

# PCCUA PROGRAM REVIEW GENERAL TECHNOLOGY

### EXTERNAL PEER REVIEW AND PROGRAM SELF STUDY

Dr. Deborah King DEAN LINDA KILLION | PCCUA JULY 2020

External Reviewer's Report



# Academic Program Review External Reviewers

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Phillips Community College of the University of Arkansas Division of Applied Technology General Technology Program

> AAS General Technology TC Advanced Manufacturing CP in Advanced Manufacturing July 2020

**External Reviewer's Signature** 

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The PCCUA Institutional Program Review can be referenced at the following link. <u>https://www.pccua.edu/faculty-staff/adhe-information/program-reviews</u>

**External Reviewer's Report** 

#### **Lead Reviewer**

#### Anthony Arnold, Industry Reviewer

Anthony Arnold is a lifelong Phillips County resident. He received an A.A. from Phillips Community College of the University of Arkansas and a B.S. in Chemical Engineering from the University of Arkansas in Fayetteville, AR. Currently, he is the site manager for United Initiators, Inc. in Helena, Arkansas. United Initiators is a global manufacturing leader in manufacturing organic peroxides and persulfates. Anthony joined the company in 2013 as a process engineer, assuming the role of site manager in 2014.

#### **Second Reviewer**

#### Bradley Gates, Higher Education Reviewer, Out of State

Bradley Gates holds a B.B.A. from Mississippi State University, a M.A. from the University of Mississippi, and is currently pursuing a Ph.D. in Human Corporation Development from the University of Southern Mississippi. Mr. Gates currently serves as the Workforce Investment Opportunity Act (WIOA) Team Leader at Itawamba Community College's Workforce Development Center where he has been employed for 12 years. The Center meets almost any workforce assessment, training or placement services need and promotes collaboration with agencies and entities to increase the potential for corporate training.

#### PCCUA Team for the General Technology Program Review/Self Study

- Vicki Cobb, Graphic Communications Instructor-Coordinator Applied Technology
- Linda Killion, Director of Special Projects
- Michael Shaw, General Technology Instructor

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The report prepared by the External Reviewers will be used by the Arkansas Department of Higher Education (ADHE) to verify the student demand and employer need for the program, the appropriateness of the curriculum, and the adequacy of program resources. The report should <u>not</u> include a recommendation to ADHE on program continuation or program deletion.

The External Reviewer's written report must include a summary of each area examined and should provide examples that document the conclusions. The questions below should be used by the reviewers as a guide in preparing the summary for each area. Responses to the questions should not be simply "yes or no".

#### I. Review of Program Goals, Objectives and Activities

# A. Are the intended educational (learning) goals for the program appropriate and assessed?

The General Technology Program at Phillips Community College of the University of Arkansas (PCCUA) has established reasonable goals and objectives through a collaboration of academia and industrial partners. The program is assessed by students each semester and annually by faculty. The program assessment process is explained in detail on page 20 of the Self Study. Assessment results are also listed in Appendix D of the Self Study on Pages 44-48.

#### **Applied Technology Division Mission Statement**

In support of the college mission, the purpose of the Division of Applied Technology is to provide quality educational programs consistent with the needs of the community. To accomplish this, the Division:

- Provides career programs to equip students with job skills needed to secure employment
- Provides opportunities to upgrade existing workforce skills
- Encourages effective communication, cultural diversity, social and civic responsibility, analytical and critical thinking, and technology utilization through assessment of students and academic programs
- Stresses the development of skills for life-long learning and meets training needs through:
  - Business and Industry Training
  - **Customized Training**
  - Professional Development Workshops o Community Education Classes

Along with the mission statements, the division has embraced the five college-wide core competencies that all students should possess upon graduating from PCCUA. The core values established for the division programs are:

• Social and Civic Responsibility: Behavior demonstrates adherence to legal/ethical standards established by society,

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- Technology Utilization: Use tools of the trade to achieve a specific outcome,
- Analytical & Critical Thinking: Modes of reasoning including analyzing data, evaluating alternatives, setting priorities, and predicting outcomes,
- Communication: The interactive process through which there is an exchange of verbal and/or nonverbal information,
- Cultural Awareness: Acknowledgement that society is diverse with groups of individuals possessing differing beliefs, values, attitudes, and customs that are shared from one generation to the next.

General Technology Core Competencies					
PCCUA Core Competencies	Applied Technology Core	Related Courses	Assessme nt		
<b>Communication Skills</b> The interactive process through which there is an exchange of verbal and/or nonverbal information.	<b>Communication Skills</b> Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral	IT 163 IT 1213	Written assignments Classroom and instructor critiques Rubrics		
Cultural Awareness Acknowledgement that society is diverse with groups of individuals possessing differing beliefs, values, attitudes, and customs that	Cultural Awareness Students will acknowledge the diversity of groups and demonstrate toward ideas from others.	IT 163	Written assignments Classroom and instructor critiques Rubrics		
Analytical and Critical Thinking Modes of reasoning including analyzing data, evaluating alternatives, setting priorities, and predicting outcomes.	<b>Critical Thinking</b> Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline	IT 113 IT 133 IT 1233 IT 1273	Written assignments Classroom and instructor critiques Rubrics		
Social and Civic Responsibility Behavior that demonstrates	Social and Civic Responsibility Students will demonstrate knowledge of ethics and legal issues appropriate to their chosen discipline.	IT 113 IT 163 IT 213 IT 273 IT 1203	Written assignments Classroom and instructor critiques Rubrics		

The College and program competencies are listed below.

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Technology Utilization	Technical Skills	IT 113	Written
Use tools of the trade to	Students will demonstrate ability	IT 133	assignments
achieve a specific outcome.	to perform technical operations	IT 213	Classroom and
	to their chosen discipline.	IT 223	instructor
		IT 243	critiques Rubrics
		IT 1203	
		IT 1213	
		IT 1233	
		IT 1223	
		IT 1273	

Division of Applie	d Technology		Instructor:		
Core Competencie	es		Course Name and	IT 1203 -	
Assessment Resul	ts/Action Plan		#:	Introduction	to
				Manufacturin	g
			Semester:	Spring 2019	
			Potention Pate:	87.5% (7 of 8	
			Recention Rate.	Students) 1 E	W
PCCUA Core Competency	Student Learning Outcome	Assessment Method or Measurement	Assessment Criteria	Assess- ment Results	Action Plan
Social and Civic Responsibility	Students will understand the history, significant milestones, and	Lab Rubric	70% of the students will score 70% or higher	7 of 8 students complet ed the course	No actio n
Technology Utilization	Students will be able to use basic hand and power tools to perform simple	Written Tests	70% of the students will score 70% or higher	7 of 8 Students complet ed the course	No actio n

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#### 1) Program Student Learning Outcomes and Activities

The General Technology program is the integration of technology-based systems to improve the design and manufacture of products and processes. The program goal is to help students learn marketable skills to enter the world of manufacturing. Students are trained in fluid power, Programmable Logic Controller troubleshooting, electrical power systems, mechanical drive systems, industrial controls, and HVAC. Welding and basics of blueprint are also offered and are valuable skills for those looking to enter into or advance through the manufacturing industry.

Courses specific to the General Technology degree give more advanced training in specific areas. The overall goal is to train students to gain employment in the numerous industries associated with manufacturing in an ever-changing technological society.

#### 2) General Program Student Learning Outcomes

The AAS In General Technology have five program specific goals.

- To provide university-parallel courses of high academic quality on the freshman and sophomore levels for students who may wish to transfer to senior institutions;
- To provide occupational skills for students who wish to gain competence in employable skills and for employed workers who wish to upgrade their skills or move into another level of employment;
- To prepare students for effective citizenship, personal and community living, whether or not they continue formal education; by including a sound general education base in degree programs and academic and cultural courses outside the area of occupations;
- To provide courses for continuing education for credit or non-credit on a full time or part time basis and a program of community service activities both by 1) sponsoring courses to meet the interests of various groups, and 2) offering its facilities, professional staff, and the specific talents of the students to promote civic and cultural life of the community; and
- To provide students with sound academic advice, guidance and counseling, financial aid, quality student life, and other services not included in instructional programs.

# B. How are the faculty and students accomplishing the program's goals and objectives?

The program uses academic, hands-on learning, and student-teacher relationships to develop students into responsible and employable citizens. The program's use of core competencies is good guidance for meeting the objective of preparing students for employment and effective citizenship.

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The General Technology program uses best practices in a variety of ways which help students accomplish their goals. Utilizing guest speakers from industry to inform students of industry certifications and expectations, requiring students to research and analyze current trends and technology, and assigning activities and projects based on world of work experiences. Faculty and students recently worked with a local industry to create a special part needed at the business site. Students utilized skills such as CAD, blue print reading, and welding to complete the project. This is a very specific example of how the program promotes students applying hands on learning to real world experiences.

# C. How is the program meeting market /industry demands and/or preparing students for advanced study?

The program instructors collaborate with local industrial partners to identify skill gap deficiencies of the local workforce. Instructors are encouraged to participate in professional development and training in innovative manufacturing technologies to prepare students for experiences beyond the General Technology Program.

Eastern Arkansas has high unemployment rates and high levels of poverty. There are approximately 28 manufacturing related industries in Phillips and Arkansas Counties: 9 in Helena-West Helena and 19 in Arkansas County. There are approximately 3999 job openings in the manufacturing field in Arkansas, Mississippi, and Tennessee. With these kind of job openings, graduates have a great opportunity to find a job. The General Technology program does use the Advisory Council to provide input about market demands and offer suggestions about skills needed by graduates to succeed in a job once they are placed. See table below.

#### D. Is there sufficient student demand for the program?

The program has shown an increasing trend for participation since 2016, which could reflect the recruitment efforts by the College and recognition by community members that improved skill sets are valuable to future employers. Table 12 on Page 24 of the Self Study lists possible employers for General Technology students. Table provided below.

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As mentioned in the Self Study, the NAM (National Association of Manufacturers) report, "Manufacturers predict a need to fill 4.6 million jobs by ten years. The workforce demand is for a more skilled worker, which the PCCUA program addresses by preparing student with the needed skills. Both the region and the State of Arkansas are affected by the workforce manufacturing crisis. Local and regional employers are scouring for workers to fill vacancies, and they are looking especially close at applicants with particular general technology work skills. The PCCUA program prepare students for a variety of manufacturing-related jobs and the College offers other training such as HVAC, blueprint reading, and welding to support this degree. See table below.

Possible Employers for General Technology Students				
Helena-West Helena	DeWitt	Stuttgart		
BPS, Inc.	Adams Fertilizer Equipment Mfg.	A & P Fabrication		
28 Phillips 324	P.O. Box 628	801 East 2nd		
Helena, AR 72342	DeWitt, AR 72042	Stuttgart, AR 72160		
Blackhawk Warehousing and Leasing	Belleville Shoe South, Inc.	Cavu Aerospace		
P.O. Box 809	P.O. Box 111	2000 Airport Rd		
Helena, Arkansas, 72342	DeWitt, Arkansas 72042	Stuttgart, AR 72160		
Delta American Fuels	Cormier Rice Milling, Inc.	Fastenal		
1305 Highway 20	P.O. Box 152	1919 S. Park Ave.		
Helena, AR 72342	DeWitt, Arkansas 72042	Stuttgart, AR 72160		
Dragon Woodland Sawmill	CWI Central Wire Industries	Industrial Components & Supplies		
129 North Washington St.	P.O. Box 186	301 E Michigan		
West Helena, AR 72342	Dumas, AR 71639	Stuttgart, AR 72160		
Enviro Tech Chemical Services	Menard Manufacturing	Lennox		
49 Phillips 311	6401 Hwy. 152	PO Box 1170		
Helena, AR 72342	DeWitt, Arkansas 72042	Stuttgart, AR 72160		
Helena Industries	Producers Rice Mill	Producers Rice Mill		
101 MLK Jr. Drive	1014 West 2nd Street	518 E. Harrison		
West Helena, AR 72390	DeWitt, Arkansas 72042	Stuttgart, AR 72160		
Hollowell Industries	SAF Holland	Riceland Foods		
315 N. Sebastian	P.O. Box 825	P.O. Box 927		
West Helena, AR 72390	Dumas, AR 71639-0825	Stuttgart, AR 72160		
NORAC	Producers Rice Mill	Ring Container Technologies		
360 Phillips 311 Rd	1014 West 2nd Street	2509 Harry Crawford Dr.		
Helena, AR 72342	DeWitt, Arkansas 72042	Stuttgart, AR 72160		
United Initiators SPI, Inc.	USDA Dumas Cotton Classing	R.W. Manufacturing Inc.		
334 Phillips 311 Rd	HWY 65 South	1506 South Wood		
Helena, AR 72342	Dumas, AR 71639	Stuttgart, AR 72160		
		Scott Manufacturing 3308 S Main Stuttgart, AR 72160		

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# E. Do course enrollments and program graduation /completion rates justify the required resources?

Yes. Justification for the program is best measured by the support of the local industries within the communities impacted by the program. As long as the program is supported locally by external partners and other community entities, the program is considered justified. As shown in the following table, a total of 54 awards (including CP's, TC's, and AAS's) have been awarded in the past three years.

Number of Program Graduates 2016-2019						
2016 2017 2018 2019 TOTAL						
General Technology AAS	1		1		2	
Advanced Manufacturing TC	1		1		2	
Certificate of Proficiency 6 6 12 26 50						

#### II. Review of Program Curriculum

# A. Is the program curriculum appropriate to meet the current and future market/industry needs and/or to prepare students for advanced study?

The program curriculum, along with the state-of-the art manufacturing lab, is appropriate to prepare students to meet current and future area industry needs, as well as prepare students for advanced studies.

The Applied Technology Division offers an Associate of Applied Science degree in General Technology (Manufacturing Emphasis), a Technical Certificate in Advanced Manufacturing, and two Certificates of Proficiency—Advanced Manufacturing and Heating, Ventilation, and Air Conditioning (HVAC). As reflected from Table 1-4 in the program Self Study.

Curriculum Summary Outline Associate of Applied Science: General Technology (Manufacturing				
Total Number of Hours for Degree: 60				
Course Number Course Title Credits				
General Education Component – 18 Hours				
EH 113	Freshman English I	3		
EH 123	Freshman English II	3		
SP 243 Fundamentals of Speech 3				
PSY 213 or SY 213	Social Science	3		

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MS 123, MS 143, or MS	Mathematics	3
CT 113	Computer Information Systems	3
Genera	al Technology Component – 42 Hours	5
IT 113	Industrial Safety and Sanitation	3
IT 223	Principles of HVAC	3
IT 133	Industrial Electricity	3
IT 163	Basics of Blueprints &	3
	Industrial Measurement	
IT 214	Introduction to PLC	4
IT 243	Hydraulics and Pneumatics	3
IT 273	Principles of Industrial Machines	3
IT 1203	Intro to Manufacturing	3
IT 1213	Design for Manufacturing	3
IT 1223	Manufacturing Production	3
IT 1233	Manufacturing Power and	3
	Fauinment Systems	
IT 1273	Engineering and Problem Solving	3
WG 115	Intro to Welding	5

Curriculum Summary Outline Technical Certificate: Advanced Manufacturing				
Total Number of Hours fo	or Degree: 33			
Course Number	Course Title	Credits		
Gene	ral Education Component – 9 Hours			
EH 113	Freshman English I	3		
SP 243	Fundamentals of Speech	3		
MS 1013	Fundamental math or higher	3		
Genera	al Technology Component – 24 Hours	5		
IT 113	Industrial Safety & Sanitation	3		
IT 133	Industrial Electricity	3		
IT 273	Principles of Industrial Machines	3		
IT 1203	Intro to Manufacturing	3		
IT 1213	Design for Manufacturing	3		
IT 1223	Manufacturing Production	3		
IT 1233	Manufacturing Power and Equipment Systems	3		
IT 1273	Engineering and Problem Solving	3		

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Curriculum Summary Outline Certificate of Proficiency: Advanced Manufacturing					
Total Number of Hours for	Total Number of Hours for Degree: 12				
Course Number	Course Title	Credits			
IT 1203	Intro to Manufacturing	3			
IT 1213	Design for Manufacturing	3			
IT 1223	Manufacturing Production	3			
IT 1233	Manufacturing Power and Equipment Systems	3			

Curriculum Summary Outline Certificate of Proficiency: HVAC				
Total Number of Hours for Degree: 12				
Course Number	Course Title	Credits		
IT 113	Industrial Safety and Sanitation	3		
IT 133	Industrial Electricity	3		
IT 163	Basics of Blueprints &	3		
	Industrial Measurements			
IT 233	Principles of HVAC	3		

# B. Are institutional policies and procedures appropriate to keep the program curriculum current to meet industry standards?

PCCUA has a thorough review process for making curriculum changes. Coupled with the encouragement of instructors to attend external training and development opportunities, the curriculum is evaluated appropriately to adhere to the basics of manufacturing as well as preparing students for more innovative technologies.

The process for curriculum development follows a specific policy identified in the PCCUA Employee Policy Manual. Faculty are engaged in the curriculum changes processes. Not only are the change processes related to changes, addition, and deletions identified by specific policy driven procedures, there are forms tracking the details of each action. An

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Instruction and Curriculum Committee composed of various campus representatives finalizes group decisions about the curriculum.

#### C. Are program exit requirements appropriate?

Yes, the program requirements for receiving certificates/degrees are appropriate. Throughout the program, students are evaluated with various techniques including written assignments and hands on demonstration. As mentioned in the Self Study, standardized entrance and exit tests are not required of the General Technology, all courses have implemented student learning outcomes to determine program effectiveness.

# D. Does the program contain evidence of good breadth/focus and currency, including consistency with good practice?

Yes, the program's core competencies, coupled with the specific coursework for manufacturing, provides skill development consistent with the needs of local manufacturing industries.

General Technology Fall 2019							
Program Outcome	Assessment Method/Measurement						
		FII 18	Sp 19	Fall 19			
To provide high quality general technology courses/programs to prepare graduates with skills to enter	85% of all General Technology students will achieve the core competencies by scoring 70% or higher on the required course assessment methods.	93	87	93			
the workforce in a mid-level manufacturing position.	85% of AAS students will score 70% or higher in the capstone course.						
Division Outcome	85% of all applied technology students will achieve the core competencies by scoring 70% or higher on the required course assessment methods.	90%	88%	87%			
Student Retention Rates		87%	86%	68%			

PCCUA Core Competency	Division Core Competency	Program Goals	Student Learning Outcome – Courses Assessed	Assessment Method/Measurement	Fall 18	Sp 19	Fall 19	ACTION PLANS
Communication	Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media	The interactive process through which there is an exchange of verbal and/or nonverbal information	IT 1213, IT 163	70% of students will score 70% or higher on the communication student learning outcomes for selected courses.	92	82	100	
Cultural Awareness	Students will demonstrate interact with diverse groups of people in their chosen discipline.	Students will acknowledge the diversity of groups and demonstrate toward ideas from others.	IT 163	70% of students will score 70% or higher on the Cultural Awareness student learning outcomes for selected courses.		80		
Social and Civic Responsibility	Students will demonstrate knowledge of ethics and legal issues appropriate to their chosen discipline	Students will demonstrate knowledge of ethics and legal issues appropriate to their chosen discipline.	IT 1203, IT 1273, IT 113, IT 214, IT 273, IT 163	70% of students will score 70% or higher on the Social and Civic Responsibility student learning outcomes for selected courses.	96	93	89	

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Analytical & Critical Thinking	Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline	Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline	IT 1233, IT 273, IT 113, IT 133, IT 1273	70% of students will score 70% or higher on the Critical Thinking student learning outcomes for selected courses.	92	85	93	
Technology Utilization	Students will demonstrate ability to perform technical operations to their chosen discipline	Students will demonstrate ability to perform technical operations to their chosen discipline.	IT 163, IT 113, IT 133,IT 223, IT 243, IT 1203, IT 1213, IT 1233, IT 1223, IT 1273, IT 1273	70% of students will score 70% or higher on the Technology Utilization student learning outcomes for selected courses.	91	82	89	

# E. Are students introduced to experiences within the workplace and introduced to professionals in the field?

Yes, this is best demonstrated by the example of students developing a special part for a local industry on Page 5 under Current Thinking Trends. Students utilized skills such as AutoCAD, blueprint reading, and welding to complete the project. This is a prime example of students applying hands on learning to real world experiences. Guest speakers from local industries are also utilized to inform students of industry expectations and certifications.

#### F. Does the program promote and support interdisciplinary activities?

Yes, as demonstrated in the curriculum for the Associate of Applied Science degree on Page 31, the course components cover several disciplines such as Computer information Systems, Sociology, and Math. Eighteen of the 60 hours required for the AAS are in general education. See the courses listed in the Curriculum Summary Outline used in the Self Study and provided below.

Curriculum Summary Outline Associate of Applied Science: General Technology (Manufacturing				
Total Number of Hours fo	Total Number of Hours for Degree: 60			
Course Number	Course Title	Credits		
General Education Component – 18 Hours				
EH 113	Freshman English I	3		
EH 123	Freshman English II	3		
SP 243	Fundamentals of Speech	3		
PSY 213 or SY 213	Social Science	3		
MS 123, MS 143, or MS	Mathematics	3		
CT 113	Computer Information Systems	3		

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#### General Technology Component – 42 Hours

# G. Does the program provide respect and understanding for cultural diversity as evidenced in curriculum, in program activities, in assignment of program responsibilities and duties; in honors, awards and scholarship recognition; in recruitment?

As evidenced in the table below, cultural diversity is one of the core competencies of the program as well as the institution itself.

General Technology Core Competencies							
PCCUA Core Competencies		Applied Technology Core Competencies		Related Courses		Assessment Methods	
Communication Skills The interactive process through which there is an exchange of verbal and/or nonverbal information.		<b>Communication Skills</b> Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media		IT 163 IT 1213		Written assignments Classroom and instructor critiques Rubrics	
Cultural Awareness Acknowledgement that society is diverse with groups of individuals possessing differing beliefs, values, attitudes, and customs that are shared from one generation to the next.		<b>Cultural Awareness</b> Students will acknowledge the diversity of groups and demonstrate toward ideas from others.		IT 163		Written assignments Classroom and instructor critiques Rubrics	
Students v         demonstra         Cultural       interact w         Awareness       diverse grou         people in tl         chosen discip		vill ate ith ps of neir oline.	Students will acknowledge the diversity of groups and demonstrate toward ideas from others.	IT 16	3	70 scor the s	% of students will re 70% or higher on Cultural Awareness student learning comes for selected courses.

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#### **III.** Review of Academic Support

# A. Does the program provide appropriate quality and quantity academic advising and mentoring of students?

Yes, the program consists of a division dean and program coordinator who also advise and assist students in course selections and graduation requirements. In addition, there are multiple interventions listed on Page 18 that assist with mentoring and advising students.

# B. Does the program provide for retention of qualified students from term to term and support student prog towards and achievement of graduation?

Yes. There are two specific programs that address this directly: Early Alert Warning System and Achieving the Dream. The respective programs address academic interventions and overcoming barriers to academic success. Students complete an Individual Career Plan and have access to a trained advisor. In fact, in this program, the Division dean and two program coordinators in the Applied Technology Division serve as advisors to assist students in reaching their academic goals.

The program has a wide range of retention strategies identified in the Self Study. These include the following support strategies.

- Early Alert/Warning System This allows opportunities for early faculty-initiated intervention to resolve problems or issues with class attendance, tutoring, advising, or other counseling needs of students.
- Student Email Accounts Each student is provided a college e-mail account to improve communication between the student and instructors as well as the college staff.
- Student Support Services This trio program motivates and supports students in their academic endeavors through academic advising, financial aid counseling, career exploration, peer and computer assisted tutoring, and advocacy with staff and faculty.
- Student Orientation A college-wide orientation is required for new and returning students each fall to provide them with skills and resources to improve student success.
- Achieving the Dream (ATD) This initiative promotes institutional change to improve student success in community colleges by identifying barriers that prevent students from advancing through college programs.
- Faculty Scheduled Office Hours Faculty uses this time to meet with students to discuss course and program issues. Listening to students during this one-on-one time enables faculty to learn of students' needs to determine and implement strategies that will help students meet those needs.
- Multimedia Classrooms and Technology General Technology classrooms are equipped with various technology-based components to accommodate a variety of learning styles

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and to meet the growing technology needs of students.

- Cooperative Learning Activities incorporated into the classroom setting to assist the learning process. For instance, working in small groups fosters a better understanding of the subject matter as well as learning to work well with others as a team.
- Computer Labs Access to computer labs are available.

#### **IV. Review of Program Faculty**

A. Do program faculty have appropriate academic credentials and/or professional certifications?

Yes, program faculty have the appropriate qualifications. Faculty members for the technology program meet the minimum academic requirements. Each technology faculty member has an acceptable degree or technical certification in his respective field of expertise.

As mentioned in the Self-Study, the academic excellence of a college is largely dependent upon the level of excellence of the faculty teaching in its programs. Noted in the Study is that "PCCUA is committed to a positive learning environment by providing high-quality educational programs through the employment of dedicated and competent faculty."

All full-time, part-time, or adjunct faculty member in the General Technology program meet the minimum qualifications needed to teach in the Associate degree program. All full-time General Technology faculty members have the appropriate academic credentials that include a bachelor's degree. In addition, the welding instructors have the appropriate credentials and professional licenses, certifications and industry experience. PCCUA has three full-time faculty members (one full time in Helena and two full-time in Arkansas County). In addition faculty stay current in their filed by acquiring professional development.

