified form that is difficult for a separator to remove. The oil and water emulsion must be broken down so that the water can be removed before the crude is shipped. De-emulsification processes are accomplished using chemical agents and heat.

Challenges: Level control is found on two-phase and three-phase water knock out drums, heater treaters and chemoelectric dehydrators. Interface measurement is critical in dehydration as it keeps the water-emulsified oil from flowing over the separator weir.
CRUDE DESALTING

Application: Salt in the crude stream presents serious corrosion and scaling problems and must be removed. Salt is dissolved within the remnant brine of the crude oil. Desalting removes both salt and the residual free water. Though the refinery is the most economical place for desalting, pipeline requirements often necessitate field desalting.

Challenges: Level instrumentation is integral to single and two-stage desalting systems, multiple orifice plate mixers, and the settler tank of a chemical desalter. Interface level control keeps free water from hitting the desalter electrodes and prevents expensive damage. The interface level should be kept constant otherwise electrical field changes will disturb electrical coalescence.

Instrumentation:
- Point Level: Series 3 Float-Actuated External Cage Level Switch
- Continuous Level: Eclipse Model 705 Guided Wave Radar Transmitter with Enlarged Coaxial Probe or E3 Modulelevel Displacer-Actuated Transmitter
- Visual Indication: Atlas or Aurora Magnetic Level Indicators can be supplied with switches or transmitters

CRUDE STABILIZATION

Application: By removing dissolved gases and hydrogen sulfide, crude stabilization and sweetening processes diminish safety and corrosion problems. Gases are removed by a stabilizer. Sweetening employs stabilization or vaporization processes along with a gas or steam-based stripping agent.

Challenges: Removing dissolved gases by stabilization requires level control in the reboiler unit. (See application #9 below for stabilization by the flashing method). Sweetening by stage vaporization and trayed stabilization require level control in a series of staged separators. Sweetening by reboiled trayed stabilization requires additional level control in a reboiler.

Instrumentation:
- Point Level: Series 3 Float-Actuated External Cage Level Switch or Tuffy® II Float-Actuated Switch
- Continuous Level: E3 Modulelevel Displacer-Actuated Transmitter or Eclipse Model 705 Guided Wave Radar Transmitter
- Visual Indication: Atlas or Aurora MLTs can be supplied with switches or transmitters
**VAPOR RECOVERY UNIT**

**Application:** If allowed to escape into the atmosphere, hydrocarbon vapors diminish income through loss of hydrocarbon volume and create fire hazards and pollution problems. A Vapor Recovery Unit (VRU) collects vapors from storage and loading facilities, reliquefies the vapors and returns the liquid hydrocarbons back to storage. Methods to recover vapors include absorption, condensation, adsorption and simple cooling.

**Challenges:** A VRU is a simple, economical process unit that provides EPA compliance and improves operating economies by capturing up to 95% of fugitive emissions. Critical to the VRU is the flash drum where vapors are reliquefied. Liquid level control of the flash drum is essential.

**Point Level:**
- Series 3 Float-Actuated External Cage Level Switch; or Tuffy II Float-Actuated Switch

**Continuous Level:**
- Eclipse Model 705 Guided Wave Radar Transmitter or E3 Modulelevel Displacer-Actuated Transmitter

**Visual Indication:**
- Atlas or Aurora Magnetic Level Indicators can be supplied with switches or transmitters

**GAS DEHYDRATION**

**Application:** Natural gas dehydration removes hydrates which can grow as crystals and plug lines and retard the flow of gaseous hydrocarbon streams. Dehydration also reduces corrosion, eliminates foaming, and prevents problems with catalysts downstream. Natural gas is dehydrated according to the customer’s specifications for maximum water content.

**Challenges:** The most common dehydration method is the absorption of water vapor in the liquid desiccant Triethylene Glycol (TEG). The withdrawal of the water rich glycol from the bottom of the absorber is facilitated by a level control. High and low level shut down can be applied to the reboiler, surge tank and flash separator.

**Point Level:**
- Series 3 Float-Actuated External Cage Level Switch or Tuffy II Float-Actuated Switch

**Continuous Level:**
- E3 Modulelevel Displacer-Actuated Transmitter

**Visual Indication:**
- Atlas or Aurora Magnetic Level Indicators can be supplied with switches or transmitters
**11 SOUR GAS TREATMENT**

**Application:** Pipeline specifications require removal of the harmful acid gases carbon dioxide (CO₂) and hydrogen sulfide (H₂S). H₂S is highly toxic and corrosive to carbon steels. CO₂ is also corrosive and reduces a gas's BTU value. Gas sweetening processes remove these acid gases and make natural gas marketable and suitable for transportation.