Professional Development for Full-Time Faculty 2016-2019					
Instructor	Workshops	Conferences			
Michael Shaw	<ul> <li>CNC plasma machine operations training</li> <li>CNC Plasma machine software training</li> <li>Webinar: Craft Instructors, Curriculum Performance Evaluators and Support Roles</li> <li>Child Maltreatment Reporter Training</li> <li>Rules Governing How to Meet the Needs of Children with Dyslexia</li> <li>Mandated Reporter Training, Helena</li> <li>Problem Solving Workshop</li> </ul>	<ul> <li>ACE CMI Fall Leadership Conference</li> <li>Skills USA Conference; Timekeeper for Welding Competition</li> </ul>			

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Tim Campbell	<ul> <li>Repairing TIG pip icicles, Alabama Welding</li> <li>Tips and Tricks on Welding Defects</li> <li>Thermite Welding</li> <li>Social Media and Email Workshop</li> <li>Non-traditional students in STEM and Related Majors training</li> <li>Technology Applications in Work and Instruction workshop</li> <li>TIG weaving patterns, TIG finger</li> <li>Pulse Shield Metal Arc Welding</li> <li>Textbook review: Print Reading for Welders; Blueprint Reading for Welders</li> <li>Windows 10 training, Stuttgart campus</li> <li>Understanding, Teaching and servicing Today's learner, Dr. Mark Tayler</li> <li>Zoom Training, DeWitt campus</li> <li>Mandated Reporter Training, Stuttgart</li> <li>Customer Service and Communication Workshop, Stuttgart</li> <li>Building Paths to a Better Future Workshop, Stuttgart</li> <li>FCAW-S Troubleshooting by Lincoln</li> <li>Lincoln Welding machines and</li> </ul>	<ul> <li>Attended Skills USA Conference, Hot Springs; 2017, 2018, 2019</li> <li>American Welding Society (AWS)</li> <li>Arkansas Skills USA, Welding</li> <li>Washington Alloy Company; E-6012 SMAW Electrodes and other Welding Consumables, Little Rock</li> </ul>
Daniel Whitted	<ul> <li>Consumables</li> <li>Consulting and recruitment to areas businesses, including Menard Manufacturing</li> <li>Consulting for Adams Manufacturing, Adam's Manufacturing, recruitment for students and student employment</li> <li>Trip to Systems Group, El Dorado, June, Weld testing</li> <li>Crase training</li> <li>Consulted for two areas business, Menard Manufacturing and Adam's Manufacturing</li> <li>Mandated Reporter training, Stuttgart</li> </ul>	<ul> <li>Member, Skills USA and receive their publication</li> <li>Member, NCCER and receive their publication</li> <li>Member, American Welding Society and receive their publication</li> <li>Work Force Symposium at Petit Jean Mountain; sat on Secondary Education Panel</li> </ul>

#### B. Are the faculty orientation and faculty evaluation processes appropriate?

Yes, the New Employee Orientation Supervisor Checklist identifies the steps to onboarding new employees. Faculty are evaluated on three different levels. Students evaluate the instructional delivery, dean and peers evaluate faculty by means of teaching portfolio review, and course management skills are evaluated by the appropriate dean. These procedures are more thoroughly described by PCCUA Administrative Procedure 370.05. This process includes several steps.

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All full-time and part-time faculty members are evaluated annually on the basis of classroom effectiveness, college service, professional growth, and community service. Evidence of instructor effectiveness is provided by student evaluations each semester and a teaching portfolio.

As identified in the Self Study, student evaluation is very important. It includes the following: A student questionnaire regarding instructor course delivery and design methods, administered to two classes, randomly selected, administered each fall and spring semester. Students are given the opportunity to provide feedback, anonymously, on instructor strengths and offer ways to improve teaching methods that promote student learning and student engagement. A summary of results is provided to the instructor and dean of the division. Student evaluation score averages are based on the following scale: 5-Always, 4-Usually, 3-Sometimes, 2-Rarely, 1-Never.

The faculty evaluation also includes a teaching portfolio composed of evidence documenting teaching effectiveness, college service, professional growth, and community service. It is a collection of instructor-selected documents to validate teaching strategies and performance. Minimum requirements for the portfolio are two current syllabi with relevant course information, examples of revisions in course materials, and examples of evaluation methods such as tests and graded assignments. Each portfolio is evaluated by the division dean as well as two instructors within the division and one instructor outside the division. Each section is scored and weighted, resulting in a numerical score that is compared with other faculty.

The evaluation score is based on a three point scale:

• **3** – **Exceptional:** This is a job performance that is outstanding in almost every aspect. An exceptional rating implies that virtually any knowledgeable observer would recognize the overall high-quality results in all major areas of job emphasis.

External Reviewer's Report

- **2 Effective:** This is a job performance at the level intended for the job. Overall performance does not noticeably deviate from an acceptable level.
- **1 Needs Improvement:** This is job performance that is short of effective. Further development and/or experience on the job is needed and there should be improvement within the next year.

#### C. Is the faculty workload in keeping with best practices?

Yes, all faculty met the minimum required hours set by the institution (Page 10 of the Self Study). Full time faculty members are required to teach a minimum of 15 hours a week. In 2018-19, the average number of courses taught was ten and the number of credit hours taught was 30 for full time program faculty.

#### V. Review of Program Resources

A. Is there an appropriate level of institutional support for program operation?

Yes, appropriate institutional support exists. The institution has committed adequate resources (faculty, advisors, and administrators) to ensure the successful operation of the program.

**B.** Are faculty, library, professional development and other program resources sufficient? Yes, the resources are sufficient and documented in the Program Self-Study. In fact resources are plentiful. A small sampling if these resources is provided.

The following resources are available at the PCCUA Library:

General circulating collection including fiction, non-fiction, biographies, special interest;

- Journals (general interest and special subject areas)
- Newspapers including *Arkansas Democrat-Gazette*, *Wall Street Journal*, *USA Today*, local community newspapers, and special subject areas
- Coin-operated copier services
- Computer workstations with Microsoft software products, classroom software, and Internet access
- Online searchable databases (full-text and abstract) including:
  - Ebsco Databases
    - PsycINFO, Psychology and Behavioral Sciences Collection
    - CINAHL (nursing and allied health)
    - Health Source (Nursing/Academic Edition, Consumer Edition, Clinical Pharmacology)
    - MLA International Bibliography, MLA Directory of Periodicals
    - Academic Search Elite
    - Business Source Elite
    - ERIC, Professional Development Collection (education)
  - Gale Group: Opposing Viewpoints

External Reviewer's Report

- SIRS Discoverer on the Web
- SIRS Knowledge Source
- $\circ$  World Cat
- Interlibrary Loan Services. PCCUA provides interlibrary loan services for students who need to find materials held in other library collections
- <u>Courier Services</u>. PCCUA runs a daily courier service between the 3 campuses.

#### VI. Review of Program Effectiveness

#### A. Indicate areas of program strength.

Listed below are the most important program strengths to the reviewer.

- 1. Experienced Faculty.
- 2. Continuous improvement and updating of courses and materials. Courses and faculty are evaluated on different levels to achieve this strength.
- 3. State-of-the-Art equipment and technology available for training.
- B. Indicate the program areas in need of improvement within the next 12 months.

Due to the funding and the grants that have been awarded to the College, the program areas are currently stable. The manufacturing lab was instituted in 2016 and was a great addition to this program.

The current workplace and industry emphasis on short term, high wage, high need programs has had an impact on students desire to continue their education and acquire and Associate of Applied Science degree. The students really want to learn a skill, get a job, and make a living wage. In some ways, this push has hurt two-year programs. It would be helpful for this program to design an easier pathway for employed students to get the wo year degree quickly. Without the two-year degree, it is unlikely that the students will see advancement opportunities,

# C. Indicate areas for program development based on market/industry demands that have not been identified by the institution.

- 1. Chemical Safety Phillips and Arkansas counties both have significant chemical businesses (Agricultural applicator, chemical manufacturing, chemical warehousing, fabrication facilities which have cleaning solvents and paints).
- 2. Occupational Safety OSHA programs for hazardous work areas:
  - a) Hazardous energy Lockout/Tagout
  - b) Cutting and welding
  - c) Confined Space
  - d) Hazard Communication
  - e) Fall protection
  - Encyclopedia Britannica Online

External Reviewer's Report

#### VII. Review of Instruction by Distance Technology

The program currently does not offer distance learning.

#### VIII. Review of Program Research and Service

A. Are the intended research and creative outcomes for each program appropriate, assessed, and results utilized?

Yes. The outcomes are reasonable, and the results are utilized appropriately to modify the program for improved results. (Appendix D)

# B. Are the intended outreach/service/entrepreneurial outcomes for each program's initiatives appropriately assessed and the results utilized?

Yes, the results are assessed and used to improve the program.

As provided in the Self Study, to reach these goals, the assessment process for each accredited degree program includes the following steps: 1) determine what needs to be assessed, 2) select tools to measure results, 3) establish criteria to determine if concerns exist or if change is needed, 4) administer assessment tools, 5) evaluate results, and 6) develop and implement methods for improvement. The table below identifies planned improvements which were a result of assessment outcomes.

Assessment Results For Planned Program Improvements			
Improvement	Timetable	Estimated Cost	
Enhance HVAC and Blueprint Reading courses	2019-2020	\$75,000	
Place more emphasis on Auto Cad training	2020-2021	\$40,000	
Provide Faculty training/development	Ongoing	\$10,000	
Continue to offer certifications	Ongoing	\$3,000	

**External Reviewer's Report** 

#### **IX. Local Reviewer Comments**

# A. How is the program meeting market/industry demands and/or preparing students for advanced study?

Students are provided sound, fundamental skills and opportunities to utilize those skills in real-world type settings. This type of learning environment helps the student recognize and better understand more advanced manufacturing concepts (pneumatics, hydraulics, electricity). There are more industry position open in Eastern Arkansas than skilled workers to fill those position. This is why the ASAS in General Technology is so important to economic development at PCCUA.

#### B. What program modifications are needed?

Increase the amount of hands-on learning. My experience with the local workforce is that training works significantly better when the student has an opportunity to visually or physically engage with the subject matter. As already mentioned, I would like to see some incentive or motivational process to encourage more student to acquire the AAS. Too many are offered good paying jobs after earning a CP or TC and so they quit school without finishing. Part of that is that industry recruits them when they visit the program and serve on committee.

#### X. Report Summary

# A. Include the reviewer comments on the overall need for the program graduates/completers in the local area, region and /or nation over the next 5 years.

Industry trends indicate there will continue to be a shortage of industrial workers/technicians in the foreseeable future. Programs such as the General Technology program are necessary to develop and improve the skillset of the local workforce.

This degree matched the industry need and provides students with a wide range of skills. Currently, there are many manufacturing opportunities. In this region, most of the jobs in this area have are in some aspect of manufacturing. An AAS in General Technology is a good degree to have because it opens more opportunity for the student.

External Reviewer's Report

# B. Include reviewer comments on the overall program quality, state program review process, etc.

The General Technology Program at PCCUA provides students with good exposure to industry fundamentals. This program is vital in providing education to individuals seeking employment in the manufacturing field. By seeking input from individuals in both the manufacturing and educational field, the review process provides insight into the program's strengths and weaknesses. However, it is a bit burdensome and some of the questions do not measure why the program is good, how we know the student is qualified for a job, or most reviewer really do not know about the institutional questions about service and support.

# General Technology-Manufacturing Emphasis Program Review



Prepared for Arkansas Department of Higher Education 2020

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### **General Technology Program Review**

#### Introduction

Phillips Community College of the University of Arkansas (PCCUA) is a comprehensive community college with an open-access admissions policy and includes three campus locations: DeWitt, Helena, and Stuttgart. Phillips has four academic divisions including Allied Health, Applied Technology, Arts and Sciences, and Business and Information Systems. The General Technology program is offered through the Applied Technology Division.

PCCUA was created as Phillips County Community College (PCCC), the first public community college to be organized in Arkansas, as a result of Amendment 52 to the Arkansas Constitution in 1964. In 1965, Act 560 of the Arkansas State Legislature paved the way for establishing tax supported community colleges in Arkansas, and the people of Phillips County provided local financial support for the College.

Classes were first offered in the fall of 1966 in the Naval Reserve Building in Helena, which served as temporary quarters. The new campus and facilities comprised of five buildings were occupied in 1968.

The next three decades were a period of growth for the College with the addition of a Fine Arts Center, A Nursing Education Building, a Technical and Industrial Education Building, the John Easley Administration Building, the Bonner Student Center, renovation of the Lewis Library, and restoration of the Pillow-Thompson House.

The year 1996 was an important year in the history of the College. In March 1996, the people of Arkansas County passed a referendum to annex that county into the PCCC taxing district. The PCCC Board of Trustees changed the name of the College to Phillips Community College to reflect the multi-county support and began plans to expand the off-campus programs in Stuttgart. In June 1996, the State transferred the former Rice Belt Technical Institute in DeWitt to Phillips Community College, and on July 1, 1996, Phillips became a member of the University of Arkansas System.

#### **Institutional Mission Statement**

Phillips Community College of the University of Arkansas is a multi-campus, two-year college serving the communities of Eastern Arkansas. The college is committed to helping every student succeed. We provide high quality, accessible educational opportunities and skills development to promote life-long learning, and we engage in the lives of our students and our communities.

#### **Applied Technology Division Mission Statement**

In support of the college mission, the purpose of the Division of Applied Technology is to provide quality educational programs consistent with the needs of the community. To accomplish this, the Division:

- Provides career programs to equip students with job skills needed to secure employment
- Provides opportunities to upgrade existing workforce skills

- Encourages effective communication, cultural diversity, social and civic responsibility, analytical and critical thinking, and technology utilization through assessment of students and academic programs
- Stresses the development of skills for life-long learning and meets training needs through:
  - o Business and Industry Training
  - o Customized Training
  - o Professional Development Workshops
  - o Community Education Classes

Along with the mission statements, the division has embraced the five college-wide core competencies that all students should possess upon graduating from PCCUA. The core values established for the division programs are:

- Social and Civic Responsibility: Behavior demonstrates adherence to legal/ethical standards established by society
- Technology Utilization: Use tools of the trade to achieve a specific outcome
- Analytical & Critical Thinking: Modes of reasoning including analyzing data, evaluating alternatives, setting priorities, and predicting outcomes
- Communication: The interactive process through which there is an exchange of verbal and/or nonverbal information
- Cultural Awareness: Acknowledgement that society is diverse with groups of individuals possessing differing beliefs, values, attitudes, and customs that are shared from one generation to the next

#### **Program Goals and Student Learning Outcomes and Activities**

The General Technology program is the integration of technology-based systems to improve the design and manufacture of products and processes. The program goal is to help students learn marketable skills to enter the world of manufacturing. Students are trained in fluid power, Programmable Logic Controller troubleshooting, electrical power systems, mechanical drive systems, industrial controls, and HVAC. Welding and basics of blueprint are also offered and are valuable skills for those looking to enter into or advance through the manufacturing industry.

Courses specific to the General Technology degree give more advanced training in specific areas. The overall goal is to train students to gain employment in the numerous industries associated with manufacturing in an ever-changing technological society.

#### **General Program Student Learning Outcomes**

- To provide university-parallel courses of high academic quality on the freshman and sophomore levels for students who may wish to transfer to senior institutions;
- To provide occupational skills for students who wish to gain competence in employable skills and for employed workers who wish to upgrade their skills or move into another level of employment;

- To prepare students for effective citizenship, personal and community living, whether or not they continue formal education; by including a sound general education base in degree programs and academic and cultural courses outside the area of occupations;
- To provide courses for continuing education for credit or non-credit on a full time or part time basis and a program of community service activities both by 1) sponsoring courses to meet the interests of various groups, and 2) offering its facilities, its professional staff, and the specific talents of the students to promote civic and cultural life of the community; and
- To provide students with sound academic advice, guidance and counseling, financial aid, quality student life, and other services not included in instructional programs.

#### Service to General Education and Other Disciplinary Programs

College service and participating with general education and other disciplinary programs is promoted in the General Technology program. However, service-learning opportunities for these students are limited since most of them have day jobs and attend evening classes.

General Technology students are required to take general education courses as well as discipline specific courses. Skills and knowledge acquired through English, speech, math and social science classes will help prepare them to effectively communicate and be more employable in a competitive job market.

#### **Market Demand**

Although Eastern Arkansas is an area with high unemployment rates and high levels of poverty, the outlook for manufacturing related jobs is good. As noted on Page 24 of this report, there are approximately 28 manufacturing related industries in Phillips and Arkansas Counties: 9 in Helena-West Helena and 19 in Arkansas County.

As illustrated below, there are approximately 3999 job openings in the manufacturing field in Arkansas, Mississippi, and Tennessee, which is a good indicator of market demand for the manufacturing program. The General Technology program will continue to adjust to changing market demands and offer current skills needed to compete in today's job market.<sup>1</sup>



https://www.indeed.com/jobs?q=manufacturing&l=Tennessee&jt=fulltime# https://www.indeed.com/jobs?q=manufacturing&l=mississippi https://www.indeed.com/jobs?q=manufacturing&l=arkansas

#### **Student Demand**

According to the NAM (National Association of Manufacturers) report, "Manufacturers expect to need to fill 4.6 million jobs over the next decade, so the stakes could not be higher for our industry. We have to solve the manufacturing workforce crisis, and bringing together industry executives, academic leaders and federal, state and local officials is exactly the right approach."<sup>2</sup>

Arkansas is also being affected by the workforce manufacturing crisis. In 2019, the Arkansas manufacturing employment rate has risen .5%. Local employers are looking for workers to fill vacancies, and employees with particular skill sets are needed now. The PCCUA Division of Applied Technology is equipped to prepare students for a variety of manufacturing-related careers. Student and market needs, new technology, and training are all an integral part of the division planning process. Additional skill sets such as HVAC, blueprint reading, and welding have recently been added to the General Technology degree.

In addition, a full time Director of Workforce Training and Development works with local industries to stay abreast of training needs and holds regularly scheduled meetings with the Phillips County Industrial Council, Southeast Arkansas Industrial Council and the Grand Prairie Workforce Advisory Council. These councils serve as vital resources to help the Division learn more about the students and communities it serves. The following items demonstrate the College and division's commitment to respond to the above factors:

- The college administration interacts with legislature and state economic groups to keep abreast of changes that occur in our state and service area.
- Division faculty members work closely with the local chamber of commerce and various other community organizations to identify industry training and job possibilities for students.
- Course, program, and division student learning outcomes are assessed each semester to ensure that students are equipped with the necessary skills to enter the workforce.
- Recommendations and input from Advisory Councils and Employer Surveys ensure that the division's programs are preparing students to work in the manufacturing environment.
- Relationships with area high schools, Career Pathways, and GEAR UP are maintained and strengthened to assist in recruiting students into manufacturing related programs.
- Faculty members are encouraged to seek training to stay on the cutting edge of technology and learn new teaching methodologies so graduates remain competitive in the workforce.

<sup>&</sup>lt;sup>2</sup> <u>https://www.nam.org/nam-statement-on-fourth-meeting-of-the-american-workforce-policy-advisory-board-6444/?stream=workforce</u>

#### Curriculum

#### **Current Thinking Trends**

The General Technology program adheres to best practices in the respective fields in a variety of ways. Examples include utilizing guest speakers to inform students of industry certifications and expectations, requiring students to research and analyze current trends and technology, and assigning activities and projects based on world of work experiences. Faculty and students recently worked with a local industry to create a special part needed at the business site. Students utilized skills such as CAD, blue print reading, and welding to complete the project. This is a prime example of students applying hands on learning to real world experiences.

PCCUA also encourages faculty to attend conferences and seminars to learn best practices as well as emerging skills and teaching methodologies in their respective disciplines. Some of the conferences attended by the instructors include the following: Arkansas Association of Two-Year Colleges, National Center for Construction Education and Research (NCCER) Instructor Certification Training, Programmable Logic Controllers Training, and Skills USA. These conferences provided new and invaluable instructional tips on student engagement and cooperative learning as well as current industry trends.

The Division also values the input from Advisory Councils, which includes a variety of community stakeholders. Their recommendations are a guiding force in providing high-quality programs and curricula to meet the needs of the service area. The Advanced Manufacturing degree was revised and renamed General Technology degree with a manufacturing emphasis to more effectively meet the needs of local industries. Classrooms and labs have also recently been updated with new equipment and computers to align more closely with industry standards as a result of input from Advisory Councils.

#### **Programs Under Review**

The Applied Technology Division offers an Associate of Applied Science degree in General Technology (Manufacturing Emphasis), a Technical Certificate in Advanced Manufacturing, and two Certificates of Proficiency—Advanced Manufacturing and Heating, Ventilation, and Air Conditioning (HVAC). Please refer to Appendix A for the detailed programs of study forms of the associate degree and certificates as well as the semester/year courses were offered.

Curriculum Summary Outline Table 1: Associate of Applied Science: General Technology (Manufacturing Emphasis)			
Total Number of Hours for Degree: 60			
Course Number	Course Title	Credits	
Genera	l Education Component – 18 Hours		
EH 113	Freshman English I	3	
EH 123	Freshman English II	3	
SP 243	Fundamentals of Speech	3	
PSY 213 or SY 213	Social Science	3	
MS 123, MS 143, or MS 183	Mathematics	3	
CT 113	Computer Information Systems	3	
General	Technology Component – 42 Hours		
IT 113	Industrial Safety and Sanitation	3	
IT 223	Principles of HVAC	3	
IT 133	Industrial Electricity	3	
IT 163	Basics of Blueprints & Industrial Measurement	3	
IT 214	Introduction to PLC	4	
IT 243	Hydraulics and Pneumatics	3	
IT 273	Principles of Industrial Machines	3	
IT 1203	Intro to Manufacturing	3	
IT 1213	Design for Manufacturing	3	
IT 1223	Manufacturing Production Processes	3	
IT 1233	Manufacturing Power and Equipment Systems	3	
IT 1273	Engineering and Problem Solving	3	
WG 115	Intro to Welding	5	

Curriculum Summary Outline Table 2: Technical Certificate: Advanced Manufacturing				
Total Number of Hours for Degree: 33				
Course Number	Course Title	Credits		
General Education Component – 9 Hours				
EH 113	Freshman English I	3		
SP 243	Fundamentals of Speech	3		
MS 1013	Fundamental math or higher	3		
General Technology Component – 24 Hours				
IT 113	Industrial Safety & Sanitation	3		
IT 133	Industrial Electricity	3		
IT 273	Principles of Industrial Machines	3		
IT 1203	Intro to Manufacturing	3		
IT 1213	Design for Manufacturing	3		
IT 1223	Manufacturing Production Processes	3		
IT 1233	Manufacturing Power and Equipment Systems	3		
IT 1273	Engineering and Problem Solving	3		

Curriculum Summary Outline Table 3: Certificate of Proficiency: Advanced Manufacturing				
Total Number of Hours for Degree: 12				
Course Number	Course Title	Credits		
IT 1203	Intro to Manufacturing	3		
IT 1213	Design for Manufacturing	3		
IT 1223	Manufacturing Production Processes	3		
IT 1233	Manufacturing Power and Equipment Systems	3		

Curriculum Summary Outline Table 4: Certificate of Proficiency: HVAC			
Total Number of Hours for Degree: 12			
Course Number	Course Title	Credits	
IT 113	Industrial Safety and Sanitation	3	
IT 133	Industrial Electricity	3	
IT 163	Basics of Blueprints & Industrial Measurements	3	
IT 233	Principles of HVAC	3	

#### **Curriculum Change Process**

The process for curriculum development is initiated at the department or division level with faculty suggestions and recommendations. Faculty evaluates and discusses curriculum changes and submits recommendations to the division dean. These proposed changes are routed through a Curriculum Change Form, located in Appendix B, to the Curriculum Committee of the Faculty Senate. Changes are then presented to the Instruction and Curriculum Committee for approval and last to the Vice Chancellor for Instruction who takes appropriate action. The Instruction and Curriculum Committee is a standing committee led by the Vice Chancellor for Instruction, and committee members include division deans, department chairs, Faculty Senate President, Senate representatives, and functional area supervisors. More detailed procedures for adding, deleting, or modifying a course are listed in the PCCUA Policy Manual under Administrative Procedure 420.02 which is also included in Appendix B.

#### **New Course Proposals**

The PCCUA Board Policies and College Procedure Manual is very specific regarding the procedure to be followed for new course proposals as outlined in Administrative Procedure 420.02 in Appendix B.

#### Syllabi

Faculty members are required to provide every enrolled student, the division dean or department chair, and the Vice Chancellor of Instruction with a syllabus for each class taught each semester. A course syllabus template is available to guide faculty in the development and to ensure inclusion of textbook information, course description, course learning objectives, core competencies, expected learning outcomes, grading policy, and other campus information. Current syllabi for General Technology courses are located in Appendix G.

#### **Distance Learning**

There are no distance learning courses in this degree program at this time.
### **Program Faculty**

#### **Faculty Members**

The academic excellence of a college is largely dependent upon the level of excellence of the faculty. PCCUA is committed to a positive learning environment by providing high-quality educational programs through the employment of dedicated and competent faculty. The minimum professional qualifications for a full-time, part-time, or adjunct faculty member in the General Technology program is an Associate degree in a related manufacturing field; however, a bachelor's degree is preferred. All full-time General Technology faculty members have the appropriate academic credentials that include a bachelor's degree. In addition, the welding instructors also have the appropriate credentials, including professional licenses, certifications and industry experience. Since the General Technology program enrollment is small at PCCUA, three full-time faculty members (one full time in Helena and two full-time in Arkansas County) are able to accomplish department and program goals. Commitment and dedication are evidenced by their combined 65 years of service. Adjunct faculty teach as needed. Table 5 below lists the program faculty information for faculty members.

Table 5: General Technology Faculty			
Name	Degree	Courses Taught 2016-2019	
Michael Shaw	A.A.S., Arkansas College of	IT 113 – Industrial Safety and Sanitation	
Year Hired: 2004	Technology – Engineering	IT 133 – Industrial Electricity	
	Technology	IT 163 – Basic of Blueprints & Industrial	
		Measurements	
	B.S., Florida College of	IT 213 – Intro to PLC	
	Technology – Electronic	IT 223 – Principles of HVAC	
	Engineering	IT 243 – Hydraulics and Pneumatics	
		IT 273 – Prin. of Industrial Machines	
		IT 1203 – Intro to Manufacturing	
		IT 1213 – Design for Manufacturing	
		IT 1243 – Manufacturing Materials	
		IT 1253 – Manufacturing Enterprise	
		IT 1273 – Engineering and Problem Solving	
		CC 103 – Construction I	
		CC 113 – Construction II	
		RET 103 – Intro to Renewable Energy	
Daniel Whitted	A.A.S., Phillips Community	WG 115 – Intro to Welding (General Technology	
Year Hired: 2005	College of the University	elective)	
	of	WG 125 – Arc Welding I	
	Arkansas – Welding	WG 135 – Arc Welding II	
	Technology	WG 145 – Inert Gas Welding I	
		WG 165 – Inert Gas Welding II	
	Certified NCCER Craft	WG 155 – Pipe Welding	
	Instructor		

Tim Campbell Year Hired: 1986	Rice Belt Technical Institute Advanced Welding Diploma Certified Welder American Welding Association	WG 115 – Intro to Welding ( <i>General Technology elective</i> ) WG 125 – Arc Welding I WG 133 – Welding Blueprint Reading WG 135 – Arc Welding II WG 145 – Inert Gas Welding I WG 165 – Inert Gas Welding II WG 155 – Pipe Welding
		WG-175 – Certification Welding

#### **Faculty Orientation and Evaluation**

PCCUA conducts an orientation program for all new employees at the beginning of their employment. The purpose of the orientation is to welcome the employees and introduce them to the college environment. Each employee and employee supervisor is given a new employee checklist located in Appendix C, which must be completed two to three weeks after the hire date. A resource for employees is the PCCUA Policy Manual, which outlines written policies and procedures and can be accessed through Web Advisor. Responsibilities of faculty members regarding teaching loads, office hours, evaluation, and other academic issues can also be located in the policy manual.

The PCCUA faculty evaluation system provides feedback from students, peers, and dean for the faculty member to use in improving performance. Faculty members are evaluated each semester by students through a student evaluation and annually by peers and dean through a teaching portfolio, which documents teaching effectiveness, college service, professional growth, and community service. During the annual faculty evaluation conferences, the dean and faculty members review student evaluations and portfolio evaluation findings to identify ways to improve teaching effectiveness and methodologies.

#### Academic Credentials of Adjunct/Part Time Faculty

All adjunct/part-time faculty must meet the same minimum qualifications of a full-time faculty member.

#### **Average Courses and Credit Hours**

Teaching loads at Phillips Community College are determined by considering both credit hours and student contact hours. Overload pay is awarded where regular teaching loads have been fulfilled and additional class offerings are necessary. A point system is utilized to determine the point at which teaching loads have been met and overload compensation begins. A full instruction load for all faculty is 30 points per regular semester based upon the following formula: Course Points – Credit Hours + Lecture Hours + 2/3 (lab hours). For more detailed information concerning teaching loads, refer to Administrative Procedure 364.01 in Appendix C.

Full time faculty members are required to teach a minimum of 15 hours a week. In 2018-19, the average number of courses taught was ten and the number of credit hours taught was 30 for full time program faculty.

### **Program Resources**

#### **Institutional Support for Faculty Development**

Faculty is encouraged to attend professional meetings, workshops, conferences, and other events that promote professional growth as funding is available. Each department has a limited budget for faculty travel. These funds are used for meetings and other activities within driving distance of our campuses. If a department has spent its allotted budget or if additional money is needed, a request may be made to the division dean. The additional money may be available through the faculty development fund. The money in this fund is allocated to divisions based on the number of full-time instructors. The Vice Chancellor for Instruction is responsible for administering the funds to each division.

Faculty development funds may be made available to faculty who apply or who are asked to present scholarly papers at regional and national meetings. There is no set limit on the number of presentations that may be requested; however, funds for this type of application are limited and are considered on an individual basis. Presentation requests that result from a competitive selection process receive priority funding status. Concurrent submission to the Vice Chancellor for Instruction and the selecting organization is required for funding consideration.

#### **Professional Development**

PCCUA recognizes the professionalism of its faculty and provides opportunities for professional development and training through college and grant funds. Additionally, the College values quality instruction and encourages faculty to keep current in their teaching discipline by focusing on instruction and student learning issues. Administration and the department support general technology faculty to stay current in emerging technologies and teaching strategies by allowing faculty time and resources to participate in workshops, seminars, conferences, and professional organizations. As illustrated in Table 6 below, faculty members are involved and committed to professional and scholarly activities.

	Table 6: Professional Development for Full-Time Faculty         2016-2019				
Instructor	Workshops	Conferences			
Michael Shaw	<ul> <li>CNC plasma machine operations training</li> <li>CNC Plasma machine software training</li> <li>Webinar: Craft Instructors, Curriculum Performance Evaluators and Support Roles</li> <li>Child Maltreatment Reporter Training</li> <li>Rules Governing How to Meet the Needs of Children with Dyslexia</li> <li>Mandated Reporter Training, Helena</li> <li>Problem Solving Workshop</li> </ul>	<ul> <li>ACE CMI Fall Leadership Conference</li> <li>Skills USA Conference; Timekeeper for Welding Competition</li> </ul>			

Tim Campbell	<ul> <li>Repairing TIG pip icicles, Alabama Welding</li> <li>Tips and Tricks on Welding Defects</li> <li>Thermite Welding</li> <li>Social Media and Email Workshop</li> <li>Non-traditional students in STEM and Related Majors training</li> <li>Technology Applications in Work and Instruction workshop</li> <li>TIG weaving patterns, TIG finger</li> <li>Pulse Shield Metal Arc Welding</li> <li>Textbook review: Print Reading for Welders; Blueprint Reading for Welders</li> <li>Windows 10 training, Stuttgart campus</li> <li>Understanding, Teaching and servicing Today's learner, Dr. Mark Tayler</li> <li>Zoom Training, DeWitt campus</li> <li>Mandated Reporter Training, Stuttgart</li> <li>Customer Service and Communication Workshop, Stuttgart</li> <li>Building Paths to a Better Future Workshop, Stuttgart</li> <li>FCAW-S Troubleshooting by Lincoln</li> <li>Lincoln Welding machines and Consumables</li> </ul>	<ul> <li>Attended Skills USA Conference, Hot Springs; 2017, 2018, 2019</li> <li>American Welding Society (AWS)</li> <li>Arkansas Skills USA, Welding</li> <li>Washington Alloy Company; E-6012 SMAW Electrodes and other Welding Consumables, Little Rock</li> </ul>
Daniel Whitted	<ul> <li>Consulting and recruitment to areas businesses, including Menard Manufacturing</li> <li>Consulting for Adams Manufacturing, Adam's Manufacturing, recruitment for students and student employment</li> <li>Trip to Systems Group, El Dorado, June, Weld testing</li> <li>Crase training</li> <li>Consulted for two areas business, Menard Manufacturing and Adam's Manufacturing</li> <li>Mandated Reporter training, Stuttgart</li> </ul>	<ul> <li>Member, Skills USA and receive their publication</li> <li>Member, NCCER and receive their publication</li> <li>Member, American Welding Society and receive their publication</li> <li>Work Force Symposium at Petit Jean Mountain; sat on Secondary Education Panel</li> </ul>

#### Library Resources

The following resources are available at the PCCUA Library:

General circulating collection including fiction, non-fiction, biographies, special interest;

- Journals (general interest and special subject areas)
- Newspapers including *Arkansas Democrat-Gazette*, *Wall Street Journal*, *USA Today*, local community newspapers, and special subject areas
- Coin-operated copier services

- Computer workstations with Microsoft software products, classroom software, and Internet access
- Online searchable databases (full-text and abstract) including:
  - o <u>Ebsco Databases</u>
    - PsycINFO, Psychology and Behavioral Sciences Collection
    - CINAHL (nursing and allied health)
    - Health Source (Nursing/Academic Edition, Consumer Edition, Clinical Pharmacology)
    - MLA International Bibliography, MLA Directory of Periodicals
    - Academic Search Elite
    - Business Source Elite
    - ERIC, Professional Development Collection (education)
  - Gale Group: Opposing Viewpoints
  - SIRS Discoverer on the Web
  - SIRS Knowledge Source
  - World Cat
  - Encyclopedia Britannica Online
- <u>Interlibrary Loan Services</u>. PCCUA provides interlibrary loan services for students who need to find materials held in other library collections
- <u>Courier Services.</u> PCCUA runs a daily courier service between the 3 campuses

#### Titles Available at the PCCUA Library

#### **General Technology**

- <u>Materials and Processes in Manufacturing [by] E. Paul De Garmo.</u> DeGarmo, E. Paul (Ernest Paul), 1907-[New York] Macmillan [1969] viii, 949 p. illus. 24 cm.
- <u>Manufacturing and Machine Tool Operations [by] Herman W. Pollack.</u> Pollack, Herman W. Englewood Cliffs, N.J., Prentice-Hall [1968] xiv, 593 p. illus. 24 cm.
- <u>Production: Management and Manufacturing Systems [by] Thomas R. Hoffmann.</u> Hoffmann, Thomas Russell, 1933-Belmont, Calif., Wadsworth Pub. Co. [1967] xii, 355 p. illus. 24 cm.
- <u>Numerical Control in Manufacturing.</u> American Society of Tool and Manufacturing Engineers. New York, McGraw-Hill [1963] xiii, 504 p. illus., diagrs. 24 cm.
- <u>Manufacturing Processes [by] Myron L. Begeman [and] B. H. Amstead.</u> Begeman, Myron L. (Myron Louis), 1893-New York, Wiley [1963] 666 p. illus. 24 cm.
- <u>Manufacturing Processes and Materials for Engineers</u> Doyle, Lawrence E. Englewood Cliffs, N.J., Prentice-Hall, 1961.797 p. illus. 24 cm.
- <u>Automating the Manufacturing Process.</u> Hawley, George F. New York, Reinhold Pub. Corp. [1959], 147 p. illus. 24 cm.
- <u>Skills for Success. Book 1, Manufacturing / Robert Ventre Associates, Inc.; Ellen Kisslinger.</u> Kisslinger, Ellen. Albany, NY: Delmar Publishers, c1991.vi, 169 p.: ill. ; 28 cm.
- <u>Skills for Success. Book 2, Manufacturing / Robert Ventre Associates, Inc. ; Janet Podnecky.</u> Podnecky, Janet.Albany, N.Y.: Delmar Publishers, c1991.vi, 178 p.: ill. ; 28 cm.
- Organization Theory and Design / Richard L. Daft. Daft, Richard L. Mason Ohio: South-Western Cengage Learning, c2010.xx, 649 p.: col. ill. ; 27 cm.

- <u>Whiplash [sound recording] / Catherine Coulter.</u> Coulter, Catherine. Grand Haven, MI: Brilliance Audio, p2010. 5 sound discs (CD) (5 hr., 52 min.): digital; 4 3/4 in.
- <u>Plant Engineering Management. Authors: Donald A. Bartlett [and others] James A. Murphy,</u> <u>editor.</u> Dearborn, Mich., Society of Manufacturing Engineers, 1971.xi, 219 p. illus. 24 cm.
- How Did You Think of That? An Introduction to the Scientific Method [by] David H. Killeffer. Killeffer, David H. (David Herbert), 1895-Garden City, N.Y., Doubleday, 1969. 153 p. 22 cm.
- <u>Chemicals from the Atmosphere [by] Charles H. Simpson.</u> Simpson, Charles Hammond, 1929-Garden City, N.Y., Doubleday, 1969. 181 p. 22 cm
- Manufacturing Processes Meridian Education Corporation; 2001, 15:20 minutes; VHS

#### Availability, Adequacy, and Accessibility of Campus Resources

The library has several computers that the students may have access to on-line resources, such as:

- On-Campus Access:
  - Britannica Online
  - o Ebsco
  - Gale Group (Opposing Viewpoints and Literary Criticism Online)
  - SIRS Discover on the Web
  - SIRS Knowledge Source
  - o World Cat
  - Ferguson's Career Guidance Center
- Additional Websites (Off-Campus Access)
  - Ferguson's Career Guidance Center
  - http://portal.arkansas.gov Official Website for the State of Arkansas
  - http://www.asl.lib.ar.us Arkansas State Library
  - http://www.arstudies.org Arkansas Studies Institute
  - o http://www.encyclopediaofarkansas.net Encyclopedia of Arkansas History and Culture
  - http://www.ask.com General Information
  - http://bartleby.com Reference Sources
  - http://www.loc.gov Library of Congress
  - http://www.archives.gov National Archives
  - http://sparknotes.com Study Guides
  - http://www.census.gov U. S. Population/Census

#### Library Budget

Funds budgeted for the library are not specifically allocated by academic discipline. Requests for material purchases from all disciplines are approved as funds permit. The library budget for 2016-2019 is included below in Table 7. This budget does not include personnel costs.

Current library staffing includes one full-time director for all three campuses, three full-time and two part-time staff members on the Helena campus, one full-time member on the Dewitt campus, and one full-time staff member on the Stuttgart campus.

Table 7: Library Budget 2018-2019						
Campus Supplies/Services Holdings Travel Total						
Helena	\$21,000.00	\$27,000.00	\$1500.00	\$49,500.00		
27Witt	\$13,000.00	\$21,000.00	\$700.00	\$34,700.00		
Stuttgart	\$13,000.00	\$21,000.00	\$600.00	\$34,600.00		
Total by Account         \$47,000.00         \$69,000.00         \$2800.00         \$118,800.00						

#### **Program Equipment Purchases**

A state-of-the-art Manufacturing Lab completed in April of 2018 is equipped with computers, Smart Boards, trainers, and equipment utilized in a manufacturing industry. Smart Boards enable a complete visual and interactive experience for student learning and participation, which gives General Technology students the technical ability to enhance assignments and experience an industry environment. Some of the larger program equipment purchases for the last three years are listed below in Table 8.

Table 8: Program Purchases*2016-2019		
Equipment/Software		
16 x 40 Lathe and Stand	\$8,950.00	
13 x 40 Gunsmithing Lathe	\$5,824.50	
South Bend Mill 9x43	\$8,995.00	
VS Gearhead Drill Press	\$4,325.00	
6x9.5" Swivel Metal Band	\$2,175.00	
48" Pan and Box Brake	\$2,306.25	
G0845P 50" Electric Metal Shear	\$6,320.00	
T26471 51" Slip Roll	\$1,919.00	
G0804 Heavy Duty Angle Notcher	\$2,464.00	
12" 5hp Table Saw	\$2,850.00	
Half HP Tool Post Grinder	\$1,195.00	
Heat Pump Trainer	\$15,528.57	
Plasma Cutter	\$29,555.00	
PLC Trouble Shooter	\$11,446.70	
PLC Learning System	\$7,729.97	
Teng Tools Toolbox	\$2,306.03	
iConnect Perform Test Kit with Airflow	\$1,694.67	
Bacharach PCA 400 with OT and CO, 12 inch	\$2,479.40	
Testo 420 Flow Hood Kit	\$2,202.14	
Duct Kit 001	\$2,480.00	

\* Cost includes freight, installation, and training.

There is no distance learning instruction in the General Technology program at this time.

### **Majors/Declared Students**

#### Number of Undergraduates/Graduate Majors

The number of students pursuing a General Technology degree or certificate for the last three years is illustrated in following table and graph.

Table 9: Undergraduate/Graduate Majors/Declared Students 2016-2019								
General Technology 2016 2017 2018 2019 Total								
Associate of Applied Science	5	7	12	8	32			
Technical Certificate	1	5	3	1	10			
Certificate of Proficiency	Certificate of Proficiency 5 7 12 15 59							



#### Recruitment

- The PCCUA Recruitment Team focuses its efforts on the surrounding high schools

   (approximately 14) in Arkansas and Mississippi. In addition, High School Senior Recruitment Days
   are held at the College in the spring semester of each year. Prospective students spend half a
   day at the College where they meet with advisors and faculty members, attend breakout
   sessions on scholarships, financial aid, student support services, and intramural sports.
- General Technology faculty members also attend local college and career fairs to showcase program offerings. Contacts made through career and college fairs are followed up through phone calls and mailings. In addition, the General Technology Department works with industry to upgrade workers' skills through workshops or courses. To keep industry workers aware of course and program offerings, the department also delivers fall, spring, and summer class schedules/brochures to local industries and businesses.

#### Retention

- Academic Advising Division dean and two program coordinators in the Applied Technology Division serve as advisors to assist students in reaching their academic goals. Students are advised regarding program requirements, detailed degree planning, and College-supported services.
- Early Alert/Warning System This allows opportunities for early faculty-initiated intervention to resolve problems or issues with class attendance, tutoring, advising, or other counseling needs of students.
- Student Email Accounts Each student is provided a college e-mail account to improve communication between the student and instructors as well as the college staff.
- Student Support Services This trio program motivates and supports students in their academic endeavors through academic advising, financial aid counseling, career exploration, peer and computer assisted tutoring, and advocacy with staff and faculty.
- Student Orientation A college-wide orientation is required for new and returning students each fall to provide them with skills and resources to improve student success.
- Achieving the Dream (AtD) This initiative promotes institutional change to improve student success in community colleges by identifying barriers that prevent students from advancing through college programs.
- Faculty Scheduled Office Hours Faculty uses this time to meet with students to discuss course and program issues. Listening to students during this one-on-one time enables faculty to learn of students' needs to determine and implement strategies that will help students meet those needs.
- Multimedia Classrooms and Technology General Technology classrooms are equipped with various technology-based components to accommodate a variety of learning styles and to meet the growing technology needs of students.
- Cooperative Learning Activities incorporated into the classroom setting to assist the learning
  process. For instance, working in small groups fosters a better understanding of the subject
  matter as well as learning to work well with others as a team.
- Computer Labs Access to computer labs are available.

#### **Graduation of Students**

• Program Level Advisors – Two advisors and division dean are available to assist General Technology majors in course selection, completion, and graduation requirements.

- Programs of Study Sheets Programs of Study Sheets outlining degree requirements are available to general technology students.
- General Technology Rotation Schedule A three-year rotation of general technology courses is available for advisors and students to follow to ensure expected graduation date.
- Independent Studies These are available if students who are graduating have a conflict and are prevented from taking a required course at the scheduled time.

#### Number of Program Graduates

Listed below in Table 10 is the number of General Technology program graduates for the last three years.

Table 10: Number of Program Graduates2016-2019					
2016 2017 2018 2019 TOTAL					TOTAL
General Technology AAS	1		1		2
Advanced Manufacturing TC	1		1		2
Advanced Manufacturing CP66122650					

#### **Program Assessment Process**

PCCUA has an extensive college-wide assessment plan with five core competencies to measure outcomes assessment of student learning. The General Technology program's assessment process models the college plan and uses the same core competencies—communication, cultural awareness, social and civic responsibility, analytical and critical thinking, and technology utilization—as a major component of instruction and assessment at the course and program level as reflected in Appendix D.

To accomplish these goals, the assessment process for each accredited degree program includes the following steps: 1) determine what needs to be assessed, 2) select tools to measure results, 3) establish criteria to determine if concerns exist or if change is needed, 4) administer assessment tools, 5) evaluate results, and 6) develop and implement methods for improvement.

The first two steps in the assessment process are to determine which courses address each competency and what method or tool is used to measure the results within each course. A variety of assessment methods are implemented, including pre and posttests as well as written tests, debates, and lab rubrics. This gives an overall plan for assessing the whole program. The process is then expanded to the individual course level. Learning outcomes and assessment methods to best measure the desired outcomes are determined. Steps three and four are to establish criteria and administer assessment tools. Comprehensive student learning data for each course taught is collected and evaluated at the end of each semester to determine if criteria are met and to implement methods for improvement (steps five and six). An Assessment Results/Action Plan report validating outcome results is submitted to the division dean at the end of each semester. The Dean will discuss the findings during the annual evaluation conference. An example of an individual course Assessment Results/Action Plan is provided in Appendix D.

Assessment is an ongoing process. The trended data provides tangible, measureable results that determine where improvement is needed as evidenced in the Program Assessment Results and the Division Averages located in Appendix D.

#### **Program Exit or Capstone Requirements**

Although standardized entrance and exit tests are not required of the General Technology, all courses have implemented student learning outcomes to determine program effectiveness.

#### **Teaching Evaluation**

As outlined in the PCCUA Administrative Procedure 370.05 included in Appendix E, all full-time and parttime faculty members will be reviewed annually on the basis of classroom effectiveness, college service, professional growth, and community service. Evidence of instructor effectiveness is provided by student evaluations each semester and a teaching portfolio. Student Evaluation: A student questionnaire regarding instructor course delivery and design methods is administered to two classes, randomly selected by the division dean, each fall and spring semester. In this student evaluation, which will be available in the Resource Room, students are also given the opportunity to anonymously provide feedback on instructor strengths and offer ways to improve teaching methods that promote student learning and student engagement. A summary of results is provided to the instructor and dean of the division. Student evaluation score averages are based on the following scale: 5-Always, 4-Usually, 3-Sometimes, 2-Rarely, 1-Never.

Teaching Portfolio: Faculty members teaching eighteen points or more are required to annually submit teaching portfolios to document teaching effectiveness, college service, professional growth, and community service. Included in this portfolio is a collection of instructor-selected documents to validate teaching strategies and performance. Minimum requirements for the portfolio are two current syllabi with relevant course information, examples of revisions in course materials, and examples of evaluation methods such as tests and graded assignments. Each portfolio is evaluated by the division dean as well as two instructors within the division and one instructor outside the division. Each section is scored and weighted, resulting in a numerical score that is compared with other faculty.

The final evaluation score is based on the following scale:

- **3 Exceptional:** This is a job performance that is outstanding in almost every aspect. An exceptional rating implies that virtually any knowledgeable observer would recognize the overall high-quality results in all major areas of job emphasis.
- **2 Effective:** This is a job performance at the level intended for the job. Overall performance does not noticeably deviate from an acceptable level.
- **1 Needs Improvement:** This is job performance that is short of effective. Further development and/or experience on the job is needed and there should be improvement within the next year.

#### **Use of Student Evaluations**

During the annual faculty evaluation conference, the dean and faculty members review student evaluations and portfolio evaluation findings to identify ways to improve teaching effectiveness and methodologies. PCCUA recognizes outstanding faculty members on each campus by honoring those with the highest portfolio scores at the Arkansas Community Colleges Annual Conference.

Teaching components that have been incorporated into the curriculum as a result of student evaluations are cooperative learning strategies and industry experts are invited as guest lecturers to provide the students an opportunity to relate the knowledge and skills they are learning to the workplace.

#### **Transfer Information**

Students enrolled in the General Technology program are following the Associate of Applied Science pathway or seeking a Technical or Certificate of Proficiency. Programs of this nature have normally been considered terminal and are generally non-transferrable. However, recently the University of Arkansas at Fort Smith has begun offering a Bachelor of Applied Science degree. Courses are offered on site, compressed video, and online. One General Technology student has continued his education through the University of Arkansas at Little Rock.

#### ACTS

The Arkansas Course Transfer System (ACTS) contains information about the transferability of courses within Arkansas Public Colleges and universities. Students are guaranteed the transfer of applicable credits and the equitable treatment in the application of credits for the admission and degree requirements. Course transferability is not guaranteed for courses listed in ACTS as "No Comparable Course." Additionally, courses with a "D" frequently do not transfer and institutional policies may vary. ACTS may be accessed on the Internet by going to the ADHE Website and selecting Course Transfer. http://acts.adhe.edu/students-parents/colleges-universites/transfer-info.-for-students/

#### Surveys

The Applied Technology Division measures student, alumni, and employer satisfaction of offerings and services through the listed surveys in Table 11.

Table 11: Applied Technology Division Surveys					
Strategy	Frequency	Resources	How Data is used:		
Graduate Survey	Upon applying for graduation	Graduating students	Improvement of courses, services, and programs		
Alumni Survey	Six months after graduation	Former students who completed degree programs	Improvement of courses, services, and programs		
Employer Survey	Annually	Area Businesses	Recommendations implemented to enhance students' employability skills		

In 2016-2019, 22 of the 27 Applied Technology surveys received were General Technology and Welding graduates. All graduates expressed satisfaction with their overall degree. Aggregate results are reflected in Appendix F.

Although alumni and employer survey responses have been minimal, efforts to improve the response rates are ongoing. To increase the employer survey response, instructors will contact employers individually to collect results.

#### Program Alignment to Current Job Market Needs

To align the program curriculum to current job market needs for state and local communities is a continuing effort of the division dean, program coordinator and faculty. Research from the Bureau of Labor and Statistics and other related internet sites and manufacturing literature is reviewed to

determine what curriculum practices need to be changed or implemented. Feedback from the Advisory Committee is also valuable in aligning programs to meet current job market needs.

#### **Job Placement Information**

Although PCCUA currently does not have a job placement office, the department tries to track job placement through graduate and alumni surveys.

#### Possible Employers for General Technology Students

Due to the migrating population, Phillips and Arkansas Counties have experienced many changes in the local employment possibilities. Salaries range from minimum wage and above, depending on experience. Although most employers do not require a degree, it is regarded as a measure of skill in the manufacturing area. Listed in Table 12 on the next page are the names and addresses of local companies who hire program graduates.