**Challenges:** Amine treatment removes acid gases through absorption and chemical reaction. Each of the four common amines (MEA, DEA, DGA and MDEA) offer distinct advantages in specific applications. Level control applications include reactors, separators, absorbers, scrubbers and flash tanks.

**Point Level:**
- Echotel Model 961 Ultrasonic Level Switch or Thermatel Model TD1/TD2 Theral Dispersion Switch

**Continuous Level:**
- Eclipse Model 705 Guided Wave Radar Transmitter

**Visual Indication:**
- Atlas or Aurora Magnetic Level Indicators can be supplied with switches or transmitters

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**12 NGL RECOVERY**

**Application:** Separating the hydrocarbons and fluids from pure natural gas produces pipeline quality dry natural gas. The two principle techniques for removing Natural Gas Liquids (NGLs) are the absorption and the cryogenic expander method. The absorption method is very similar to that of dehydration except that an absorbing oil is used instead of glycol. Once NGLs have been removed from the natural gas stream, they must be separated out, or fractionated.

**Challenges:** Level control in the absorption method is typically found in flash drums, separation towers and reflux systems. Level control in the cryogenic method is applied to the separator and dehydrator.

**Point Level:**
- Series 3 Float-Actuated External Cage Level Switch or Tuffy II Float-Actuated Switch

**Continuous Level:**
- Eclipse Model 705 Guided Wave Radar Transmitter

**Visual Indication:**
- Atlas or Aurora Magnetic Level Indicators can be supplied with switches or transmitters
PUMPS & COMPRESSORS

Application: Pumps are used throughout field operations for moving drilling fluids, crude oil and produced water. Compressors increase the pressure of natural gas to facilitate pipeline transport. Flow switches monitor product streams to signal no-flow/flow-flow conditions caused by plugging or valve closures, and provide a defense against pump cavitation. A shut down system can also be actuated.

Challenges: Depending upon power availability, mechanical or electronic flow switches provide protection for compressor skids. Solid state switches provide the highest level of pump protection by offering low flow sensitivity, wide temperature operation and high turndown.

LIQUID AND GAS FLOW

Application: The flow of process liquids and natural gas in field operations must be monitored for safety and efficiency. Fluids include hydraulic fluid for valve actuation, methanol for well injection, fuels, process chemicals and fluid additives.

Challenges: Flow alarms and continuous flow controls monitor product streams and signal no-flow conditions caused by plugging or valve closure. Gas flow monitoring includes mass flow of air, compressed air, natural gas, carbon dioxide and other gases. Some flow switch types will actuate an alarm if the liquid flow is less than or greater than the desired flow rate.

* Thermatel Model TA2 applies only to air and gas flow measurement.
15 TANK BLANKETING

Application: Nitrogen is commonly used as a tank blanketing gas in order to prevent ignition of flammable liquids, provide an oxygen and moisture barrier, inhibit vapor loss and maintain a tank's pressure balance. Nitrogen is the leading gas used for tank blanketing applications. Nitrogen systems are prominent because they are simple to use and require little or no maintenance. (Also see Level Application #4 on page 5.)

Challenges: Mass flow measurement will monitor the nitrogen blanketing gas. A mass flow meter can track usage as a cost control measure and determine the when, where and by whom of gas usage.

16 FLARE STACKS & HEADERS

Application: Hydrocarbon gases are often flared in a high-temperature oxidation process which burns combustible components of waste. Environmental laws and restrictions mandate the precise monitoring of flared gases on oil and gas platforms. A flow meter is required to monitor the waste gases.

Challenges: Consideration must be given to abruptness of flow change, low pressures, and a wide range of velocities. Thermal dispersion flow meters are ideal instruments for flare flow measurement due to low flow sensitivity and high turndown.

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Other industry and special application brochures from Magnetrol include:

- Chemical
- Flue Gas Desulfurization
- Food & Beverage
- Interface Level Measurement
- Life Science
- Mass Flow Measurement
- Nuclear Power
- Petroleum Refining
- Power Generation
- Pulp & Paper Mills
- Renewable Energy
- Steam Generation
- Tank Bridle Level Measurement
- Understanding Safety Integrity Level (SIL)
- Water & Wastewater

PLEASE NOTE: The instruments recommended in these brochures are based on field experience with similar applications and are included as a general guide to level and flow control selection. Because all applications differ, however, customers should determine suitability for their own purposes.
Oil and Gas Production Technology

ENERGY PROGRAMS
Advisory Committee

March 5, 2013
AGENDA

- A.A.S. Oil & Gas Production Technology
  - Enrollment/Graduation
  - Programs/Certifications
- C.T.S. Energy Services
  - Enrollment/Graduation
  - Programs/Certifications
- Baseline Industrial Training
  - Industrial Readiness Certificate
  - Non-credit Industrial Readiness Training
- Personnel Update
- Equipment Update
- Facilities Update
- Articulation Agreements
- Student Organization
OGPT Enrollment/Graduation