Table 12: Possible Employers for         General Technology Students			
Helena-West Helena	DeWitt	Stuttgart	
BPS, Inc.	Adams Fertilizer Equipment Mfg.	A & P Fabrication	
28 Phillips 324	P.O. Box 628	801 East 2nd	
Helena, AR 72342	DeWitt, AR 72042	Stuttgart, AR 72160	
Blackhawk Warehousing and Leasing	Belleville Shoe South, Inc.	Cavu Aerospace	
P.O. Box 809	P.O. Box 111	2000 Airport Rd	
Helena, Arkansas, 72342	DeWitt, Arkansas 72042	Stuttgart, AR 72160	
Delta American Fuels	Cormier Rice Milling, Inc.	Fastenal	
1305 Highway 20	P.O. Box 152	1919 S. Park Ave.	
Helena, AR 72342	DeWitt, Arkansas 72042	Stuttgart, AR 72160	
Dragon Woodland Sawmill	CWI Central Wire Industries	Industrial Components & Supplies	
129 North Washington St.	P.O. Box 186	301 E Michigan	
West Helena, AR 72342	Dumas, AR 71639	Stuttgart, AR 72160	
Enviro Tech Chemical Services	Menard Manufacturing	Lennox	
49 Phillips 311	6401 Hwy. 152	PO Box 1170	
Helena, AR 72342	DeWitt, Arkansas 72042	Stuttgart, AR 72160	
Helena Industries	Producers Rice Mill	Producers Rice Mill	
101 MLK Jr. Drive	1014 West 2nd Street	518 E. Harrison	
West Helena, AR 72390	DeWitt, Arkansas 72042	Stuttgart, AR 72160	
Hollowell Industries	SAF Holland	Riceland Foods	
315 N. Sebastian	P.O. Box 825	P.O. Box 927	
West Helena, AR 72390	Dumas, AR 71639-0825	Stuttgart, AR 72160	
NORAC	Producers Rice Mill	Ring Container Technologies	
360 Phillips 311 Rd	1014 West 2nd Street	2509 Harry Crawford Dr.	
Helena, AR 72342	DeWitt, Arkansas 72042	Stuttgart, AR 72160	
United Initiators SPI, Inc.	USDA Dumas Cotton Classing	R.W. Manufacturing Inc.	
334 Phillips 311 Rd	HWY 65 South	1506 South Wood	
Helena, AR 72342	Dumas, AR 71639	Stuttgart, AR 72160	
		Scott Manufacturing 3308 S Main Stuttgart, AR 72160	

# **Program Effectiveness**

#### **Program Strengths**

- Supportive administration
- Vice Chancellor for Instruction, division dean, and program coordinator commitment to academic freedom, faculty autonomy, and instructional creativity in the classroom
- Experienced faculty
- · Faculty commitment to professional development and enhancement of professional skills
- Continuous improvement and updating of courses and materials
- Strong advising system
- Adequate classroom and laboratory facilities
- State of the art equipment
- Experienced IT staff to maintain laboratories
- Active Advisory Councils
- Variety of available scholarships for students
- Continuance of Education: Bachelor of Applied Science degree through the University of Arkansas, Fort Smith

#### **Programs Concerns**

- Declining population base
- Large percentage of students considered at risk
- Economically distressed area fails to monetarily reward students for receiving formal education
- Small enrollments
- Lack of funding

#### Program Accomplishments 2016-2019

- Trended assessment data of the General Technology programs is now available to guide in making program enhancements
- State of the Art Manufacturing Lab
- Improved relationships with area industries by one-on-one contacts
- Active Advisory Councils
- Division Open Houses
- Increased recruitment efforts in the high schools
- More workshops offered to increase public awareness of General Technology programs of studies
- Student skills showcased through participation in Skills USA competitions
- Number of instructor training opportunities and certifications increased
- Revised curriculum to help meet industry demands

#### **Planned Program Improvements**

Table 13 lists the following program improvements as well as the timetables and costs:

Table 13: Planned Program Improvements				
Improvement	Timetable	Estimated Cost		
Enhance HVAC and Blueprint Reading courses	2019-2020	\$75,000		
Place more emphasis on Auto Cad training	2020-2021	\$40,000		
Provide Faculty training/development	Ongoing	\$10,000		
Continue to offer certifications Ongoing \$3,000				

As verified in this program review, there is a market demand and job opportunities in the manufacturing field locally as well as the state and neighboring states. Therefore, to ensure viability of the program, the Applied Technology Division recommended that the General Technology curriculum be revised to include HVAC and Blueprint Reading with an emphasis in manufacturing as outlined in Table 14. The revised degree was approved by the Curriculum Committee of the Faculty Senate, Instruction and Curriculum Committee, Vice Chancellor for Instruction, PCCUA Board of Visitors, and the Department of Higher Education as outlined in Administrative Procedure 420.01 in Appendix E.

Curriculum Summary Outline Table 14: General Technology Associate of Applied Science (Manufacturing Emphasis)				
Total Number of Hours for De	gree: 60			
Course Number	Course Number Course Title Credits			
Gene	ral Education Component – 18 Hours			
EH 113	Freshman English I	3		
EH 123	Freshman English II	3		
SP 243	Fundamentals of Speech	3		
PSY 213 or SY 213	Social Science	3		
MS 123, MS 143, or MS 183	Mathematics	3		
CT 113	Computer Information Systems	3		
Gener	al Technology Component – 42 Hours			
IT 113	Industrial Safety and Sanitation	3		
IT 223	Principles of HVAC	3		
IT 133	Industrial Electricity	3		
IT 163	Basics of Blueprint & Industrial Measurements	3		
IT 214	Introduction to PLC	4		
IT 243 Industrial Fluid Mechanics				
IT 273	Principles of Industrial Machines	3		

IT 1203	Intro to Manufacturing	3
IT 1213	Design for Manufacturing	3
IT 1223	Mfg. Production Processes	3
IT 1233	Mfg. Power & Equipment Systems	3
IT 1273	Eng. Design & Problem Solving	3
WG 115	Intro to Welding	5

#### Linda Killion

Co-Chair, Program Review Special Projects Director, Division of Applied Technology Phillips Community College

#### Vicki Cobb

Co-Chair, Program Review Graphic Communications Part-Time Instructor Advisor, Applied Technology Division Program Coordinator Phillips Community College

#### **Michael Shaw**

General Technology Instructor Division of Applied Technology Phillips Community College

- 1. Indeed.com/jobs
- 2. USA Today

# Appendix A

- Programs of Study Forms
- Semester/Year Courses Last Offered



## Associate of Applied Science: General Technology (Manufacturing Emphasis) (GENTEC.AAS D-H-S)

Name				Student ID		Phone	
Address				Major		Email	
Group I (ACT	S)	English and F	ine Arts – 9 Hours	5	Sem	nester	Grade
EH 113 (ENGL	1013)	Composition I					
EH 123 (ENGL	1023)	Composition II					
SP 243 (SPCH	1003)	Fundamentals	of Speech				
Group II (AC	TS)	Social Science	es – 3 Hours		Sem	lester	Grade
PSY 213 (PSYC	21103)	General Psycho	ology				
SY 213 (SOCI 1	1013)	Fundamentals	of Sociology				
Group III (AC	CTS)	Science and I	Mathematics – 3 I	Hours	Sem	lester	Grade
MS 123 (MAT	H 1103)	College Algebr	а				
MS 143		Technical Mat	h				
MS 183 (MAT	H 1003)	College Mathe	matics				
Group IV		Physical Educ	cation – None Red	luired			
Group V (AC	TS)	Computer Te	chnology – 3 Hou	rs	Sem	lester	Grade
CT 113 (CPSI 1	.003)	Computer Info	rmation Systems				
Group VI		Required Cou	urses – 42 Hours		Sen	nester	Grade
IT 113		Industrial Safe	ty and Sanitation				
IT 133		Industrial Electricity					
IT 163		Basics of Blueprints & Industrial Measurements					
IT 214		Intro to PLC					
IT 223		Principles of H	VAC				
IT 243		Industrial Fluid	Mechanics				
IT 273		Principles of In	dustrial Machines				
IT 1203		Intro to Manul	facturing				
IT 1213		Design for Mar	nufacturing				
IT 1223		Manufacturing	g Production Proces	ses			
IT 1233		Manufacturing	g Power and Equipm	ent			
IT 1273		Engineering De	esign and Problem S	olving			
WG 115		Intro to Weldir	ng				
			Program/Gradua	tion Requireme	nts		
Total Program	n Hours		60 Hours	Deficiencies:			
Hours Completed at PCCUA							
Hours Transfe	Hours Transferred						
Total Hours							
Grade Point A	Grade Point Average (GPA)						
Advisor (Signature)				Vice Chancellor/Dear (Signature)	n/Chair		



# Technical Certificate: Advanced Manufacturing (ADMFG.TC D-H-S)

Name				Student ID			Phone		
Address				Major			Email		
Group I	(ACTS)	English and Fine Ar	ts –6 Hours			S	emeste	r	Grade
EH 113 (E	NGL 1013)	Composition I							
SP 243 (SI	PCH 1003)	Fundamentals of Spee	ech						
Group II		Social Science – No	ne Required	I					
Group II	l	Science/Math – 3 H	lours			S	emeste	r	Grade
MS 1013		Pre-Algebra or higher							
Group IV	/	Physical Education	– None Req	uired					
Group V		Computer Technolo	ogy – None I	Required					
Group V	I	Required Courses -	- 24 Hours			S	emeste	r	Grade
IT 113		Industrial Safety and S	Sanitation						
IT 133		Industrial Electricity							
IT 273	IT 273 Principles of Industria			al Machines					
IT 1203	IT 1203 Intro to Manufacturing								
IT 1213	<sup>-</sup> 1213 Design for Manufacturing								
IT 1223	T 1223 Manufacturing Production I			es					
IT 1233		Manufacturing Power	r & Equipmen	t Systems					
IT 1273		Manufacturing, Engin	eering, Desigi	n & Problem So	olving				
		Progr	ram/Gradua	tion Require	ments				
Total Pro	gram Hours		33 Hours	Deficiencies	:				
Hours Co	mpleted at P	CCUA							
Hours Tra	nsferred								
Total Hours									
Grade Point Average (GPA)									
Adv (Signa	visor ature)		•	Vice Chancellor (Signat	/Dean/Chair ure)				

(ACTS #)



## Certificate of Proficiency: Advanced Manufacturing (ADMFG.CP D-H-S)

Name			Stu	udent ID		Pł	none		
Address			M	ajor		Er	mail		
Course N	umber	Required Courses – 12	Hours				Sei	mester	Grade
IT 1203		Intro. To Manufacturir	ıg						
IT 1213		Design for Manufactur	ing						
IT 1223		Manufacturing Produc	tion Processe	es					
IT 1233		Manufacturing Power	& Equipment	: Systems					
	Program/Graduation Requirements								
Total Prog	ram Hour	S	12 Hours	Deficien	cies:				
Hours Con	npleted at	t PCCUA							
Hours Trai	nsferred								
Total Hours									
Grade Point Average (GPA)									
Advisor (Signatur	re)			Vice Chan (!	cellor/Dean/Chair Signature)				

(ACTS #)



Name					Student ID		P	hone		
Address				1	Major		E	imail		
Course N	umbe	r	Required Courses – 12	Hours				Sei	mester	Grade
IT 113			Industrial Safety and S	anitation						
IT 133			Industrial Electricity							
IT 163			Basics of Blueprints an	d Industrial	l Measurer	nents				
IT 223			Principles of HVAC							
	Program/Graduation Requirements									
Total Program Hours12 Hours			Deficie	ncies:						
Hours Cor	nplete	d at	PCCUA							
Hours Tra	nsferre	d								
Total Hours										
Grade Point Average (GPA)										
Adviso (Signatu	r re)				Vice Cha	ncellor/Dean/Chair (Signature)				

(ACTS #)

Semester/Year Courses Last Offered General Technology Fall 2016 – Spring 2019							
Course Number	Course Name	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019
IT 113	Industrial Safety and Sanitation	Х					Х
IT 133	Industrial Electricity				Х		Х
IT 163	Basics of Blueprints & Industrial Measurements						Х
IT 214	Intro to PLC					Х	
IT 223	Principles of HVAC						Х
IT 243	Industrial Fluid Mechanics					Х	
IT 273	Principles of Industrial Machines		Х	Х			
IT 1203	Intro to Manufacturing	Х		Х	Х	Х	Х
IT 1213	Design for Manufacturing		Х			Х	Х
IT 1223	Manufacturing Production Processes			Х	Х	Х	Х
IT 1233	Power and Equipment Systems				Х	Х	Х
IT 1243	Manufacturing Materials						
IT 1273	Design Problem Solving		Х				
RET 103	Introduction to Renewable Energy	Х		Х			
RET 113	Biofuels		Х		Х		
WG 115	Intro to Welding	Х	Х	Х	Х	Х	Х
	ELECTIVES	5					
DR 104	Intro to CAD I				Х		Ī
IT 233	Contemporary Supervision						
IT 253	Automated Production						
IT 263	Inventory Control						
IT 1253	The Manufacturing Enterprise						
IT 1263	Manufacturing Equip. Maint. & Operations						
WG 133	Welding Blueprint Reading			Х			

# Appendix B

- Administrative Procedure 420.02
- Recommended Curriculum Change Form

#### PHILLIPS COMMUNITY COLLEGE ADMINISTRATIVE PROCEDURE

Administrative Procedure: 420.02

Subject: Procedures for Adding and Deleting Courses

Applicable Board Policy: 420

Date Adopted: 6/86

Revised: <u>7/89, 6/04, 10/05</u> Reviewed: <u>5/13</u>

A course is an organized, composite unit of instruction which constitutes a part of a program or curriculum. The concept or origination of a new or revised course may occur from a variety of sources; faculty, administration, professional groups, four-year institutions, or others. Courses may originate and be instituted at any time so long as appropriate review and implementation procedures are followed. These procedures are outlined below for credit courses.

- 1. The dean or department chair, after preliminary discussion with the Vice Chancellor for Instruction, will file a Curriculum Change form with the Faculty Senate for recommendation (approval or disapproval). The form includes:
  - a. Documentation of need for the course;
  - b. The level of the course, (i.e., developmental, introductory, college level, etc.) and its applicability to degree or certificate programs;
  - c. The transferability of the course to four-year institutions;
  - d. The availability of resources (i.e., qualified instructor(s), equipment, special space requirements, etc.);
  - e. The syllabus for the course;
  - f. Scheduling and frequency.
- 2. Recommendations made by the Curriculum Committee will be documented on the Curriculum Change form and forwarded to the Instruction and Curriculum Team for discussion and recommendations made considering the resource implications, possible duplications, college-wide or divisional applications, instructor qualifications, etc.

3. The dean or department chair or the originator will answer questions related to information provided on the Curriculum Change form or other issues related to the addition, modification, or deletion of a course.

NOTE--The Curriculum Change form must be submitted to the Vice Chancellor for Instruction prior to the scheduled meeting date.

- 4. The Instruction and Curriculum Team submits its recommendations and comments to the Vice Chancellor for Instruction.
- 5. The Vice Chancellor for Instruction takes appropriate action.

The following procedures will be followed in considering courses for deletion.

- 1. The dean or department chair, after preliminary discussion with the Vice Chancellor for Instruction, will file a Curriculum Change form with the Curriculum Committee of the Faculty Senate concerning the planned deletion. Recommendations will be submitted to the Instruction and Curriculum Team. The Office of Assessment will refer courses, which have not been taught for three years to the Vice Chancellor for Instruction before recommending deletion.
- 2. After Instruction and Curriculum Team deliberation and recommendation, the Vice Chancellor for Instruction will decide whether to proceed with the recommendation for deletion.
- 3. The Vice Chancellor for Instruction will confer with the Chancellor and take action as necessary based on the Chancellor's decision.

#### PHILLIPS COMMUNITY COLLEGE RECOMMENDED CURRICULUM CHANGE

FROM:	DATE	:	
DEPARTMENT:			
SUBJECT:	ADD	DELETE	MODIFY
COURSE NUMBER TITLE OF COURSE	CREDIT HOURS PREREC	<u>WI</u> QUISITE LECTURE	EEKLY SCHEDULE LAB
COURSE DESCRIPTION (A)			
MODIFY COURSE DESCRIPTION TO RI	EAD (B)		
When a description is to be modified, new description in (B).	please type the e	existing descript	tion in (A), and the
Approved: Departme	ent Chairperson		
ACTIO	N OF CURRICULUM C	COMMITTEE:	
Approved	Not Approved	DATE:	
COMMENTS:			
Chairman, Curriculum Committee			
<ul> <li>Prepare three (3) copies for the Committee</li> <li>(1) Vice President</li> <li>(2) Secretary, Curriculum Committee</li> <li>(3) Chairman, Curriculum Committee</li> </ul>			

# Appendix C

- New Employee Checklist
- Administrative Procedure 364.01

#### **NEW EMPLOYEE ORIENTATION** SUPERVISOR CHECKLIST

SUPERVISOR:	NEW EMPLOYEE:	

DATE ISSUED:\_\_\_\_\_Office #\_\_\_\_\_Phone ext.\_\_\_\_\_

#### To be completed by immediate Supervisor (within first week of hire)

The following is a checklist of information necessary to orient your new employee. Please check off each point you discussed with the employee and return to the personnel office.

Review Job Description       Review Employee Evaluation process         Discuss the department's function at the college, and the importance of customer service       Introduce EE to co-workers & their work responsibilities         Tour the department and campus. Include bathrooms, break rooms and parking areas       Introduce EE to co-workers & their work responsibilities         Ensure that the new employee's working area, equipment, tools and supplies are available       Introduce EE with necessary or required training         Explain levels of supervision within the department       Provide new EE with necessary or required training         Explain use of telephone (personal/college calls), copy machine, copy, mail, & purchasing procedures.       Demonstration         Request access to necessary accounts       Submit requests Demonstrate process         Explain procedures for time off -sick & vacation leave       Demonstrate intranet use.         Explain dress codes to include uniforms if applicable and "cauge apparel is available. Contact R. St. "Columbia       College logo apparel is available. Contact R. St. "Columbia         Discuss avertime pay (see College policy 330/330.01)       If applicable       If applicable on each caugus         Discuss afety and securit/yemergency conditions and response such as: fire, bomb threat procedures, accident injury procedures, inclement weather policy       Emergency procedures are available on each caugus         Follow up on: Email account, Telephone Access/codes       the personnel department.         Smoking Po	<u><u>v</u></u>	NOTES
Review Employee Evaluation process         Interview Employee Evaluation process           Discuss the department's function at the college, and the importance of customer service         Introduce EE to co-workers & their work responsibilities           Tour the department and campus. Include bathrooms, break rooms and parking areas         Introduce EE to co-workers & their work responsibilities           Four the department and campus. Include bathrooms, break rooms and parking areas         Introduce EE to co-workers & their work responsibilities           Ensure that the new employee's working area, equipment, tools and supplies are available         Introduce EE with necessary or required training           Explain use of telephone (personal/college calls), copy machine, copy, mail, & purchasing procedures.         Demonstration           Request access to necessary accounts         Submit requests           Explain procedures for time off -sick & vacation leave         Demonstrate intranet use.           Explain dress codes to include uniforms if applicable and "casual days"         Collumbia           Tiscuss overtime pay (see College policy 330/330.01)         If applicable           Discuss avertime pay (see College policy 330/330.01)         If applicable           Discuss avertime pay (see College policy 330/330.01)         If applicable           Discuss avertime pay (see College policy 330/330.01)         If applicable           Discuss avertime pay (see College policy 330/330.01)         If applicable	Review Job Description	
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Photo ID and Parking Decal       Schedule visit w/ Registrar's Office         Assign Mentor       (indicate name)	Request name badge, business cards, name plate, etc.	Submit on-campus request to St. Columbia
Assign Mentor (indicate name)	Photo ID and Parking Decal	Schedule visit w/ Registrar's Office
	Assign Mentor (indicate name)	

Employee Signature	Date	Supervisor Signature	Date	
Return to Personnel Office				
PERSONNEL OFFICE USE ONLY		Place in personnel file		
Date received:	Ву:			

#### PHILLIPS COMMUNITY COLLEGE ADMINISTRATIVE PROCEDURE

Administrative Procedure: 364.01

Subject: Teaching Load

Applicable Board Policy: 364

Date Adopted: <u>11/88</u>

Revised: 1/92, 12/93, 8/99, 11/02, 7/06, 12/06

#### Course Load Determination Policy

Teaching loads at Phillips Community College are determined by considering both credit hours and student contact hours. Overload pay is awarded where regular teaching loads have been fulfilled and additional class offerings are necessary.

A point system is utilized to determine the point at which teaching loads have been met and overload compensation begins. A full instructional load for all faculty is 30 points per regular semester based upon the following formula:

Total Points = (#credit hrs. taught) + (#contact hrs. taught)

Points are awarded as follows:

- a. one point for each contact hour in the classroom (non-lab courses)
- b. one point for each credit hour taught
- c. six points per semester for student advising
- d. two-thirds point for each laboratory hour
- e. 10 points per semester for each Secondary Center or high school credit class taught five days a week (credit points do not affect the points awarded for instructing high school classes)

Overload compensation is \$250 per point above 30 points in a regular semester. No overloads will be awarded in a given discipline until all faculty within that discipline have a full teaching load. The same class taught both during the day and evening will be assigned the same number of points for load/overload determination. Work hours required to prepare for and teach overload classes will be in addition to the normal working week (see policy on Faculty Work Schedule).

Criteria for assigning overloads are as follows:

a. Once full teaching loads have been made for all faculty in a given discipline, the opportunity to teach overload classes will first be extended to full-time instructors based on seniority in teaching within that specific discipline. In the event of two

equally qualified instructors with the same length of service at PCCUA, the opportunity to teach overload classes will be made on a rotating basis.

- b. No instructor is required to accept an overload; consequently, the offer to teach the class will continue to be extended to qualified faculty within the discipline until the class is staffed.
- c. Overloads for full-time instructors will take precedence over the employment of parttime instructors. Part-time instructors will, however, be employed when full-time staff are not available. The same formula as described above will be used to calculate pay for part-time instructors.
- d. Double overloads will be assigned only in unavoidable situations.
- e. An instructor will normally be required to average at least 45 student contact hours (the number of students x the number of contact hours per week) per class to receive overload pay. In some instances (e.g., to meet students' needs or if lower student/teacher ratios are required by regulatory groups), the college Chancellor may authorize overload pay to an instructor with less than an average of 45 student contact hours per class.
- f. Faculty teaching via compressed video will receive one point for each remote site and one point (\$250) for the first ten students enrolled at each remote site. In addition, they will receive \$25 per student above the first ten students (25 per student starting at the 11th student). This rule does not apply to instructors who team teach courses or who teach courses designed for high school students if those instructors are receiving the daily compensation of 10 points.

# Appendix D

- General Technology Core Competencies
- Assessment Results/Action Plans for IT 1213
- Division and Program Averages Fall 2018-Fall 2019
- Assessment Results Fall 2016-Spring 2019
| General Technology<br>Core Competencies  |   |  |  |  |  |  |  |
|--|---|--|--|--|--|--|--|
| PCCUA Core Competencies  | Applied Technology<br>Core Competencies   | Related Courses  | Assessment<br>Methods  |  |  |  |  |
| <b>Communication Skills</b><br>The interactive process through<br>which there is an exchange of<br>verbal and/or nonverbal<br>information.   | <b>Communication Skills</b><br>Students will demonstrate the<br>ability to communicate effectively in<br>their chosen discipline using visual<br>and oral media | IT 163<br>IT 1213  | Written<br>assignments<br>Classroom and<br>instructor critiques<br>Rubrics |  |  |  |  |
| <b>Cultural Awareness</b><br>Acknowledgement that society is<br>diverse with groups of individuals<br>possessing differing beliefs,<br>values, attitudes, and customs<br>that are shared from one<br>generation to the next. | Cultural Awareness<br>Students will acknowledge the<br>diversity of groups and demonstrate<br>toward ideas from others.   | IT 163   | Written<br>assignments<br>Classroom and<br>instructor critiques<br>Rubrics |  |  |  |  |
| Analytical and Critical Thinking<br>Modes of reasoning including<br>analyzing data, evaluating<br>alternatives, setting priorities,<br>and predicting outcomes.  | <b>Critical Thinking</b><br>Students will demonstrate ability to<br>identify, analyze, and remediate<br>problems critical to their chosen<br>discipline         | IT 113<br>IT 133<br>IT 1233<br>IT 1273   | Written<br>assignments<br>Classroom and<br>instructor critiques<br>Rubrics |  |  |  |  |
| <b>Social and Civic Responsibility</b><br>Behavior that demonstrates   | Social and Civic Responsibility<br>Students will demonstrate<br>knowledge of ethics and legal issues<br>appropriate to their chosen<br>discipline.              | IT 113<br>IT 163<br>IT 213<br>IT 273<br>IT 1203  | Written<br>assignments<br>Classroom and<br>instructor critiques<br>Rubrics |  |  |  |  |
| <b>Technology Utilization</b><br>Use tools of the trade to achieve<br>a specific outcome.  | <b>Technical Skills</b><br>Students will demonstrate ability to<br>perform technical operations to<br>their chosen discipline.                                  | IT 113<br>IT 133<br>IT 213<br>IT 223<br>IT 243<br>IT 1203<br>IT 1213<br>IT 1233<br>IT 1223<br>IT 1223<br>IT 1273 | Written<br>assignments<br>Classroom and<br>instructor critiques<br>Rubrics |  |  |  |  |

Division of App	lied Technology		Instructor:			
Core Competencies			Course Name and #: IT 1203 - Intro		oduction to	
Assessment Re	sults/Action Plan				Manufacturin	ng
Assessment Ne			Semester:		Spring 2019	
			Retention Rate:		87.5% (7 of 8	Students) 1
			Recention Rate.	Retention Rate.		
PCCUA Core	Student Learning	Assessment	Assessment	Æ	Assessment	Action Plan
Competency	Outcome	Method or	Criteria		Results	
		Measurement				
Social and Civic Responsibility	Students will understand the history, significant milestones, and economic impacts of manufacturing	Lab Rubric	70% of the students will score 70% or higher	7 c cc c Av	of 8 students impleted the course work erage Score = 88.6%	No action Necessary
Technology Utilization	Students will be able to use basic hand and power tools to perform simple operations related manufacturing	Written Tests	70% of the students will score 70% or higher	7 c cc c Av	of 8 Students ompleted the course work erage Score = 90%	No action Necessary

General Technology Fall 2019							
Brogram Outcome	Accessment Method (Measurement						
Program Outcome	Assessment Methody Medsurement		Sp 19	Fall 19			
To provide high quality general technology courses/programs to prepare graduates with skills to enter	85% of all General Technology students will achieve the core competencies by scoring 70% or higher on the required course assessment methods.	93	87	93			
the workforce in a mid-level manufacturing position.	85% of AAS students will score 70% or higher in the capstone course.						
Division Outcome	85% of all applied technology students will achieve the core competencies by scoring 70% or higher on the required course assessment methods.	90%	88%	87%			
Student Retention Rates		87%	86%	68%			

## Upon completion of this program, students will be able to:

PCCUA Core Competency	Division Core Competency	Program Goals	Student Learning Outcome – Courses Assessed	Assessment Method/Measurement	Fall 18	Sp 19	Fall 19	ACTION PLANS
Communication	Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media	The interactive process through which there is an exchange of verbal and/or nonverbal information	IT 1213, IT 163	70% of students will score 70% or higher on the communication student learning outcomes for selected courses.	92	82	100	
Cultural Awareness	Students will demonstrate interact with diverse groups of people in their chosen discipline.	Students will acknowledge the diversity of groups and demonstrate toward ideas from others.	IT 163	70% of students will score 70% or higher on the Cultural Awareness student learning outcomes for selected courses.		80		
Social and Civic Responsibility	Students will demonstrate knowledge of ethics and legal issues appropriate to their chosen discipline	Students will demonstrate knowledge of ethics and legal issues appropriate to their chosen discipline.	IT 1203, IT 1273, IT 113, IT 214, IT 273, IT 163	70% of students will score 70% or higher on the Social and Civic Responsibility student learning outcomes for selected courses.	96	93	89	
Analytical & Critical Thinking	Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline	Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline	IT 1233, IT 273, IT 113, IT 133, IT 1273	70% of students will score 70% or higher on the Critical Thinking student learning outcomes for selected courses.	92	85	93	
Technology Utilization	Students will demonstrate ability to perform technical operations to their chosen discipline	Students will demonstrate ability to perform technical operations to their chosen discipline.	IT 163, IT 113, IT 133,IT 223, IT 243, IT 1203, IT 1213, IT 1233, IT 1223, IT 1273, IT 1273	70% of students will score 70% or higher on the Technology Utilization student learning outcomes for selected courses.	91	82	89	

# Division of Applied Technology Core Competencies - Program and Division Averages Fall 2016 - Spring 2019

	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	
Graphic Communications	1 411 2010	2011		2010		2010	
Student Retention Rate	100%	77%	95%	90%	85%	90%	
Communication	65%	100%	50%	100%	100%		
Cultural Awareness	65%	90%	0%	100%	100%	100%	
Social and Civic Responsibility	85%	57%	25%	85%	100%	86%	
Analytical & Critical Thinking	79%	89%	33%	94%	100%	100%	
Technology Utilization	87%	88%	92%	95%	100%	91%	
Program Average	76%	85%	40%	95%	100%	94%	
General Technology							
Core Competencies							
Student Retention Rate	100%	100%	100%	95%	87%	86%	
Communication			100%	89%	92%	82%	
Cultural Awareness						80%	
Social and Civic Responsibility	100%	100%	100%	100%	96%	93%	
Analytical & Critical Thinking			100%	95%	92%	85%	
Technology Utilization	78%	78%	100%	94%	91%	82%	
Program Average	89%	89%	100%	95%	93%	84%	
CDL/Trucking Core Competencies							
Student Retention Rate					70%	85%	
Communication					96%	90%	
Cultural Awareness					88%	80%	
Social and Civic Responsibility					76%	80%	
Analytical & Critical Thinking					77%	77%	
Technology Utilization					80%	84%	
Program Average					83%	82%	
Welding							
Core Competencies							
Student Retention Rate	97%	95%	93%	97%	90%	90%	
Communication	77%		100%				
Cultural Awareness	77%		100%				
Social and Civic Responsibility	90%	100%	88%	100%	95%	96%	
Analytical & Critical Thinking	95%	100%	88%	100%	75%	92%	
Technology Utilization	93%	93%	91%	100%	82%	96%	
Program Average	86%	98%	93%	99%	85%	95%	
Division		Spring		Spring		Spring	
Core Competencies	Fall 2016	2017	Fall 2017	2018	Fall 2018	2019	
Student Retention Rate	99%	91%	96%	94%	83%	88%	
Communication	71%	100%	83%	95%	96%	86%	
Cultural Awareness	71%	90%	50%	100%	94%	87%	
Social and Civic Responsibility	92%	86%	71%	95%	92%	89%	
Analytical & Critical Thinking	87%	96%	74%	96%	86%	89%	
Technology Utilization	86%	90%	94%	96%	88%	88%	
Division Average 84% 91% 78% 96% 90% 88%							
Division Criteria/Expected Outcome 70% of all Applied Technology Students will score 70% or higher on core Competencies							

# Appendix E

- Administrative Procedure 370.05
- Administrative Procedure 420.01

## PHILLIPS COMMUNITY COLLEGE ADMINISTRATIVE PROCEDURE

Administrative Procedure: 370.05

Subject: Faculty Evaluation

Applicable Board Policy: 370

Date Adopted: 4/74

Revised: 8/88, 9/90, 7/99, 8/08

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The performance of all full-time and part-time faculty members will be reviewed annually. The faculty evaluation will be based upon evidence from three sources: (1) a student evaluation of instructional delivery and design skills, (2) a teaching portfolio reviewed by the division dean and a peer review committee, and (3) the dean's evaluation of course management skills. The peer review committee will be composed of one faculty member selected by the instructor from the instructor's division, one faculty member selected by the division dean from the division, and one faculty member from another division selected by the Faculty Development Committee. Evaluation of full-time faculty will be based upon four criteria: teaching, college service, professional development, and community service.

This policy refers to all part-time faculty receiving benefits.

#### PHILLIPS COMMUNITY COLLEGE ADMINISTRATIVE PROCEDURE

Administrative Procedure: 420.01

Subject: Procedures for Adding and Deleting Programs

Applicable Board Policy: 420

Date Adopted: 6/76

Revised: <u>7/89, 10/05</u> Reviewed: <u>5/13</u>

A program is an organized body of instruction made up of individual courses which lead to a certificate or degree. The concept of a new program may originate from various sources: the faculty, the administration, the Board, the community, a particular professional group, or others. Each newly conceived program must be carefully reviewed prior to implementation.

The following process shall be followed in reviewing the merits and possible adoption of a new program.

- 1. The originator will draft a brief (one page) proposal and discuss it with the Vice Chancellor for Instruction. The Vice Chancellor for Instruction shall study and discuss with others as appropriate, shall advise the Chancellor of the proposal and discuss its feasibility.
- 2. If it is anticipated that there would be sufficient demand for the program and resources can be made available, the Vice Chancellor for Instruction will develop a full scale proposal for the program. This proposal must follow the format prescribed by the Department of Higher Education.
- 3. The proposal will then be presented by the dean or department chair to the Instruction and Curriculum Team for review. This team will make its recommendation to the College Council.
- 4. The College Council will review the proposal recommended by the Instruction and Curriculum Team and make a recommendation to approve or disapprove of the proposal.
- 5. Once approved by the College Council, the proposal will be forwarded to the Chancellor who will approve or disapprove the proposal. If approved, the proposal will be presented to the Board for approval.

Administrative Procedure 420.01 (continued)

6. If approved by the Board, the Vice Chancellor for Instruction will make the final identification of resources, a planned implementation date, and submit the proposal to the Department of Higher Education for approval. Throughout this process, the Vice Chancellor for Instruction will make the necessary notifications and liaison calls/visits with the Department of Higher Education.

The following process shall be followed in reviewing the merits and possible deletion of a program.

- 1. Whenever doubt arises about the continuance of a program due to obsolescence, insufficient demand, etc., the Vice Chancellor for Instruction will initially discuss the matter with the dean or department chair.
- 2. The Vice Chancellor for Instruction will discuss the possible program deletion with the Chancellor. At this meeting enrollment history, number of students in the program, personnel implications, and recommended course of action will be presented.
- 3. After these initial discussions and a preliminary consensus, the Vice Chancellor for Instruction will provide a plan for the program termination which should include a time schedule, how students in the program will be accommodated, personnel implications and solutions, disposal of specialized equipment, etc.
- 4. The plan for program termination will be presented to the Instruction and Curriculum Team who will provide comments to the Chancellor.
- 5. The Vice Chancellor for Instruction will present the plan to the College Council for discussion and comments. The program deletion will also be presented to the Chancellor's Cabinet for discussion.
- 6. The Vice Chancellor for Instruction will provide a written recommendation to the Chancellor.
- 7. After reviewing the recommendations of the councils and the Vice Chancellor for Instruction, the Chancellor will decide whether the program is to be discontinued.
- 8. If it is decided to discontinue the program, the Board will be advised and approve or disapprove the deletion.
- 9. The Vice Chancellor for Instruction will notify the Department of Higher Education of the program deletion.

# Appendix F

• Graduate Survey Results

#### APPLIED TECHNOLOGY GRADUATE SURVEY RESULTS FALL 2016 AND SPRING 2017

#### TOTAL GRADUATES (DeWitt – 2; Helena – 17; Stuttgart – 1) Spring – 12; Fall – 8 20 Surveys Received

Survey Items	Very Satisfied	Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Dissatisfied
Courses in Major*	13	6			
Instruction in Major	16	4			
Courses in General Education	15	4	1		
Instruction in General Education	13	7			
Overall Degree	13	7			

Survey Items	Very Much	Somewhat	Very Little	Not Addressed
Managing Time (Day Planner/Calenda r)	11	7	2	
Customer and Co-Worker Relations	15	5		
Computer Skills**	9	8	2	
Oral Communication Skills	12	6	2	
Written Communication Skills	10	6	3	1
Math Reason Computation Skills	10	10		
Understanding Different Cultures	14	3	1	2
Interviewing Job Application Skills	15	4	1	
Self-Confidence	18	2		
Problem Solving Critical Thinking	13	7		

\*One did not answer Courses in your Major Program of Study

\*\*One did not answer Computer Skills

2016-2017 Surveys Received	Graduates
General Technology	0
Graphic Communications	3
Welding (TC)	17
Unknown/Not Marked	0
Total Graduate Surveys	20

## What recommendations would you make to improve our courses or programs?

**Edited Comments:** 

• Do my college work.

**Planning to Transfer:** Yes – 3; No – 15; No response – 2.

Looking for Employment: Yes – 4; No – 16; No response – 0.

# Appendix G

• Syllabi of Discipline Courses



Course Name: Industrial Safety and Sanitation ACTS Name; N/A Course Number: IT-113 ACTS Course Number: N/A Academic Year: Spring 2019 Meeting Time & Place: TI-133 Prerequisites: None Required Laboratories: None Credit Hours: 3

#### **INSTRUCTOR INFORMATION:**

Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

#### **COURSE DESCRIPTION**

This course emphasizes the importance of safety and sanitation in an industrial setting, the design of Industrial Safety Programs and Safety Management. Attention is focused on meeting federal safety regulations, setting up safety programs, etc.

This course is also designed to provide students with an introduction to industrial safety principles, concepts, and practices. Emphasis is placed on industrial safety, OSHA, and environmental safety regulations. Students will demonstrate the ability to clearly articulate safety principles and practices, governmental and regulatory compliance, and environmental safety practices. The primary topics include safety regulations, work environments, OSHA compliance, accident prevention, record keeping, safeguards, facility inspection, communication systems, job safety analysis, environmental health and safety, hazardous materials and materials handling, safety awareness, and emergency response.

#### **EXPECTED LEARNING OUTCOMES**

The Industrial Safety program is intended to provide students with the opportunity to begin a career in the industrial maintenance technology or construction occupations. Safety skills are an integral part of any manufacturing or construction process. The courses will provide the students with exposure to commercial and industrial Safety techniques and practices. This exposure will

provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

#### **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

To help prevent accidents, a safety program must be in place. This curriculum will provide you with the rules and safeguards you need to work safely on any job site. Safety must be incorporated into all phases of the job and involve all employees at every level, including management. Field Safety covers topics such as Hazard Communication, Fall Protection, and Forklift Safety.

#### **CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

#### 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercise good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

#### 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

#### 3) Analytical and Critical Thinking

4) Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

#### 5) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

#### 6) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust

and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

## TEXT AND READING MATERIALS:

Publisher: Pub. Date: Nov 18, 2013 by Pearson. NCCER Field Safety Trainee Guide, 2nd Edition ISBN-10: 0-13-340245-2 ISBN-13: 978-0-13-340245-2

## **GRADING POLICY**

## Papers:

Each student may be required to write a formal, typed paper describing his/her emerging personal philosophy of Industrial Maintenance or Construction. The paper should relate to the student's understanding of Safety Technology as it has developed thus far to the educational theories studied in class.

## Assignments:

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

## Tests:

Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your weekly progress reports will be included as part of your test grade.

## Mid Term Exam:

Your midterm grade will be based on your required work during the semester.

## Final Exam;:

The final exam will be based on your research paper and will count as 40% of your final grade

# Grading Scale

- A-90-100
- B 80-89
- C 70-79
- D 60-69
- F 59 and below

## ATENDANCE POLICY

- 1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.
- 2. Students and their advisors will receive a referral notice on the second and third absence
- 3. On the third absence, the student will also be referred to the Student Success Coordinator

- 4. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.
- 5. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.
- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 8. \*If you know of an impending absence or tardy, please contact your advisor.
- 9. If you miss in excess of three classes you will be dropped from the class.
- 10. If you are more than 10 minutes late for the class you will be counted absent.

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

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## **Course Contents**

## 75201-03 Introduction to Safety Technology

Participants learn the roles and responsibilities of the safety technician. Also discussed are the three levels of accident causation, accident cost impact, safety program components, and government regulatory requirement impact on the construction industry.

## 75202-03 Hazard Recognition, Evaluation, and Control

Participants are taught the techniques used to recognize hazards, unsafe acts, and unsafe conditions on the job site. They also learn to evaluate acceptable job-site risk levels and are introduced to the seven major methods of hazard control.

#### 75203-03 Risk Analysis and Assessment

Focuses on the relationship between human behavior and work-site safety. Participants learn the factors involved in performance analysis and the techniques used to coach and counsel workers with performance problems.

#### 75204-03 Inspections, Audits, and Observations

Introduces participants to the roles and responsibilities of the safety technician with regard to on-site inspections, audits, and observations. Participants learn the purpose of safety inspections and learn to properly conduct safety audits and employee observations.

#### 75205-03 Employee Motivation

Stresses the importance of effectively communicating safety policies and procedures to all employees on the job site. Participants learn to provide employee recognition, discipline, and motivation.

#### 75206-03 Site-Specific ES&H Plans

Environmental Safety and Health (ES&H) plans must be modified to meet job-specific conditions. In this module, participants learn to make these modifications, coordinate implementation of ES&H plans, identify job-specific hazards and requirements using pre-bid checklists, and evaluate hazard risks.

#### 75207-03 Emergency Action Plans

This module focuses on the basics of emergency action plans and media communications.

#### 75208-03 JSAs and TSAs

Covers the purposes of and differences between job safety analyses and task safety analyses. Participants learn to properly conduct safety analyses.

#### 75209-03 Safety Orientation and Training

The basics of safety training program coordination are covered in this module. Participants learn to effectively implement safety training.

#### 75210-03 Work Permit Policies

Focuses on the roles and responsibilities of the safety technician with regard to work permit policies. Participants learn about safety technicians' permit-related roles in hot work, confined-space work, excavation work, electrical hot work, and lockout/tagout procedures.

#### 75211-03 Confined-Space Entry Procedures

Stressing the safety requirements of confined-space work, this module covers related permit, entry, emergency, and rescue procedures. Participants also learn the main types of atmospheric hazards and the procedures used for testing for them in confined spaces.

#### 75212-03 Safety Meetings

Participants learn to effectively communicate safety issues and concerns to workers through safety meetings. Also covered are methods for using safety meetings to implement corrective actions to unsafe practices and behavior.

#### 75213-03 Accident Investigation: Policies and Procedures

Participants learn the connection between accident investigation and accident prevention in this module. Also covered are the purposes and uses of accident investigations. Participants learn to properly conduct accident investigation interviews and fill out related forms.

#### 75214-03 Accident Investigation: Data Analysis

Expands on the concept of accident investigation as a preventative tool. Participants study and practice the methods commonly used for performing accident investigation data analysis in this module.

## 75215-03 Recordkeeping

Accurate recordkeeping is essential for OSHA compliance. Participants learn to follow OSHA recordkeeping requirements, and to properly document work-related illnesses and injuries using the appropriate OSHA forms.

#### 75216-03 OSHA Inspection Procedures

Focusing on the safety technician's role during OSHA inspections, this module covers the process and purpose of OSHA site inspections. Participants learn the difference between focused and wall-to-wall inspections, the appropriate follow-up actions resulting from an inspection, and the consequences of OSHA citations, violations, and fines.

## 75217-03 ES&H Data Tracking and Trending

Participants learn the traditional and proactive methods of measuring safety performance. They learn to analyze data to identify safety program strengths and isolate areas needing improvement.

## 75218-03 Environmental Awareness

Minimizing hazardous-waste production and preventing water and soil contamination are covered in this module. Participants learn about the training and medical surveillance requirements for personnel working with materials such as hazardous waste, lead, asbestos, and silica. Also covered are the primary types of environmental problems and the hazardouswaste shipping requirements common on a construction site.

## Syllabus Receipt

#### IT-113 Industrial Safety and Sanitation

#### Spring 2019

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name		
Date		
Class		
Email		
Phone		



Course Name: Industrial Electricity ACTS Name; N/A Course Number: IT-133 ACTS Course Number: N/A Academic Year: Spring 2019 Meeting Time & Place: TI-133 Prerequisites: None Required Laboratories: None Credit Hours: 3

Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

**INSTRUCTOR INFORMATION:** 

#### **COURSE DESCRIPTION**

This course provides an introduction to the principles of both AC and DC electrical circuits. Emphasis is placed on industrial applications involving electric motors, controls and instrumentation.

#### **EXPECTED LEARNING OUTCOMES**

The Industrial Electrical program is intended to provide students with the opportunity to begin a career in the industrial electrical maintenance technology occupation. The courses will provide the students with exposure to commercial and industrial electrical techniques and practices. This exposure will provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

#### **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

This program will help students gain the skills and knowledge necessary to install, maintain and troubleshoot a variety of electrical systems. These include residential wiring, commercial/industrial wiring and cabling, National Electric Code, troubleshooting and

maintenance, motor controls and programmable logic control. The program gives students

theory and "hands-on" practical experience related to all aspects of this occupation. Successful students will gain experience in basic electricity, proper use of tools and test equipment, industrial and commercial installations, the National Electric Code and electrical maintenance and repair.

#### CORE COMPETENCIES

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

#### 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercises good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

#### 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

#### 3) Analytical and Critical Thinking

Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

#### 4) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

#### 5) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust

and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

#### TEXT AND READING MATERIALS:

Publisher: NCCER Electricity Electrical Level 1 Trainee Guide (9th Edition) ISBN-13: 978-0133829594 ISBN-10: 0133829596

#### **GRADING POLICY**

#### Papers:

Each student may be required to write a formal, typed paper describing his/her emerging personal philosophy of Industrial electricity. The paper should relate to the student's understanding of electrical maintenance technology as it has developed thus far to the educational theories studied in class.

#### Assignments:

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

#### Tests:

Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your weekly progress reports will be included as part of your test grade.

#### Mid Term Exam:

Your midterm grade will be based on your required work during the semester.

#### Final Exam:

The final exam will be based on your research paper and will count as 40% of your final grade

#### **Grading Scale**

- A 90-100 B – 80-89
- C 70-79
- D 60-69
- F 59 and below

## ATENDANCE POLICY

- 1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.
- 2. Students and their advisors will receive a referral notice on the second and third absence
- 3. On the third absence, the student will also be referred to the Student Success Coordinator
- 4. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.
- 5. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.
- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 8. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means.
- 9. If you miss in excess of three classes you will be dropped from the class.
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## Orientation to the Electrical Trade (Module ID 26101-14)

This module describes the different sectors in the electrical trade, and the types of work and work environments electricians would find in the field. It covers apprenticeship, training programs, and career opportunities. The responsibilities and characteristics a worker should possess are also described.

## Objectives

Upon completion of this module, the trainee will be able to do the following:

- 1. Describe the apprenticeship/training process for electricians.
- 2. Describe various career paths/opportunities one might follow in the electrical trade.
- 3. Define the various sectors of the electrical industry.
- 4. State the tasks typically performed by an electrician.
- 5. Explain the responsibilities and aptitudes of an electrician.

## Electrical Safety (Module ID 26102-14)

This module introduces the trainees to the safety rules and regulations for electricians, including the necessary precautions for avoiding various job site hazards.

## Objectives

Upon completion of this module, the trainee will be able to do the following:

- 1. Recognize safe working practices in the construction environment.
- 2. Explain the purpose of OSHA and how it promotes safety on the job.
- 3. Identify electrical hazards and how to avoid or minimize them in the workplace.

4. Explain electrical safety issues concerning lockout/tag-out procedures, confined space entry, respiratory protection, and fall protection systems.

5. Develop a task plan and a hazard assessment for a given task and select the appropriate PPE and work methods to safely perform the task.

## Introduction to Electrical Circuits (Module ID 26103-14)

This module introduces the trainee to electrical circuits. It offers a general introduction to electrical concepts used in Ohm's law. It includes atomic theory, electromagnetic force, resistance, and electric power equations. It also covers series, parallel, and series-parallel circuits.

## Objectives

Upon completion of this module, the trainee will be able to do the following:

- 1. Define voltage and identify the ways in which it can be produced.
- 2. Explain the difference between conductors and insulators.
- 3. Define the units of measurement that are used to measure the properties of electricity.
- 4. Identify the meters used to measure voltage, current, and resistance.
- 5. Explain the basic characteristics of series and parallel circuits.

#### Electrical Theory (Module ID 26104-14)

Introduces series, parallel, and series-parallel circuits. Covers resistive circuits, Kirchhoff's voltage and current laws, and circuit analysis.

## Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Explain the basic characteristics of combination circuits.

2. Calculate, using Kirchhoff's voltage law, the voltage drop in series, parallel, and series-parallel circuits.

3. Calculate, using Kirchhoff's current law, the total current in parallel and series-parallel circuits.

4. Using Ohm's law, find the unknown parameters in series, parallel, and series-parallel circuits.

## Introduction to the National Electrical Code® (Module ID 26105-14)

Provides a road map for using the NEC<sup>®</sup>. Introduces the layout and the types of information found within the code book. Allows trainees to practice finding information using an easy-to-follow procedure.

## Objectives

Upon completion of this module, the trainee will be able to do the following:

- 1. Explain the purpose and history of the NEC<sup>®</sup>.
- 2. Describe the layout of the NEC<sup>®</sup>.
- 3. Demonstrate how to navigate the NEC<sup>®</sup>.
- 4. Describe the purpose of the National Electrical Manufacturers Association and the NFPA.
- 5. Explain the role of nationally recognized testing laboratories.

## Device Boxes (Module ID 26106-14)

Covers the hardware and systems used by an electrician to mount and support boxes, receptacles, and other electrical components. Also covers NEC<sup>®</sup> fill and pull requirements for device, pull, and junction boxes under 100 cubic inches. **Objectives** 

Upon completion of this module, the trainee will be able to do the following:

- 1. Describe the different types of nonmetallic and metallic boxes.
- 2. Calculate the NEC<sup>®</sup> fill requirements for boxes under 100 cubic inches.
- 3. Identify the appropriate box type and size for a given application.
- 4. Select and demonstrate the appropriate method for mounting a given box.

## Hand Bending (Module ID 26107-14)

Introduces conduit bending and installation. Covers the techniques for using hand-operated and step conduit benders, as well as cutting, reaming, and threading conduit.

## Objectives

Upon completion of this module, the trainee will be able to do the following:

- 1. Identify the methods for hand bending and installing conduit.
- 2. Determine conduit bends.
- 3. Make 90° bends, back-to-back bends, offsets, kicks, and saddle bends using a hand bender.

4. Cut, ream, and thread conduit.

# **Raceways and Fittings**

# (Module ID 26108-14)

Introduces the types and applications of raceways, wireways, and ducts. Stresses the appropriate NEC<sup>®</sup> requirements.

# Objectives

Upon completion of this module, the trainee will be able to do the following:

- 1. Identify and select various types and sizes of raceways and fittings for a given application.
- 2. Identify various methods used to fabricate (join) and install raceway systems.
- 3. Identify uses permitted for selected raceways.
- 4. Demonstrate how to install a flexible raceway system.
- 5. Terminate a selected raceway system.
- 6. Identify the appropriate conduit body for a given application.

# Conductors and Cables (Module ID 26109-14)

Focuses on the types and applications of conductors and covers proper wiring techniques. Stresses the appropriate NEC<sup>®</sup> requirements.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. From the cable markings, describe the insulation and jacket material, conductor size and type, number of conductors, temperature rating, voltage rating, and permitted uses.

2. Determine the allowable ampacity of a conductor for a given application.

- 3. Identify the NEC<sup>®</sup> requirements for color coding of conductors.
- 4. Install conductors in a raceway system.

# **Basic Electrical Construction Drawings**

# (Module ID 26110-14)

Describes electrical prints, drawings, and symbols, and the types of information that can be found on schematics, one-lines, and wiring diagrams.

# **Objectives**

Upon completion of this module, the trainee will be able to do the following:

- 1. Explain the basic layout of a set of construction drawings.
- 2. Describe the information included in the title block of a construction drawing.
- 3. Identify the types of lines used on construction drawings.
- 4. Using an architect's scale, state the actual dimensions of a given drawing component.
- 5. Interpret electrical drawings, including site plans, floor plans, and detail drawings.
- 6. Interpret equipment schedules found on electrical drawings.
- 7. Describe the type of information included in electrical specifications.