- 63 Hour Associate of Applied Science
- Currently 196 m/l students enrolled
- 11 graduates for fall, 2012 and 9 graduates for spring, 2013
- Entering student profile
- Graduating student profile
- Graduate expectations for local employment
Oil & Gas Production Technology Curriculum

- **Lecture Courses**
  - Intro to Oil and Gas
  - Drilling Complex Wells
  - Workovers and Completions
  - Regulatory Issues
  - Production and Recovery I
  - Production and Recovery II

- **Lecture/Lab Courses**
  - Electricity for Electronics
  - Hydraulics/Pneumatics
  - Pumps and Compressors
  - Instrumentation
  - Field Process of Natural Gas
Oil & Gas Production Technology Curriculum

- **Safety Courses**
  - Industrial Safety/PEC SafeLand
  - OSHA Hazwoper 40

- **Technical Courses**
  - Internship
  - Physical Geology
  - Applied Technical Math
  - College Algebra

- **Other Courses**
  - Organizational Behavior
  - State and Local Government
  - English Composition
  - Humanities Elective
Oil & Gas Production Technology
Industry Certifications

- Safety
  - PEC SafeLand
  - OSHA HazWoper 40
- Industry (in process)
  - NAPTA (PTEC) Endorsement

- Status of PTEC Endorsement
  - Endorsement from North American Process Technology Alliance (NAPTA)
  - Third of four annual advisory meetings
  - Review of Learning Outcomes underway
  - Report of potential curriculum changes at March, 2013 meeting
The North American Process Technology Alliance (NAPTA) is an organization of the Process Technology (PTEC) education providers and their business, industry, and community advisors cooperatively working toward their common goals. The NAPTA is an active partner with the Center for the Advancement of Process Technology (CAPT).

The NAPTA is the standard-bearer of the PTEC curriculum. The NAPTA audits PTEC degree programs in the United States and endorses those that meet its criteria.
Energy Services
Enrollment/Graduation

- 34 Hour Certificate of Technical Studies
- 15 students enrolled for spring
- First graduates in summer, 2013
- Part of NFWS grant and TAACCCTT grant
- Siemens Level One Mechatronics Certification
Level 1: Certified Mechatronic Systems Assistant
Operators help operating plants, perform routine maintenance and assist in the resolution of problems. They change the loading of turbines/generators as required through the electronic control system. Furthermore, they are responsible for troubleshooting, servicing, and installing equipment under supervision.

Level 2: Certified Mechatronic Systems Associate (FUTURE)
System Technicians do major repairs and installations, respond to breakdowns, perform preventive maintenance and ensure efficient operation of different equipment/machines. They troubleshoot, maintain and adjust precision electronic and pneumatic instrumentation, process controllers and process control loop components including sensor, transmitters, converters, valve positioners and actuators.
Baseline Industrial Training

- **Industrial Readiness Technical Competency Area**
  - 12 credit hours
  - One semester
  - Courses
    - Applied Technical Math
    - Mechanical Theory I & II
    - Basic Electricity w/Lab
  - Can continue in OGPT or Industrial Technology

- **Non-credit Industrial Readiness Training**
  - Pre and post-test – mechanical aptitude
  - 40 contact hours
    - Mechanical and electrical
    - Soft Skills with Industry observer
  - Selected and paid for by Workforce Investment Boards
Program Personnel

- **Energy Programs Counselor** – William Warren
  - Academic support
  - Social support
  - Straight talk

- **Siemens Mechatronics Certified Instructor** – New Position
  - Attending 12 day certification training in June
  - Teaching electronics and mechanical courses
  - Program administration for Energy Services
  - Mechatronics program design
Equipment and Software

- Training Software – LABVOLT 3531
Equipment and Software

- PLC Software Trainer – ITS PLC by REAL GAMES

ITS PLC is a didactic software for automation. With ITS PLC you will get top quality simulations of industrial systems so you can learn and practice automation technologies through a lifelike interactive experience. ITS PLC is a whole new concept that makes learning automation a realistic, easy and fun experience.
Mechatronics
Well Bore Hydraulic Simulator – DARBY TECH

The Well-Bore Demonstrator is designed to replicate many of the hydraulic conditions encountered in drilling operations. These conditions are produced in a replica well-bore manufactured from industrial clear PVC that allows students to observe the flow patterns. The demonstrator is capable of replicating many of the flows encountered in a drilling and production operation including:

- Well Production
  - Tubing Production
  - Casing (Annular) Production
- Tubing on bottom condition
- Tubing off bottom condition
- Circulation
  - Circulation up the tubing
  - Circulation down the tubing
- Oil/Water/Gas flow from the formation into the wellbore

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OGPT Advisory Board Meeting
March 5, 2013
2:00 pm

Please Sign In Below

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