# <u>Residential Electrical Services</u> (Module ID 26111-14)

Covers the electrical devices and wiring techniques common to residential construction and maintenance. Allows trainees to practice making service calculations. Stresses the appropriate NEC<sup>®</sup> requirements.

# Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Explain the role of the National Electrical Code<sup>®</sup> in residential wiring and describe how to determine electric service requirements for dwellings.

2. Explain the grounding requirements of a residential electric service.

3. Calculate and select service-entrance equipment.

4. Select the proper wiring methods for various types of residences.

5. Compute branch circuit loads and explain their installation requirements.

6. Explain the types and purposes of equipment grounding conductors.

7. Explain the purpose of ground fault circuit interrupters and tell where they must be installed.

8. Size outlet boxes and select the proper type for different wiring methods.

9. Describe rules for installing electric space heating and HVAC equipment.

10. Describe the installation rules for electrical systems around swimming pools, spas, and hot tubs.

11. Explain how wiring devices are selected and installed.

12. Describe the installation and control of lighting fixtures.

# Electrical Test Equipment (Module ID 26112-14)

Covers proper selection, inspection, and use of common electrical test equipment, including voltage testers, clamp-on ammeters, ohmmeters, multimeters, phase/motor rotation testers, and data recording equipment. Also covers safety precautions and meter category ratings.

# Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Explain the operations of and describe the following pieces of test equipment:

- Voltmeter
- Ohmmeter

- Clamp-on ammeter
- Multimeter
- Megohmmeter
- Motor and phase rotation testers
- 2. Select the appropriate meter for a given work environment based on category ratings.
- 3. Identify the safety hazards associated with the various types of test equipment.

#### **Syllabus Receipt**

#### **IT-133 Industrial Electricity**

Spring 2019

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name_	 	 
Date	 	 
Class _		
Email _	 	
Phone_		



**Course Name:** Basics of Blueprints & Industrial Measurements

ACTS Name; N/A Course Number: IT 163 ACTS Course Number: N/A Academic Year: Spring 2019 Meeting Time & Place: TI-133 Prerequisites: None Required Laboratories: None Credit Hours: 3 Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

INSTRUCTOR INFORMATION:

# **COURSE DESCRIPTION**

This course covers the basic concepts and symbols of industrial blueprints. Students will also study and apply measurements in the metric and standard systems using conventional devices such as tape measures, decimal rules, micrometers, dial calipers and protractors. Some basic mathematical calculations common to industry will be explored and practiced.

#### **EXPECTED LEARNING OUTCOMES**

The Blueprint reading program is intended to provide students with the opportunity to begin a career in the industrial maintenance or construction technology occupation. The courses will provide the students with exposure to commercial and industrial blueprint reading techniques and practices. This exposure will provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

**COURSE OVERVIEW**: Upon completing this nonresident training course, you should understand the basics of blueprint reading including projections and views, technical sketching, and the use of blueprints

in the construction of machines, piping, electrical and electronic systems, architecture, structural steel, and sheet metal.

### **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

This program will help students gain the skills and knowledge necessary to install, maintain and troubleshoot a variety of mechanical, plumbing and electrical systems. These include residential, commercial/industrial, cabling, trouble-shooting and maintenance of equipment, motor controls and programmable logic control and structural systems. The program gives students theory and some "hands-on" practical experience related to all aspects of these occupations.

#### **CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

### 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercises good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

### 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

#### 3) Analytical and Critical Thinking

4) Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

#### 5) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

#### 6) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

#### **TEXT AND READING MATERIALS:**

Blueprint Reading for the Construction Trades Peter Mann ISBN-13978-0—9688353-6-4

### **GRADING POLICY**

### Papers:

Each student may be required to write a formal, typed paper describing his/her emerging personal philosophy of Blueprint reading. The paper should relate to the student's understanding of mechanical maintenance technology as it has developed thus far to the educational theories studied in class.

### Assignments:

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

# Tests:

Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your weekly progress reports will be included as part of your test grade.

# Mid Term Exam;

Your midterm grade will be based on your required work during the semester.

# Final Exam:

The final exam will be based on your research paper and will count as 40% of your final grade

#### **Grading Scale**

A – 90-100 B – 80-89 C – 70-79 D – 60-69 F – 59 and below

#### ATENDANCE POLICY

1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.

- 2. Students and their advisors will receive a referral notice on the second and third absence
- 3. On the third absence, the student will also be referred to the Student Success Coordinator
- 4. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.
- 5. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.
- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 8. \*If you know of an impending absence or tardy, please contact your advisor.
- 9. If you miss in excess of three classes you will be dropped from the class.
- 10. If you are more than 10 minutes late for the class you will be counted absent.

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

#### MISSED OR LATE ASSIGNMENTS AND EXAMS

Contact the instructor in the event an assignment will not be completed in the allotted time.

#### ACADEMIC HONESTY POLICY

Academic dishonesty involves acts that may subvert or compromise the integrity of the educational process of Phillips Community College of the University of Arkansas. Included is an act by which a student gains or attempts to gain an academic advantage for himself or herself or another by misrepresenting his or her or another's work or by interfering with the completion, submission, or evaluation of work. These include, but are not limited to, accomplishing or attempting any of the following acts:

- 1. Altering of grades or official records.
- 2. Using any materials that are not authorized by the instructor for use during an examination.
- 3. Copying from another student's paper during an examination.
- 4. Collaborating during an examination with any other person by giving or receiving information without specific permission of the instructor.
- 5. Stealing, buying, or otherwise obtaining information about an un-administered examination.
- 6. Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
- 7. Substituting for another person or permitting any other person to substitute for oneself to take an examination.
- 8. Submitting as one's own any theme, report, term paper, essay, computer program, other written work, speech, painting, drawing, sculpture, or other art work prepared totally or in part by another.
- 9. Submitting, without specific permission of the instructor, work that has been previously offered for credit in another course.
- 10. **Plagiarizing,** that is, the offering as one's own work the words, ideas, or arguments of another person without appropriate attribution by quotation, reference, or footnote. Plagiarism occurs both when the words of another are reproduced without acknowledgement and when the ideas or arguments of another are paraphrased in such a way as to lead the reader to believe that they originated with the

writer. It is the responsibility of all College students to understand the methods of proper attribution and to apply those principles in all materials submitted.

- 11. Sabotaging of another student's work.
- 12. Falsifying or committing forgery on any University form or document.
- 13. Submitting altered or falsified data as experimental data from laboratory projects, survey research, or other field research.
- 14. Committing any willful act of dishonesty that interferes with the operation of the academic process.
- 15. Facilitating or aiding in any act of academic dishonesty

#### PARTICIPATION

Guidelines for class participation will be designed and controlled by the instructor or negotiated with your students. By asking for their input, the instructor will give students a sense of ownership that can help them take the guidelines more seriously. The following guidelines will be strictly adhered to which will promote an atmosphere of mutual respect and collective inquiry.

- 1. Respect others' rights to hold opinions and beliefs that differ from your own. Challenge or criticize the idea, not the person.
- 1. Listen carefully to what others are saying even when you disagree with what is being said. Comments that you make (asking for clarification, sharing critiques, expanding on a point, etc.) should reflect that you have paid attention to the speaker's comments.
- 2. Be courteous. Don't interrupt or engage in private conversations while others are speaking.
- Support your statements. Use evidence and provide a rationale for your points
- 4. Allow everyone the chance to talk. If you have much to say, try to hold back a bit; if you are hesitant to speak, look for opportunities to contribute to the discussion.
- 5. If you are offended by something or think someone else might be, speak up and don't leave it for someone else to have to respond to it.
- All students are expected to participate in all class activities. NO EXCEPTIONS

# **Electronic Devices:**

Cell phones, laptops, I-Pads, Kindles, and other electronic devices must be turned off and put away during class. Anyone who is observed text messaging or using an electronic device during class could be asked to drop the course.

Note; this is a college class where college rules apply. If college rules are not adhered to during the semester you will be dropped from the college rolls.

# **COURSE EVALUATION & ASSESSMENT**

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

### EARLY ASSESSMENT OF LEARNING MEASURE

An assessment of the students' progress will be evaluated prior the fourth of class. The assessments will include but not limited to; testing results, participation, lab activities, attendance and note taking.

### INTERVENTION BASED ON EARLY ASSESSMENT OUTCOME

If the student is not performing to his/her required levels, they be referred to their advisor for further recommendations or help such as tottering.

### **MISSED OR LATE ASSIGNMENTS AND EXAMS**

Contact the instructor in the event an assignment will not be completed in the allotted time.

#### **STUDENT RESPONSIBILITIES**

Punctuality is expected. Classes will begin at the time designated by the college. <u>After class attendance has</u> been taken, your late arrival to class can be considered an absence. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines. All students are expected to complete all assignments. No exceptions! Not in chair they are absent.

#### SUPPORT FOR LEARNING

Students will be assessed for learning outcomes by the fourth week of classes. In this course students have several options to assist with learning course material. Any student not having a passing grade or have excessive absences will be referred to their college advisor or college support services.

# ACADEMIC HONESTY POLICY

<u>Plagiarism is strictly forbidden!</u> Plagiarizing, that is, the offering as one's own work the words, ideas, or arguments of another person without appropriate attribution by quotation, reference, or footnote. Plagiarism occurs both when the words of another are reproduced without acknowledgement and when the ideas or arguments of another are paraphrased in such a way as to lead the reader to believe that they originated with the writer. It is the responsibility of all College students to understand the methods of proper attribution and to apply those principles in all materials submitted.

# LABORATORY PROCEDURES:

- 1. No food or drink allowed in the classroom and/or lab.
- 2. <u>Absolutely no rude attitudes or behavior</u>. Please refer to the student discipline policies.
- 3. Come in prepared and ready to work
- 4. <u>NO</u>horseplay allowed under any circumstances!!
- 5. <u>No Cell Phones.</u> **NO EXCEPTIONS!** Absolutely NO phone conversations or text messaging during class. No wireless headset devices allowed during class.

- 6. No personal cds, **NO** music devices, No cell phones are allowed in the lab without authorization of the instructor.
- 7. <u>All</u> internet use must be approved by instructor. Please refer to the Internet Acceptable Usage Policy.
- 8. The academic honesty policy must strictly be adhered to.
- 9. Students in all lab activities are required to wear the required personal protective equipment.

#### **CAMPUS SUPPORT SERVICES**

Phillips Community College of the University of Arkansas provides student support services that assist students in achieving their educational objective. Those services include advising, financial aid, counseling and guidance, and safety and security.

#### **ADA POLICY:**

Scott Post is the Vice Chancellor for Student Services and serves as the ADA Compliance Officer. As an open enrollment college, PCCUA strives to meet the needs of students with self- disclosed disabilities who wish to advance their education. A student with a disability must meet with the campus Disabilities Coordinator to obtain reasonable accommodations. Students who have met with the Coordinator are more likely to experience success in a positive learning environment. If you have a disability please contact the Student Disabilities Coordinator for your campus.

- DeWitt-Phyllis Fullerton (870) 946-3506 ext. 1610
- Helena-George White (870) 338-6474 ext. 1135
- Stuttgart-Sylvia Boyd (870) 673-4201 ext. 1809

The process of student referral under the Americans with Disabilities Act can be found in the Student Handbook OR ON THE College Web site at <a href="http://www.pccua.edu/students/students-students-with-disabilities/">http://www.pccua.edu/students/students/students/</a>

#### **FERPA POLICY**

Phillips Community College of the University of Arkansas complies with the Family Educational Rights and Privacy Act (FERPA) of 1974. A student has the right to inspect and review all of his/her records that meet the definition of educational records. No third party has the right to review student records without the student's permission, with very limited exceptions. For more information contact the Registrar's Office.

#### **INSURANCE**

Phillips Community College of the University of Arkansas does not provide insurance for its students. The college does encourage each student to secure his/her own insurance, and for that reason, the college has contacted an insurance agency to assist any student with individual student insurance coverage. Forms for this insurance are available in the Registrar's office.

# ACTS

The Arkansas Course Transfer System (ACTS) contains information about the transferability of courses within Arkansas Public Colleges and universities. Students are guaranteed the transfer of applicable credits and the equitable treatment in the application of credits for the admission and degree requirements. Course transferability is not guaranteed for courses listed in ACTS as "No Comparable Course." Additionally, courses with a "D" frequently do not transfer and institutional policies may vary. ACTS may be accessed on the Internet by going to the ADHE Website and selecting Course Transfer. http://www.adhe.edu/divisions/academicaffairs/Pages/aa\_acts.aspx

The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

# CHAPTER PAGE

- Blueprint Reading ......1-1 When you have read and understood this chapter, you should be able to answer the following learning objectives:
  - a. Describe blueprints and how they are produced.
  - b. Identify the information contained in blueprints.
  - c. Explain the proper filing of blueprints
- 2. Technical Sketching......2-1 When you have read and understood this chapter, you should be able to answer the following learning objectives:
  - a. Describe the instruments used in technical sketching.
  - b. Describe the types of lines used in technical sketching.
  - c. Explain basic computer-aided drafting (CAD).
  - d. Explain computer numerical control (CNC) design techniques used in machining.
- - a. Describe the types of projections.
  - b. Describe the types of views.
- - a. Describe basic machine drawings.
  - b. Describe the types of machine threads.
  - c. Describe gear and helical spring nomenclature.
  - d. Explain the use of finish marks on drawings.

- a. Interpret piping blueprints.
- b. Identify shipboard hydraulic and plumbing blueprints.
- - a. Describe shipboard electrical and electronics prints.
  - b. Describe aircraft electrical and electronics prints.
  - c. Explain basic logic diagrams on blueprints.

This chapter is divided into two parts: electrical prints and electronics prints. Each part deals with the use of prints on ships and aircraft.

- - a. Describe the elements of architectural drawings.
  - b. Describe the elements of structural steel drawings.
  - c. Identify various types of construction drawings.
- - a. Describe sheet metal developments.
  - b. Explain the differences among parallel, radial, and triangulation developments.

#### **Syllabus Receipt**

#### IT-163 Basics of Blueprints and Industrial Measurements

#### Spring 2019

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name	
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Date\_\_\_\_\_

Class	

Email \_\_\_\_\_

Phone\_\_\_\_\_



**Course Name:** Introduction to Programmable Logic Controllers

ACTS Name; N/A

Course Number: IT-214

ACTS Course Number: N/A

Academic Year: Fall 2018

Meeting Time & Place: TI-133

Prerequisites: None

Required Laboratories: None

Credit Hours: 3

**INSTRUCTOR INFORMATION:** 

Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

# **COURSE DESCRIPTION**

This course will provide students with the information required to begin using state-of-the-art programmable controllers. Students will cover information on programmable controller terminology, operation, and basic program entry, coupled with hands-on lab experience to reinforce learning. Allen-Bradley's programmable controllers are used in hands-on activities for demonstration.

#### **EXPECTED LEARNING OUTCOMES**

The Industrial Maintenance program is intended to provide students with the opportunity to begin a career in the industrial maintenance technology's occupation. Programmable Logic Controller (PLC) skills are an integral part of any manufacturing process. The courses will provide the students with exposure to commercial and industrial PLC practices. This exposure will provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

# **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

This program will help students gain the skills and knowledge necessary to install, maintain and troubleshoot a variety of PLC systems. These include Inputs, Outputs, Communication, troubleshooting and maintenance of PLC equipment. The program gives students theory and "hands-on" practical experience related to most aspects of this occupation.

#### **CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

# 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercises good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

# 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

# 3) Analytical and Critical Thinking

Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

# 4) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

# 5) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

# TEXT AND READING MATERIALS:

Publisher: Material will be supplied by the instructor through software and internet resources. It is recommended but not required, the student purchase LogixPro 500 PLC Software. This software is very reasonably priced at \$35. The link to this material is; http://thelearningpit.com/lp/logixpro.html.

The link to the PLC Instruction Set Reference is;

<u>http://thelearningpit.com/plc/psim/doc/instructions.html, i</u>t is very important you be familiar with these instructions.

# **GRADING POLICY**

# Papers:

Each student may be required to write a formal, typed paper describing his/her emerging personal philosophy of Industrial Maintenance. The paper should relate to the student's understanding of Industrial maintenance technology as it has developed thus far to the educational theories studied in class.

# Assignments:

Updates on all assignment will be due at the end of class each class period. Weekly updates on your research paper are expected. Links to several of your assignments are listed below;

http://thelearningpit.com/plc/psim/doc/logiclab.html http://thelearningpit.com/plc/psim/doc/silolab.html http://thelearningpit.com/plc/psim/doc/trafficlab.html http://thelearningpit.com/plc/psim/doc/batchlab.html

# Tests:

Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your progress reports will be included as part of your test grade.

# Mid Term Exam;

Your midterm grade will be based on your required work during the semester.

# Final Exam;

The final exam will be based on your research paper and will count as 40% of your final grade

# **Grading Scale**

- A 90-100
- B 80-89
- C 70-79
- D 60-69
- F 59 and below

# ATENDANCE POLICY

- 1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.
- 2. This course will consist of intensive instruction in industrial maintenance and construction principles. Due to the extensive amount of subject matter covered per day, class attendance and punctuality are necessary *and expected* of all students. Only three (3) absences will be allowed in this program. On the forth absent, the student will be dropped from the class.
- 3. Students and their advisors will receive a referral notice on the second and third absence
- 4. On the third absence, the student will also be referred to the Student Success Coordinator

- 5. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.
- 6. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.
- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.

\*If you know of an impending absence or tardy, please contact the instructor by one of the following means.

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

# MISSED OR LATE ASSIGNMENTS AND EXAMS

Contact the instructor in the event an assignment will not be completed in the allotted time.

# ACADEMIC HONESTY POLICY

Academic dishonesty involves acts that may subvert or compromise the integrity of the educational process of Phillips Community College of the University of Arkansas. Included is an act by which a student gains or attempts to gain an academic advantage for himself or herself or another by misrepresenting his or her or another's work or by interfering with the completion, submission, or evaluation of work. These include, but are not limited to, accomplishing or attempting any of the following acts:

- 1. Altering of grades or official records.
- 2. Using any materials that are not authorized by the instructor for use during an examination.
- 3. Copying from another student's paper during an examination.
- 4. Collaborating during an examination with any other person by giving or receiving information without specific permission of the instructor.
- 5. Stealing, buying, or otherwise obtaining information about an un-administered examination.
- 6. Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
- 7. Substituting for another person or permitting any other person to substitute for oneself to take an examination.
- 8. Submitting as one's own any theme, report, term paper, essay, computer program, other written work, speech, painting, drawing, sculpture, or other art work prepared totally or in part by another.
- 9. Submitting, without specific permission of the instructor, work that has been previously offered for credit in another course.
- 10. **Plagiarizing,** that is, the offering as one's own work the words, ideas, or arguments of another person without appropriate attribution by quotation, reference, or footnote. Plagiarism

occurs both when the words of another are reproduced without acknowledgement and when the ideas or arguments of another are paraphrased in such a way as to lead the reader to believe that they originated with the writer. It is the responsibility of all College students to understand the methods of proper attribution and to apply those principles in all materials submitted.

- 11. Sabotaging of another student's work.
- 12. Falsifying or committing forgery on any University form or document.
- 13. Submitting altered or falsified data as experimental data from laboratory projects, survey research, or other field research.
- 14. Committing any willful act of dishonesty that interferes with the operation of the academic process.
- 15. Facilitating or aiding in any act of academic dishonesty

# PARTICIPATION

Guidelines for class participation will be designed and controlled by the instructor or negotiated with your students. By asking for their input, the instructor will give students a sense of ownership that can help them take the guidelines more seriously. The following guidelines will be strictly adhered to which will promote an atmosphere of mutual respect and collective inquiry.

- 1. Respect others' rights to hold opinions and beliefs that differ from your own. Challenge or criticize the idea, not the person.
- 2. Listen carefully to what others are saying even when you disagree with what is being said. Comments that you make (asking for clarification, sharing critiques, expanding on a point, etc.) should reflect that you have paid attention to the speaker's comments.
- 3. Be courteous. Don't interrupt or engage in private conversations while others are speaking.
- 4. Support your statements. Use evidence and provide a rationale for your points
- 5. Allow everyone the chance to talk. If you have much to say, try to hold back a bit; if you are hesitant to speak, look for opportunities to contribute to the discussion.
- 6. If you are offended by something or think someone else might be, speak up and don't leave it for someone else to have to respond to it.
- 7. All students are expected to participate in all class activities. NO EXCEPTIONS.

# **Electronic Devices:**

Cell phones, laptops, I-Pads, Kindles, and other electronic devices must be turned off and put away during class. Anyone who is observed text messaging or using an electronic device during class could be asked to drop the course.

Note; this is a college class where college rules apply. If college rules are not adhered to during the semester you will be dropped from the college rolls.

# **COURSE EVALUATION & ASSESSMENT**

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

#### EARLY ASSESSMENT OF LEARNING MEASURE

An assessment of the students' progress will be evaluated prior the fourth of class. The assessments will include but not limited to; testing results, participation, lab activities, attendance and note taking.

### INTERVENTION BASED ON EARLY ASSESSMENT OUTCOME

If the student is not performing to his/her required levels, they be referred to their advisor for further recommendations or help such as tottering.

### **MISSED OR LATE ASSIGNMENTS AND EXAMS**

Contact the instructor in the event an assignment will not be completed in the allotted time.

### **STUDENT RESPONSIBILITIES**

Punctuality is expected. Classes will begin at the time designated by the college. <u>After class attendance has been</u> <u>taken, your arrival to class can be considered an absence. You are responsible for making up any assignment</u> <u>missed during your absence</u>. An absence does not release you from your assignment or their deadlines. All students are expected to complete all assignments. No exceptions! Not in chair they are absent.

### SUPPORT FOR LEARNING

Students will be assessed for learning outcomes by the fourth week of classes. In this course students have several options to assist with learning course material. Any student not having a passing grade or have excessive absences will be referred to their college advisor or college support services.

#### ACADEMIC HONESTY POLICY

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#### LABORATORY PROCEDURES:

- 1. No food or drink allowed in the classroom and/or lab.
- 2. <u>Absolutely no rude attitudes or behavior</u>. Please refer to the student discipline policies.
- 3. Come in prepared and ready to work
- 4. <u>NO horseplay allowed under any circumstances!</u>!
- 5. <u>No Cell Phones.</u> **NO EXCEPTIONS!** Absolutely NO phone conversations or text messaging during class. No wireless headset devices allowed during class.
- 6. No personal cds, **NO** music devices, No cell phones are allowed in the lab without authorization of the instructor.
- 7. <u>All</u> internet use must be approved by instructor. Please refer to the Internet Acceptable Usage Policy.

- 8. The academic honesty policy must strictly be adhered to.
- 9. Students in all lab activities are required to wear the required personal protective equipment.

### **CAMPUS SUPPORT SERVICES**

Phillips Community College of the University of Arkansas provides student support services that assist students in achieving their educational objective. Those services include advising, financial aid, counseling and guidance, and safety and security.

# ADA POLICY:

Scott Post is the Vice Chancellor for Student Services and serves as the ADA Compliance Officer. As an open enrollment college, PCCUA strives to meet the needs of students with self- disclosed disabilities who wish to advance their education. A student with a disability must meet with the campus Disabilities Coordinator to obtain reasonable accommodations. Students who have met with the Coordinator are more likely to experience success in a positive learning environment. If you have a disability please contact the Student Disabilities Coordinator for your campus.

- DeWitt-Phyllis Fullerton (870) 946-3506 ext. 1610
- Helena-George White (870) 338-6474 ext. 1135
- Stuttgart-Sylvia Boyd (870) 673-4201 ext. 1809

The process of student referral under the Americans with Disabilities Act can be found in the Student Handbook or on the College web site at <a href="http://www.pccua.edu/students/student-assistance/students-with-disabilities/">http://www.pccua.edu/students/student-assistance/students-with-disabilities/</a>

#### **FERPA POLICY**

Phillips Community College of the University of Arkansas complies with the Family Educational Rights and Privacy Act (FERPA) of 1974. A student has the right to inspect and review all of his/her records that meet the definition of educational records. No third party has the right to review student records without the student's permission, with very limited exceptions. For more information contact the Registrar's Office.

#### INSURANCE

Phillips Community College of the University of Arkansas does not provide insurance for its students. The college does encourage each student to secure his/her own insurance, and for that reason, the college has contacted an insurance agency to assist any student with individual student insurance coverage. Forms for this insurance are available in the Registrar's office.

# ACTS

The Arkansas Course Transfer System (ACTS) contains information about the transferability of courses within Arkansas Public Colleges and universities. Students are

guaranteed the transfer of applicable credits and the equitable treatment in the application of credits for the admission and degree requirements. Course transferability is not guaranteed for courses listed in ACTS as "No Comparable Course." Additionally, courses with a "D" frequently do not transfer and institutional policies may vary. ACTS may be accessed on the Internet by going to the ADHE Website and selecting Course Transfer. http://www.adhe.edu/divisions/academicaffairs/Pages/aa\_acts.aspx

The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

#### Syllabus Receipt IT- 214 Programmable Logic Controllers Fall 2018

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name	
Date	
Class	
Email	
	Phone



Course Name: Principles of HVAC ACTS Name; N/A Course Number: IT-223 ACTS Course Number: N/A Academic Year: Spring 2019 Meeting Time & Place: TI-133 Prerequisites: None Required Laboratories: None Credit Hours: 3 **INSTRUCTOR INFORMATION:** 

Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

# **COURSE DESCRIPTION**

This course introduces the basic laws of thermodynamics and thermodynamic cycles. In addition, elementary concepts in heat transfer are discussed. Applications in heating, ventilating, and air conditioning are included. Laboratory exercise support the theoretical discussions

# **EXPECTED LEARNING OUTCOMES**

The HVAC program is intended to provide students with the opportunity to begin a career in the Residential and Commercial HVAC technology's occupation. Maintenance skills are an integral part of any manufacturing process. The courses will provide the students with exposure to commercial and industrial Design and manufacturing techniques and practices. This exposure will provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

# **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

This program will help students gain the skills and knowledge necessary to install, maintain and troubleshoot a variety of mechanical systems. These include pumps, seals, lubrication, troubleshooting and maintenance of related mechanical equipment, and tools. The program gives students theory and "hands-on" practical experience related to all aspects of this occupation. Successful students will gain experience in Tools, fasteners, anchors, gaskets, packing and craft related mathematics.

# **CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

# 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercises good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

#### 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

# 3) Analytical and Critical Thinking

Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

# 4) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

# 5) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

# **TEXT AND READING MATERIALS:**

Publisher: Pearson (NCCER) Heating, Ventilation, and Air Conditioning, Level 1 ISBN-13: 978-0-13-340253-7 ISBN-10: 0-13-340253-3

# **GRADING POLICY**

#### **Papers:**

Each student may be required to write a formal, typed paper describing his/her emerging personal philosophy of HVAC Maintenance and operations. The paper should relate to the student's understanding of Industrial maintenance technology as it has developed thus far to the educational theories studied in class.

# Assignments:

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

# **Tests:**

Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your weekly progress reports will be included as part of your test grade.

# Mid Term Exam:

Your midterm grade will be based on your required work during the semester.

# **Final Exam:**

The final exam will be based on your research paper and will count as 40% of your final grade

# **Grading Scale**

 $\begin{array}{l} A - 90\text{-}100 \\ B - 80\text{-}89 \\ C - 70\text{-}79 \\ D - 60\text{-}69 \\ F - 59 \text{ and below} \end{array}$ 

# ATENDANCE POLICY

- 1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.
- 2. Students and their advisors will receive a referral notice on the second and third absence
- 3. On the third absence, the student will also be referred to the Student Success Coordinator
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- 5. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.
- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 8. \*If you know of an impending absence or tardy, please contact your advisor.
- 9. If you miss in excess of three classes you will be dropped from the class.
- 10. If you are more than 10 minutes late for the class you will be counted absent\*.

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

# MISSED OR LATE ASSIGNMENTS AND EXAMS

Contact the instructor in the event an assignment will not be completed in the allotted time.

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- 1. Altering of grades or official records.
- 2. Using any materials that are not authorized by the instructor for use during an examination.
- 3. Copying from another student's paper during an examination.
- 4. Collaborating during an examination with any other person by giving or receiving information without specific permission of the instructor.
- 5. Stealing, buying, or otherwise obtaining information about an un-administered examination.
- 6. Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
- 7. Substituting for another person or permitting any other person to substitute for oneself to take an examination.
- 8. Submitting as one's own any theme, report, term paper, essay, computer program, other written work, speech, painting, drawing, sculpture, or other art work prepared totally or in part by another.
- 9. Submitting, without specific permission of the instructor, work that has been previously offered for credit in another course.
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- 14. Committing any willful act of dishonesty that interferes with the operation of the academic process.
- 15. Facilitating or aiding in any act of academic dishonesty

# PARTICIPATION

Guidelines for class participation will be designed and controlled by the instructor or negotiated with your students. By asking for their input, the instructor will give students a sense of ownership that can help them take the guidelines more seriously. The following guidelines will be strictly adhered to which will promote an atmosphere of mutual respect and collective inquiry.

- 1. Respect others' rights to hold opinions and beliefs that differ from your own. Challenge or criticize the idea, not the person.
- 2. Listen carefully to what others are saying even when you disagree with what is being said. Comments that you make (asking for clarification, sharing critiques, expanding on a point, etc.) should reflect that you have paid attention to the speaker's comments.
- 3. Be courteous. Don't interrupt or engage in private conversations while others are speaking.
- 4. Support your statements. Use evidence and provide a rationale for your points
- 5. Allow everyone the chance to talk. If you have much to say, try to hold back a bit; if you are hesitant to speak, look for opportunities to contribute to the discussion.
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The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

#### The material that will be covered in the class is listed below;

#### **Table of Contents**

#### Introduction to HVAC

Covers the basic principles of heating, ventilating, and air conditioning, career opportunities in HVAC, and how apprenticeship programs are constructed. Basic safety principles, as well as trade licensure and EPA guidelines, are also introduced.

#### **Trade Mathematics**

Explains how to solve HVAC/R trade related problems involving the measurement of lines, area, volume, weights, angles, pressure, vacuum, and temperature. Also includes a review of scientific notation, powers, roots, and basic algebra and geometry.

#### **Basic Electricity**

Introduces the concept of power generation and distribution, common electrical components, AC and DC circuits, and electrical safety as it relates to the HVAC field. Introduces reading and interpreting wiring diagrams.

#### Introduction to Heating

Covers the fundamentals of heating systems and the combustion process. The different types and designs of gas furnaces and their components, as well as basic procedures for their installation and service, is provided.

#### Introduction to Cooling

Explains the fundamental operating concepts of the refrigeration cycle and identifies both primary and secondary components found in typical HVAC/R systems. Common refrigerants are introduced as well. Describes the principles of heat transfer and the essential pressure temperature relationships of refrigerants. Basic control concepts for simple systems are also introduced.

#### Introduction to Air Distribution Systems

Describes the factors related to air movement and its measurement in common air distribution systems. The required mechanical equipment and materials used to create air distribution systems are also presented. Basic system design principles for both hot and cold climates are introduced.

#### **Basic Copper and Plastic Piping Practices**

Explains how to identify types of copper tubing and fittings used in the HVAC/R industry and how they are mechanically joined. The identification and application of various types of plastic piping, along with their common assembly and installation practices, are also presented.

#### **Soldering and Brazing**

Introduces the equipment, techniques, and materials used to safely join copper tubing through both soldering and brazing. The required PPE, preparation, and work processes are covered in detail. The procedures for brazing copper to dissimilar materials are also provided.

#### **Basic Carbon Steel Piping Practices**

Explains how to identify various carbon steel piping materials and fittings. The joining and installation of threaded and grooved carbon steel piping systems is covered, with detailed coverage of threading and grooving techniques included.

#### Syllabus Receipt IT- 223 Principles of HVAC Spring 2019

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name \_\_\_\_\_

Date\_\_\_\_\_

Email \_\_\_\_\_

Phone\_\_\_\_\_



**Course Name:** Industrial Fluid Mechanics

ACTS Name; N/A

Course Number: IT-243

ACTS Course Number: N/A

Academic Year: Fall 2018

Meeting Time & Place: TI-133

Prerequisites: None

Required Laboratories: None

Credit Hours: 3

INSTRUCTOR INFORMATION:

Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

# **COURSE DESCRIPTION**

The primary purpose of this course is to provide students with a basic understanding of the principles of industrial fluid mechanics (hydraulics) so that students will be able to describe the basic parts of a hydraulic system and how pumps, directional valves, actuators, and filters work together in a system to accomplish work.

# **EXPECTED LEARNING OUTCOMES**

The Industrial Maintenance program is intended to provide students with the opportunity to begin a career in the industrial maintenance technology's occupation. Hydraulics skills and Pneumatics skills are an integral part of any manufacturing process. The courses will provide the students with exposure to commercial and industrial Hydraulics, and Pneumatics practices. This exposure will provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

# **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

This program will help students gain the skills and knowledge necessary to install, maintain and troubleshoot a variety of hydraulic mechanical systems. These include pumps, seals, lubrication,

troubleshooting and maintenance of hydraulic mechanical equipment, and tools. The program gives students theory and "hands-on" practical experience related to all aspects of this occupation. Successful students will gain experience in Tools, fasteners, anchors, gaskets, packing and craft related mathematics.

### **CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

# 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercises good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

# 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

# 3) Analytical and Critical Thinking

4) Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

### 5) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

# 6) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

# TEXT AND READING MATERIALS:

Publisher: The Goodheart-Wilcox Company Inc. Fluid Power, Hydraulics and Pneumatics ISBN-978-1-60525-081-6

# **GRADING POLICY**

**Papers:** Each student may be required to write a formal, typed paper describing his/her emerging personal philosophy of Industrial Maintenance. The paper should relate to the student's

understanding of Industrial maintenance technology as it has developed thus far to the educational theories studied in class.

**Assignments:** All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

**Tests:** Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your progress reports will be included as part of your test grade.

# Mid Term Exam:

Your midterm grade will be based on your required work during the semester.

# Final Exam:

The final exam will be based on your research paper and will count as 40% of your final grade

# **Grading Scale**

A - 90-100 B - 80-89 C - 70-79 D - 60-69 F - 59 and below

# ATENDANCE POLICY

- 1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.
- 2. This course will consist of intensive instruction in industrial maintenance and construction principles. Due to the extensive amount of subject matter covered per day, class attendance and punctuality are necessary *and expected* of all students. Only three (3) absences will be allowed in this program. On the forth absent, the student will be dropped from the class.
- 3. Students and their advisors will receive a referral notice on the second and third absence
- 4. On the third absence, the student will also be referred to the Student Success Coordinator
- 5. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.
- 6. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.
- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 8. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means.
\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

## MISSED OR LATE ASSIGNMENTS AND EXAMS

Contact the instructor in the event an assignment will not be completed in the allotted time.

## ACADEMIC HONESTY POLICY

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- 3. Copying from another student's paper during an examination.
- 4. Collaborating during an examination with any other person by giving or receiving information without specific permission of the instructor.
- 5. Stealing, buying, or otherwise obtaining information about an un-administered examination.
- 6. Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
- 7. Substituting for another person or permitting any other person to substitute for oneself to take an examination.
- 8. Submitting as one's own any theme, report, term paper, essay, computer program, other written work, speech, painting, drawing, sculpture, or other art work prepared totally or in part by another.
- 9. Submitting, without specific permission of the instructor, work that has been previously offered for credit in another course.
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- 15. Facilitating or aiding in any act of academic dishonesty

## PARTICIPATION

Guidelines for class participation will be designed and controlled by the instructor or negotiated with your students. By asking for their input, the instructor will give students a sense of ownership that can help them take the guidelines more seriously. The following guidelines will be strictly adhered to which will promote an atmosphere of mutual respect and collective inquiry.

- 1. Respect others' rights to hold opinions and beliefs that differ from your own. Challenge or criticize the idea, not the person.
- 2. Listen carefully to what others are saying even when you disagree with what is being said. Comments that you make (asking for clarification, sharing critiques, expanding on a point, etc.) should reflect that you have paid attention to the speaker's comments.
- 3. Be courteous. Don't interrupt or engage in private conversations while others are speaking.
- 4. Support your statements. Use evidence and provide a rationale for your points
- 5. Allow everyone the chance to talk. If you have much to say, try to hold back a bit; if you are hesitant to speak, look for opportunities to contribute to the discussion.
- 6. If you are offended by something or think someone else might be, speak up and don't leave it for someone else to have to respond to it.
- 7. All students are expected to participate in all class activities. NO EXCEPTIONS

## **Electronic Devices:**

Cell phones, laptops, I-Pads, Kindles, and other electronic devices must be turned off and put away during class. Anyone who is observed text messaging or using an electronic device during class could be asked to drop the course.

Note; this is a college class where college rules apply. If college rules are not adhered to during the semester you will be dropped from the college rolls.

## **COURSE EVALUATION & ASSESSMENT**

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

## EARLY ASSESSMENT OF LEARNING MEASURE

An assessment of the students' progress will be evaluated prior the fourth of class. The assessments will include but not limited to; testing results, participation, lab activities, attendance and note taking.

## INTERVENTION BASED ON EARLY ASSESSMENT OUTCOME

If the student is not performing to his/her required levels, they be referred to their advisor for further recommendations or help such as tottering.

## **MISSED OR LATE ASSIGNMENTS AND EXAMS**

Contact the instructor in the event an assignment will not be completed in the allotted time.

## **STUDENT RESPONSIBILITIES**

Punctuality is expected. Classes will begin at the time designated by the college. <u>After class attendance has</u> <u>been taken, your arrival to class can be considered an absence. You are responsible for making up any</u> <u>assignment missed during your absence</u>. An absence does not release you from your assignment or their deadlines. All students are expected to complete all assignments. **No exceptions! Not in chair they are absent.** 

## SUPPORT FOR LEARNING

Students will be assessed for learning outcomes by the fourth week of classes. In this course students have several options to assist with learning course material. Any student not having a passing grade or have excessive absences will be referred to their college advisor or college support services.

# ACADEMIC HONESTY POLICY

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## LABORATORY PROCEDURES:

- 1. No food or drink allowed in the classroom and/or lab.
- 2. <u>Absolutely no rude attitudes or behavior</u>. Please refer to the student discipline policies.
- 3. Come in prepared and ready to work
- 4. <u>NO horseplay allowed under any circumstances!</u>!
- 5. <u>No Cell Phones.</u> **NO EXCEPTIONS!** Absolutely NO phone conversations or text messaging during class. No wireless headset devices allowed during class.

6. No personal cds, **NO** music devices, No cell phones are allowed in the lab without authorization of the instructor.

- 7. <u>All</u> internet use must be approved by instructor. Please refer to the Internet Acceptable Usage Policy.
- 8. The academic honesty policy must strictly be adhered to.
- 9. Students in all lab activities are required to wear the required personal protective equipment.

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Phillips Community College of the University of Arkansas provides student support services that assist students in achieving their educational objective. Those services include advising, financial aid, counseling and guidance, and safety and security.

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- Helena-George White (870) 338-6474 ext. 1135
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The process of student referral under the Americans with Disabilities Act can be found in the Student Handbook or on the College Web site at <u>http://www.pccua.edu/students/students-assistance/students-with-disabilities/</u>

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The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

#### Syllabus Receipt

#### **IT-243 Industrial Fluid Mechanics**

#### Fall 2018

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name	 
_	
Date	 
Class	
<u> </u>	
Email	 
Phone	



Course Name: Principles of Industrial Machines Course Number: IT 273 Academic Year: Fall, 2017 Meeting Time & Place: TBA Prerequisites: None Required Laboratories: None Credit Hours: 3 **Clock Hours:** 3 **Revision Date: 7-** 24- 2017

**INSTRUCTOR INFORMATION:** 

Instructor: Michael Shaw

Office Location: Helena

Office Phone #: 870-672-4201 ext. 1850 Stuttgart Helena Email Address: <u>mshaw@pccua.edu</u> Office Hours:

## COURSE DESCRIPTION

This course introduces the principals involved in the performance of mechanical work. Various drive types, gears and belts for example, are analyzed for suitability of application and maintenance.

## **EXPECTED LEARNING OUTCOMES**

This course is designed to provide students with an introduction to the principals involved in the performance of mechanical work. Emphasis is placed on developing an understanding of Newton's laws of motion, the law of conservation of energy, as well as other related scientific principles.

## **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES**

Students will demonstrate the ability to describe work, rate, energy, force, force transformers, momentum, velocity, acceleration, motion, friction, and related concepts as they apply to industrial applications in renewable energy systems as well as other mechanical drive systems and how they might be applied in an industrial setting. Additionally, students will demonstrate the ability to apply such knowledge to assemble, repair, troubleshoot, and complete preventive maintenance on various industrial equipment and technologies often utilized in renewable energy industrial operations.

#### **PCCUA CORE COMPETENCIES**

## The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

All students receiving an Associate's Degree from PCCUA will possess the following competencies:

*Social and Civic Responsibility:* Behavior demonstrates adherence to legal/ethical standards established by society.

*Technology Utilization:* Use tools of the trade to achieve a specific outcome.

*Analytical & Critical Thinking*: Modes of reasoning including analyzing data, evaluating alternatives, setting priorities, and predicting outcomes.

*Communication:* The interactive process through which there is an exchange of verbal and/or nonverbal information.

*Cultural Awareness:* Acknowledgement that society is diverse with groups of individuals possessing differing beliefs, values, attitudes, and customs that are shared from one generation to the next.

In this course, we will assess the following core competencies:

PCCUA Core Competency	Student Learning Outcome	Assessment Method/Measurement	Assessment Criteria
Social and Civic Responsibility	Students will develop an understanding of Newton's laws of motion, the law of conservation of energy, as well as other related scientific principles	Written Test	70% of the students will score 70% or higher
Social and Civic Responsibility	Students will describe work, rate, energy, force, force transformers, momentum, velocity, acceleration, motion, friction, and related concepts.	Written Test	70% of the students will score 70% or higher

# TEXT AND READING MATERIALS:

Industrial Mechanics and Maintenance, Third edition, Larry Chastain, Prentice Hall, 2009, 352



pages ISBN-13:978-0-13-515096-2 By Larry Chastain

Published by Pearson

Copyright © 2009

**GRADING POLICY** All Grades are calculated from 0 to 100%

All exams are added and averaged throughout the semester.

## **Grading Scale**

90-100 A 80-89 B 70-79 C 60-69 D 0-59 F/Incomplete

#### **ATTENDANCE POLICY**

1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and <u>on time</u>.

2. Students and their advisors will receive a referral notice on the second and third absence

3. On the third absence, the student will also be referred to the Student Success Coordinator

4. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.

5. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.

7. There are no excused absences, unless the student misses class while engaged in approved <u>college</u> activities. It is the student's responsibility to make up any missed work.

8. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means:

870-672-4201 ext. 1850 Stuttgart

870-338-7542 ext. 1056 Helena

E-Mail: mshaw@pccua.edu

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

**Electronic Devices:** 

Cell phones, laptops, I-Pads, Kindles, and other electronic devices must be turned off and put away during class. Anyone who is observed text messaging or using an electronic device during class could be asked to drop the course.

<u>Note</u>; this is a college class where college rules apply. If college rules are not adhered to during the semester you will be dropped from the college rolls.

#### PARTICIPATION

All students are expected to participate in all class activities. NO EXCEPTIONS

#### **COURSE EVALUATION & ASSESSMENT**

Grading will be based on class participation, in-class assignments, hands-on lab assignments, quizzes and exams.

#### INTERVENTION BASED ON EARLY ASSESSMENT OUTCOME

#### MISSED OR LATE ASSIGNMENTS AND EXAMS

Deadlines for each assignment are attainable if you attend class as required. Therefore, <u>NO</u> late work will be accepted, unless you were absent and have discussed this with your instructor. In-class assignments

throughout the term will consist of assigned readings, project ideas management concepts. Your assigned projects will be submitted by each individual deadline and will be included in your midterm and final grades. Your final grade will be the average of all of your assignment grades, including any and all exams. All makeup tests will be given on one day later in each term. This day will be designated toward the last week of the term for which grading can be recorded.

#### **STUDENT RESPONSIBILITIES**

Punctuality is expected. Classes will begin at the time designated by the college. <u>After class attendance has</u> been taken, your arrival to class can be considered an absence. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines. All students are expected to complete all assignments. No exceptions! Not in chair they are absent.

#### SUPPORT FOR LEARNING

Students will be assessed for learning outcomes by the fourth week of classes. In this course students have several options to assist with learning course material.

<u>Week #1</u> Chapter #1	Hand Tools
<u>Week #2</u> Chapter #2	Fasteners
<u>Week #3</u> Chapter #3	Basic Principles of Mechanical Systems
<u>Week #4</u> Chapter #4	Lubrication
<u>Week #5</u> TEST:	covering Chapter #1 Through Chapter #4
<u>Week #6</u> Chapter #5	Bearing
<u>Week #7</u> Chapter #6	Seals, Gasket, and Packing
<u>Week #8</u> Chapter #7 Chapter #8	Belt Drives Chain Drives
<u>Week #9</u> TEST;	Covering chapter #5 through chapter #8
<u>Week #10</u> Chapter #9	Gears
<u>Week #11</u> Chapter #10	Couplings

Week #12 Chapter #11	Clutches and Brakes
<u>Week #13</u> TEST;	Covering chapter #9 through chapter #11
<u>Week #14</u> Chapter #12 Chapter #13	Rigging Industrial Pneumatics
<u>Week #15</u>	Final Exam

The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

## Syllabus Receipt

# IT-273 / Principles of Industrial Machines

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name				
-				

Date		

Class \_\_\_\_\_

Phone \_\_\_\_\_



**Course Name:** Introduction to Manufacturing

ACTS Name; N/A

Course Number: IT-1203

ACTS Course Number: N/A

Academic Year: Spring 2019

Meeting Time & Place: TI-133

Prerequisites: None

Required Laboratories: None

Credit Hours: 3

# **INSTRUCTOR INFORMATION:**

Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

# **COURSE DESCRIPTION**

This course is designed to introduce the student to the world of advance manufacturing and establish a foundation upon which further studies in manufacturing might rest. Students will explore basic manufacturing materials and process, tools, techniques, and produce simple products.

This course also includes the NCCER Core Curriculum and is a prerequisite to all other Levels of the craft curriculum. Its modules cover topics such as Basic Safety, Communication Skills and Introduction to Construction Drawings. Completing this curriculum gives the trainee the basic skills needed to continue education in any craft area he or she chooses.

In today's employment world, it is important to acquire as many credentials/certifications as possible. Industry-recognized **credentials** help employers validate the knowledge and skills of potential employees and saves valuable time in assessing the skills of job applicants. Having highly qualified workers can actually draw businesses to a particular area, creating even more job opportunities for local workers.

# EXPECTED LEARNING OUTCOMES

The Industrial Maintenance program is intended to provide students with the opportunity to begin a career in the industrial maintenance and or construction technology's occupation. Construction and maintenance

skills are an integral part of any manufacturing or construction process. The courses will provide the

students with exposure to commercial and industrial Design and manufacturing techniques and practices. This exposure will provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

# **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

This program will help students gain the skills and knowledge necessary to install, maintain and troubleshoot a variety of mechanical systems. These include pumps, seals, lubrication, troubleshooting and maintenance of mechanical equipment, and tools. The program gives students theory and "hands-on" practical experience related to all aspects of this occupation. Successful students will gain experience in Tools, fasteners, anchors, gaskets, packing and craft related mathematics.

# **CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

## 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercises good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

## 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

## 3) Analytical and Critical Thinking

4) Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

## 5) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

## 6) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

## **TEXT AND READING MATERIALS:**

Publisher: NCCER Core Curriculum (ISBN 10: 0-13-608637-3) (ISBN 13; 978-0-13-608637-6)

## **GRADING POLICY**

## Papers,

Each student may be required to write a formal, typed paper describing his/her emerging

personal philosophy of Industrial Maintenance. The paper should relate to the student's understanding of Industrial maintenance technology as it has developed thus far to the educational theories studied in class.

# Assignments;

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

# Tests;

Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your weekly progress reports will be included as part of your test grade.

At a designated time determined by the instructor, the student have available to him /her the NCCER certification exam. This exam will provide a nationally recognized certification of the knowledge learned in his field of study.

# Mid Term Exam;

Your midterm grade will be based on your required work during the semester.

# Final Exam;

The final exam will be based on your research paper and will count as 40% of your final grade

# **Grading Scale**

A - 90-100 B - 80-89 C - 70-79 D - 60-69F - 59 and below

## ATENDANCE POLICY

- 1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.
- 2. This course will consist of intensive instruction in industrial maintenance and construction principles. Due to the extensive amount of subject matter covered per day, class attendance and punctuality are necessary *and expected* of all students. Only three (3) absences will be allowed in this program. On the forth absent, the student will be dropped from the class.
- 3. Students and their advisors will receive a referral notice on the second and third absence
- 4. On the third absence, the student will also be referred to the Student Success Coordinator
- 5. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.
- 6. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.

- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 8. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means.

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

# MISSED OR LATE ASSIGNMENTS AND EXAMS

Contact the instructor in the event an assignment will not be completed in the allotted time.

# ACADEMIC HONESTY POLICY

Academic dishonesty involves acts that may subvert or compromise the integrity of the educational process of Phillips Community College of the University of Arkansas. Included is an act by which a student gains or attempts to gain an academic advantage for himself or herself or another by misrepresenting his or her or another's work or by interfering with the completion, submission, or evaluation of work. These include, but are not limited to, accomplishing or attempting any of the following acts:

- 1. Altering of grades or official records.
- 2. Using any materials that are not authorized by the instructor for use during an examination.
- 3. Copying from another student's paper during an examination.
- 4. Collaborating during an examination with any other person by giving or receiving information without specific permission of the instructor.
- 5. Stealing, buying, or otherwise obtaining information about an un-administered examination.
- 6. Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
- 7. Substituting for another person or permitting any other person to substitute for oneself to take an examination.
- 8. Submitting as one's own any theme, report, term paper, essay, computer program, other written work, speech, painting, drawing, sculpture, or other art work prepared totally or in part by another.
- 9. Submitting, without specific permission of the instructor, work that has been previously offered for credit in another course.
- 10. **Plagiarizing,** that is, the offering as one's own work the words, ideas, or arguments of another person without appropriate attribution by quotation, reference, or footnote. Plagiarism occurs both when the words of another are reproduced without acknowledgement and when the ideas or arguments of another are paraphrased in such a way as to lead the reader to believe that they originated with the writer. It is the responsibility of all College students to understand the methods of proper attribution and to apply those principles in all materials submitted.
- 11. Sabotaging of another student's work.
- 12. Falsifying or committing forgery on any University form or document.
- 13. Submitting altered or falsified data as experimental data from laboratory projects, survey research, or other field research.
- 14. Committing any willful act of dishonesty that interferes with the operation of the academic process.
- 15. Facilitating or aiding in any act of academic dishonesty.

## PARTICIPATION

Guidelines for class participation will be designed and controlled by the instructor or negotiated with your students. By asking for their input, the instructor will give students a sense of ownership that can help them take the guidelines more seriously. The following guidelines will be strictly adhered to which will promote an atmosphere of mutual respect and collective inquiry.

- 1. Respect others' rights to hold opinions and beliefs that differ from your own. Challenge or criticize the idea, not the person.
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- 2. Absolutely no rude attitudes or behavior. Please refer to the student discipline policies.
- 3. Come in prepared and ready to work
- 4. <u>NO horseplay allowed under any circumstances!</u>!
- 5. <u>No Cell Phones.</u> **NO EXCEPTIONS!** Absolutely NO phone conversations or text messaging during class. No wireless headset devices allowed during class.

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- Helena-George White (870) 338-6474 ext. 1135
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The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

## The material that will be covered in the class is listed below;

## 00101-09 Basic Safety

Module One (00101-09) explains the importance of safety in the construction and industrial crafts. Trainees will learn how to identify and follow safe work practices and procedures and how to properly inspect and use safety equipment. Trainees will be able to describe the safety practices associated with elevated work; energy release; and various hazards encountered on job sites. NOTE: The successful completion of this module will award a Construction Site Safety Orientation credential.

#### **Basic Safety**

Explain the idea of a safety culture and its importance in the construction crafts. Identify causes of accidents and the impact of accident costs. Explain the role of OSHA in job-site safety. Explain OSHA's General Duty Clause and 1926 CFR Subpart C. Recognize hazard recognition and risk assessment techniques. Explain fall protection, ladder, stair, and scaffold procedures and requirements. Identify struck-by hazards and demonstrate safe working procedures and requirements. Identify caught-in-between hazards and demonstrate safe working procedures and requirements. Define safe work procedures to use around electrical hazards. Demonstrate the use and care of appropriate personal protective equipment (PPE). Explain the importance of hazard communications (HazCom) and Material Data Safety Sheets (MSDSs). Identify other construction hazards on your job site, including hazards material exposures, Environmental elements, welding and cutting hazards, confined spaces, and fires

## 00102-09 Introduction to Construction Math

Module Two (00102-09) introduces trainees to basic math skills needed in the construction environment. The module reviews whole numbers and fractions; working with decimals; the four primary math operations; reading rulers and tape measures; the Imperial and metric units of measurement; basic geometric figures; and area and volume calculations for two-dimensional and three-dimensional objects.

#### Introduction to Construction Math

Add, subtract, multiply, and divide whole numbers, with and without a calculator. Use a standards ruler, a metric ruler, and a measuring tape to measure. Add, subtract, multiply, and divide fractions. Add, subtract, multiply, and divide decimals, with and without a calculator. Convert decimals to percentages and percentages to decimals. Convert fractions to decimals and decimals to fractions. Explain what a metric system is and how it is important in the construction trade. Recognize and use metric units of length, weight, volume, and temperature. Recognize some of the basic shapes used in the construction industry and apply basic geometry to measure them.

# 00103-09 Introduction to Hand Tools

Module Three (00103-09) instructs trainees in the identification, use, and care of hand tools. Developing the knowledge to properly choose and safely use hand tools is an essential part of the construction industry.

## Introduction to Hand Tools

Recognize and identify some of the basic hand tools and their proper uses in the construction trade. Visually inspect hand tools to determine if they are safe to use. Safely use hand tools.

# 00104-09 Introduction to Power Tools

Module Four (00104-09) identifies and describes some of the power tools used by construction workers. The construction of each tool is discussed, along with information regarding the safe usage and typical maintenance requirements of power tools. **NOTE: Trainees are required to successfully complete Module 00101-09**, *Basic Safety (Construction Site Safety Orientation)* before studying this module.

## **Introduction to Power Tools**

Identify power tools commonly used in the construction trades. Use power tools safely. Explain how to maintain power tools properly.

# 00105-09 Introduction to Construction Drawings

Module Five (00105-09) provides trainees with the information and skills needed to read and understand construction drawings. This module includes a set of four oversize drawings, which is included as an Appendix in the Trainee Guide. The drawings are also available for download from <u>www.nccerirc.com</u>.

## Introduction to Construction Drawings

Recognize and identify basic construction drawing terms, components, and symbols. Relate information on construction drawings to actual locations on the print. Recognize different classifications of construction drawings. Interpret and use drawing dimensions.

#### Syllabus Receipt IT- 1203 Intro to Manufacturing Spring 2019

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name _	
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Date\_\_\_\_\_

Email \_\_\_\_\_

Phone\_\_\_\_\_



**Course Name:** Design for Manufacturing

ACTS Name; N/A Course Number: IT-1213 ACTS Course Number: N/A Academic Year: Spring 2019 Meeting Time & Place: TI-133 Prerequisites: None Required Laboratories: None Credit Hours: 3 INSTRUCTOR INFORMATION: Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

# **COURSE DESCRIPTION**

This course is designed to expand on the introductory manufacturing course and to expose the student to the basic design concepts, computer skills, and drawing skills used in product and process design within the field of manufacturing. Additionally, the course is designed to expose students to a number of interpersonal skills and competencies necessary for a sustained career in manufacturing.

This course also includes the NCCER Industrial Maintenance Mechanic level 1 and is a prerequisite to all other Maintenance Mechanic Levels of the craft curriculum. Its modules cover topics such as Tools of the Trade, Pumps and Gaskets and Packing. Completing this curriculum gives the trainee the basic skills needed to continue education in Industrial Maintenance Mechanic area he or she chooses.

In today's employment world, it is important to acquire as many credentials/certifications as possible. Industry-recognized **credentials** help employers validate the knowledge and skills of potential employees and saves valuable time in assessing the skills of job applicants. Having highly qualified workers can actually draw businesses to a particular area, creating even more 137

job opportunities for local workers.

## **EXPECTED LEARNING OUTCOMES**

The Industrial Maintenance program is intended to provide students with the opportunity to begin a career in the industrial maintenance technology's occupation. Drawing skills and computer skills is an integral part of any manufacturing process. The courses will provide the students with exposure to commercial and industrial Design and drawing techniques and practices. This exposure will provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

## **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

This program will help students gain the skills and knowledge necessary to install, maintain and troubleshoot a variety of mechanical systems. These include pumps, seals, lubrication, troubleshooting and maintenance of mechanical equipment, and tools. The program gives students theory and "hands-on" practical experience related to all aspects of this occupation. Successful students will gain experience in Tools, fasteners, anchors, gaskets, packing and craft related mathematics.

## **CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

## 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercises good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

## 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

## 3) Analytical and Critical Thinking

Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

## 4) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

# 5) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

# TEXT AND READING MATERIALS:

Publisher: NCCER Industrial Maintenance Mechanic Level 1 Trainee Guide (3rd Edition) ISBN-10: 0132286084 ISBN-13: 9780132286084

# **GRADING POLICY**

# Papers,

Each student may be required to write a formal, typed paper describing his/her emerging personal philosophy of Industrial Maintenance. The paper should relate to the student's understanding of Industrial maintenance technology as it has developed thus far to the educational theories studied in class.

# Assignments;

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

# Tests;

Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your weekly progress reports will be included as part of your test grade.

At a designated time determined by the instructor, the student have available to him /her the NCCER certification exam. This exam will provide a nationally recognized certification of the knowledge learned in his field of study.

# Mid Term Exam;

Your midterm grade will be based on your required work during the semester.

# Final Exam;

The final exam will be based on your research paper and will count as 40% of your final grade

## **Grading Scale**

A – 90-100 B – 80-89 C – 70-79 D – 60-69 F – 59 and below

# ATENDANCE POLICY

- 1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.
- 2. This course will consist of intensive instruction in industrial maintenance and construction principles. Due to the extensive amount of subject matter covered per day, class attendance and punctuality are necessary *and expected* of all students. Only three (3) absences will be allowed in this program. On the forth absent, the student will be dropped from the class.
- 3. Students and their advisors will receive a referral notice on the second and third absence
- 4. On the third absence, the student will also be referred to the Student Success Coordinator
- 5. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.
- 6. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.
- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 8. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means.

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

# MISSED OR LATE ASSIGNMENTS AND EXAMS

Contact the instructor in the event an assignment will not be completed in the allotted time.

# ACADEMIC HONESTY POLICY

Academic dishonesty involves acts that may subvert or compromise the integrity of the educational process of Phillips Community College of the University of Arkansas. Included is an act by which a student gains or attempts to gain an academic advantage for himself or herself or another by misrepresenting his or her or another's work or by interfering with the completion, submission, or evaluation of work. These include, but are not limited to, accomplishing or attempting any of the following acts:

1. Altering of grades or official records.

2. Using any materials that are not authorized by the instructor for use during an examination.

- 3. Copying from another student's paper during an examination.
- 4. Collaborating during an examination with any other person by giving or receiving information without specific permission of the instructor.
- 5. Stealing, buying, or otherwise obtaining information about an un-administered examination.
- 6. Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
- 7. Substituting for another person or permitting any other person to substitute for oneself to take an examination.
- 8. Submitting as one's own any theme, report, term paper, essay, computer program, other written work, speech, painting, drawing, sculpture, or other art work prepared totally or in part by another.
- 9. Submitting, without specific permission of the instructor, work that has been previously offered for credit in another course.
- 10. **Plagiarizing,** that is, the offering as one's own work the words, ideas, or arguments of another person without appropriate attribution by quotation, reference, or footnote. Plagiarism occurs both when the words of another are reproduced without acknowledgement and when the ideas or arguments of another are paraphrased in such a way as to lead the reader to believe that they originated with the writer. It is the responsibility of all College students to understand the methods of proper attribution and to apply those principles in all materials submitted.
- 11. Sabotaging of another student's work.
- 12. Falsifying or committing forgery on any University form or document.
- 13. Submitting altered or falsified data as experimental data from laboratory projects, survey research, or other field research.
- 14. Committing any willful act of dishonesty that interferes with the operation of the academic process.
- 15. Facilitating or aiding in any act of academic dishonesty

# PARTICIPATION

Guidelines for class participation will be designed and controlled by the instructor or negotiated with your students. By asking for their input, the instructor will give students a sense of ownership that can help them take the guidelines more seriously. The following guidelines will be strictly adhered to which will promote an atmosphere of mutual respect and collective inquiry.

- 1. Respect others' rights to hold opinions and beliefs that differ from your own. Challenge or criticize the idea, not the person.
- 2. Listen carefully to what others are saying even when you disagree with what is being said. Comments that you make (asking for clarification, sharing critiques, expanding on a point, etc.) should reflect that you have paid attention to the speaker's comments.
- 3. Be courteous. Don't interrupt or engage in private conversations while others are speaking.
- 4. Support your statements. Use evidence and provide a rationale for your points

- 5. Allow everyone the chance to talk. If you have much to say, try to hold back a bit; if you are hesitant to speak, look for opportunities to contribute to the discussion.
- 6. If you are offended by something or think someone else might be, speak up and don't leave it for someone else to have to respond to it.
- 7. All students are expected to participate in all class activities. NO EXCEPTIONS

# **Electronic Devices:**

Cell phones, laptops, I-Pads, Kindles, and other electronic devices must be turned off and put away during class. Anyone who is observed text messaging or using an electronic device during class could be asked to drop the course.

Note; this is a college class where college rules apply. If college rules are not adhered to during the semester you will be dropped from the college rolls.

# **COURSE EVALUATION & ASSESSMENT**

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

# EARLY ASSESSMENT OF LEARNING MEASURE

An assessment of the students' progress will be evaluated prior the fourth of class. The assessments will include but not limited to; testing results, participation, lab activities, attendance and note taking.

## INTERVENTION BASED ON EARLY ASSESSMENT OUTCOME

If the student is not performing to his/her required levels, they be referred to their advisor for further recommendations or help such as tottering.

## **MISSED OR LATE ASSIGNMENTS AND EXAMS**

Contact the instructor in the event an assignment will not be completed in the allotted time.

## **STUDENT RESPONSIBILITIES**

Punctuality is expected. Classes will begin at the time designated by the college. <u>After class</u> attendance has been taken, your arrival to class can be considered an absence. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines. All students are expected to complete all assignments. No exceptions! Not in chair they are absent.

## SUPPORT FOR LEARNING

Students will be assessed for learning outcomes by the fourth week of classes. In this course students have several options to assist with learning course material. Any student not having a passing grade or have excessive absences will be referred to their college advisor or college support services.

# ACADEMIC HONESTY POLICY

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# LABORATORY PROCEDURES:

1. No food or drink allowed in the classroom and/or lab.

- 2. <u>Absolutely no rude attitudes or behavior</u>. Please refer to the student discipline policies.
- 3. Come in prepared and ready to work
- 4. <u>NO horseplay allowed under any circumstances!</u>!

5. <u>No Cell Phones.</u> **NO EXCEPTIONS!** Absolutely NO phone conversations or text messaging during class. No wireless headset devices allowed during class.

6. No personal cds, **NO** music devices, No cell phones are allowed in the lab without authorization of the instructor.

7. <u>All</u> internet use must be approved by instructor. Please refer to the Internet Acceptable Usage Policy.

- 8. The academic honesty policy must strictly be adhered to.
- 9. Students in all lab activities are required to wear the required personal protective equipment.

# **CAMPUS SUPPORT SERVICES**

Phillips Community College of the University of Arkansas provides student support services that assist students in achieving their educational objective. Those services include advising, financial aid, counseling and guidance, and safety and security.

# ADA POLICY:

Scott Post is the Vice Chancellor for Student Services and serves as the ADA Compliance Officer. As an open enrollment college, PCCUA strives to meet the needs of students with self- disclosed disabilities who wish to advance their education. A student with a disability must meet with the campus Disabilities Coordinator to obtain reasonable accommodations. Students who have met with the Coordinator are more likely to experience success in a positive learning environment. If you have a disability please contact the Student Disabilities Coordinator for your campus.

- DeWitt-Phyllis Fullerton (870) 946-3506 ext. 1610
- Helena-George White (870) 338-6474 ext. 1135
- Stuttgart-Sylvia Boyd (870) 673-4201 ext. 1809

The process of student referral under the Americans with Disabilities Act can be found in the Student Handbook or on the College web site at <a href="http://www.pccua.edu/students/student-assistance/students-with-disabilities/">http://www.pccua.edu/students/student-assistance/students-with-disabilities/</a>

## FERPA POLICY

Phillips Community College of the University of Arkansas complies with the Family Educational Rights and Privacy Act (FERPA) of 1974. A student has the right to inspect and review all of his/her records that meet the definition of educational records. No third party has the right to review student records without the student's permission, with very limited exceptions. For more information contact the Registrar's Office.

## INSURANCE

Phillips Community College of the University of Arkansas does not provide insurance for its students. The college does encourage each student to secure his/her own insurance, and for that reason, the college has contacted an insurance agency to assist any student with individual student insurance coverage. Forms for this insurance are available in the Registrar's office.

## ACTS

The Arkansas Course Transfer System (ACTS) contains information about the transferability of courses within Arkansas Public Colleges and universities. Students are guaranteed the transfer of applicable credits and the equitable treatment in the application of credits for the admission and degree requirements. Course transferability is not guaranteed for courses listed in ACTS as "No Comparable Course." Additionally, courses with a "D" frequently do not transfer and institutional policies may vary. ACTS may be accessed on the Internet by going to the ADHE Website and selecting Course Transfer.<u>http://www.adhe.edu/divisions/academicaffairs/Pages/aa\_acts.aspx</u>

The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

# Orientation to the Trade 32101-07

Covers the history of the trade, and the kinds of work and work environments industrial maintenance craftspeople would find in the field. Describes the apprenticeship and training programs available, as well as the career opportunities in industrial maintenance. The responsibilities and characteristics a worker should possess are also described. Objectives;

- 1. Describe the types of work performed by industrial maintenance craftworkers.
- 2. Identify career opportunities available to industrial maintenance craftworkers.
- 3. Explain the purpose and objectives of an apprentice training program.
- 4. Explain the responsibilities and characteristics of a good industrial maintenance craftworker.
- 5. Explain the importance of safety in relation to industrial maintenance craftworkers.
- 6. Explain the role of NCCER in the training process.

# Tools of the Trade Module 32102-07

# Provides an introduction to the hand and power tools used in industrial maintenance. Covers safety procedures and techniques for use of these tools. Objectives;

1. Explain the purpose of each of the tools commonly used by industrial maintenance craftworkers.

- 2. Describe how to maintain each of the tools used by industrial maintenance craftworkers.
- 3. Demonstrate the proper use and basic maintenance of selected industrial maintenance tools.

# Fasteners and Anchors 32103-07

Covers the hardware and systems used by an industrial maintenance craftsperson. Describes various types of anchors and supports, their applications, and how to install them safely. Objectives;

- 1. Identify and explain the use of threaded fasteners.
- 2. Identify and explain the use of non-threaded fasteners.
- 3. Identify and explain the use of anchors.
- 4. Select the correct fasteners and anchors for given applications.
- 5. Install fasteners and anchors.

## Oxyfuel Cutting 32104-07

Explains the safety requirements for oxyfuel cutting. Identifies oxyfuel cutting equipment and provides instructions for setting up, lighting, and using the equipment. Includes straight line cutting, piercing, beveling, washing, and gouging.

## **Objectives;**

1. Identify and explain the use of oxyfuel cutting equipment.

2. State the safety precautions for using oxyfuel equipment.

- 3. Set up oxyfuel cutting equipment.
- 4. Light and adjust an oxyfuel torch.
- 5. Shut down oxyfuel cutting equipment.
- 6. Disassemble oxyfuel cutting equipment.
- 7. Change empty cylinders.

8. Perform oxyfuel cutting: • Straight line and square shapes • Piercing and slot cutting • Bevels

Washing

9. Apply a rosebud flame to remove frozen components (also for preheat and expanding larger fittings).

10. Operate a motorized, portable oxyfuel gas cutting machine.

# **Gaskets and Packing**

# <u>32105-07</u>

Introduces types of gaskets and gasket material, types of packing and packing material, and types of O-ring material. Explains the use of gaskets, packing, and O-rings, and teaches how to fabricate a gasket.

# Objectives;

1. Identify the various types of gaskets and explain their uses.

- 2. Identify the various types of gasket materials and explain their applications.
- 3. Lay out, cut, and install a flange gasket.
- 4. Describe the use of O-rings.
- 5. Explain the importance of selecting the correct O-ring for an application.
- 6. Select an O-ring for a given application and install it.
- 7. Describe the uses and methods of packing.

# Craft-Related Mathematics

# <u>32106-07</u>

Explains how to use ratios and proportions, solve basic algebra, area, volume, and circumference problems, and solve for right triangles using the Pythagorean theorem. Objectives;

- 1. Identify and explain the use of special measuring devices.
- 2. Use tables of weights and measurements.
- 3. Use formulas to solve basic problems.
- 4. Solve area problems.
- 5. Solve volume problems.
- 6. Solve circumference problems.
- 7. Solve right triangles using the Pythagorean Theorem.

# Construction Drawings 32107-07

Introduces plot plans, structural drawings, elevation drawings, as-built drawings, equipment arrangement drawings, P&IDs, isometric drawings, basic circuit diagrams, and detail sheets. Objectives;

- 1. Explain the basic layout of a blueprint.
- 2. Describe the information included in the title block of a blueprint.
- 3. Identify the types of lines used on blueprints.
- 4. Identify common symbols used on blueprints.
- 5. Understand the use of architect's and engineer's scales.
- 6. Demonstrate the use of an architect's scale.

# Pumps and Drivers 32108-07

Explains centrifugal, rotary, reciprocating, metering, and vacuum pump operation and installation methods, as well as types of drivers. Also covers net positive suction head and cavitation.

# **Objectives;**

- 1. Identify and explain centrifugal pumps.
- 2. Identify and explain rotary pumps.
- 3. Identify and explain reciprocating pumps.
- 4. Identify and explain metering pumps.
- 5. Identify and explain vacuum pumps.
- 6. Explain net positive suction head and cavitation.
- 7. Identify types of drivers.

#### **Syllabus Receipt**

#### IT-1213 Design for Manufacturing

Spring 2019

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name	 
Date	 
Class	 
Email	
Phone	 


**Course Name:** Manufacturing Production Processes

ACTS Name; N/A

Course Number: IT-1223

**ACTS Course Number: N/A** 

Academic Year: Spring 2019

Meeting Time & Place: TI-133

Prerequisites: None

Required Laboratories: None

Credit Hours: 3

**INSTRUCTOR INFORMATION:** 

Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

#### **COURSE DESCRIPTION**

This course is designed to introduce the student to the world of advance manufacturing and establish a foundation upon which further studies in manufacturing might rest. Students will explore basic manufacturing materials and process, tools, techniques, and produce simple products.

This course also includes the NCCER Core Curriculum and is a prerequisite to all other Levels of the craft curriculum. Its modules cover topics such as Basic Safety, Communication Skills and Introduction to Construction Drawings. Completing this curriculum gives the trainee the basic skills needed to continue education in any craft area he or she chooses.

In today's employment world, it is important to acquire as many credentials/certifications as possible. Industry-recognized **credentials** help employers validate the knowledge and skills of potential employees and saves valuable time in assessing the skills of job applicants. Having highly qualified workers can actually draw businesses to a particular area, creating even more job opportunities for local workers.

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## 5) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

#### **TEXT AND READING MATERIALS:**

Publisher: NCCER Core Curriculum (ISBN 10: 0-13-608637-3) (ISBN 13; 978-0-13-608637-6)

#### **GRADING POLICY**

#### Papers,

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#### Mid Term Exam;

Your midterm grade will be based on your required work during the semester.

#### Final Exam;

The final exam will be based on your research paper and will count as 40% of your final grade

#### **Grading Scale**

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#### ATENDANCE POLICY

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- 5. Stealing, buying, or otherwise obtaining information about an un-administered examination.
- 6. Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
- 7. Substituting for another person or permitting any other person to substitute for oneself to take an examination.
- 8. Submitting as one's own any theme, report, term paper, essay, computer program, other written work, speech, painting, drawing, sculpture, or other art work prepared totally or in part by another.
- 9. Submitting, without specific permission of the instructor, work that has been previously offered for credit in another course.
- 10. **Plagiarizing,** that is, the offering as one's own work the words, ideas, or arguments of another person without appropriate attribution by quotation, reference, or footnote. Plagiarism occurs both when the words of another are reproduced without acknowledgement and when the ideas or arguments of another are paraphrased in such a way as to lead the reader to believe that they originated with the writer. It is the responsibility of all College students to understand the methods of proper attribution and to apply those principles in all materials submitted.
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- 1. Respect others' rights to hold opinions and beliefs that differ from your own. Challenge or criticize the idea, not the person.
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- 3. Be courteous. Don't interrupt or engage in private conversations while others are speaking.
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#### EARLY ASSESSMENT OF LEARNING MEASURE

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If the student is not performing to his/her required levels, they be referred to their advisor for further recommendations or help such as tottering.

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- 3. Come in prepared and ready to work
- 4. <u>NO horseplay allowed under any circumstances!</u>!
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- Helena-George White (870) 338-6474 ext. 1135
- Stuttgart-Sylvia Boyd (870) 673-4201 ext. 1809

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## The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

## The material that will be covered in the class is listed below;

## 00106-09 Basic Rigging

Explains how ropes, chains, hoists, loaders, and cranes are used move material and equipment from one location to another on a job site.

## **Basic Rigging**

Identify and describe the use of slings and common rigging hardware. Describe basic inspection techniques and rejection criteria used for slings and hardware. Describe basic hitch configurations and their proper connections. Describe basic load-handling safety practices.

Demonstrate proper use of American Society of Mechanical Engineers (ASME) hand signals.

## 00107-09 Basic Communication Skills

Provides trainees with techniques for communicating effectively with co-workers and supervisors.

## **Basic Communication Skills**

Interpret information and instructions presented in both verbal and written form. Communicate effectively in on-the-job situations using verbal and written skills. Communicate effectively on the job using electronic communication devices.

## 00108-09 Basic Employability Skills

Identifies the roles of individuals and companies in the construction industry. Introduces trainees to critical thinking and problem solving skills and computer systems and their industry applications.

## **Basic Employability Skills**

Explain the role of an employee in the construction industry.

Demonstrate critical thinking skills and the ability to solve problems using those skills. Demonstrate knowledge of computer systems and explain common uses for computers in the Construction industry.

Define effective relationship skills.

Recognize workplace issues such as sexual harassment, stress, and substance abuse.

## 00109-09 Introduction to Materials Handling

## **Introduction to Materials Handling**

Describes the hazards associated with handling materials and provides techniques to avoid both injury and property damage. Common material-handling equipment is also introduced.

#### **Syllabus Receipt**

#### **IT-1223 Manufacturing Production Processes**

#### Spring 2019

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name	 	 	
Date_	 	 	 
Class _	 		 
Email _	 	 	 

Phone\_\_\_\_\_



**Course Name:** Manufacturing Power and Equipment Systems

ACTS Name; N/A Course Number: IT-1233 ACTS Course Number: N/A Academic Year: Spring 2019 Meeting Time & Place: TI-133 Prerequisites: None Required Laboratories: None Credit Hours: 3 Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

**INSTRUCTOR INFORMATION:** 

#### **COURSE DESCRIPTION**

The course is designed to expand upon previous courses and allow students the opportunity to demonstrate knowledge of power systems and use the advanced tools of manufacturing production. Students will plan, design, implement, use, and troubleshoot manufacturing power systems, equipment systems and control systems.

This course also includes the NCCER Industrial Maintenance Mechanic level 1 and is a prerequisite to all other Maintenance Mechanic Levels of the craft curriculum. Its modules cover topics such as Tools of the Trade, Pumps and Gaskets and Packing. Completing this curriculum gives the trainee the basic skills needed to continue education in Industrial Maintenance Mechanic area he or she chooses.

In today's employment world, it is important to acquire as many credentials/certifications as possible. Industry-recognized **credentials** help employers validate the knowledge and skills of potential employees and saves valuable time in assessing the skills of job applicants. Having

highly qualified workers can actually draw businesses to a particular area, creating even more job opportunities for local workers.

## **EXPECTED LEARNING OUTCOMES**

The Industrial Maintenance program is intended to provide students with the opportunity to begin a career in the industrial maintenance technology's occupation. Drawing skills and computer skills is an integral part of any manufacturing process. The courses will provide the students with exposure to commercial and industrial Design and drawing techniques and practices. This exposure will provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

## **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

This program will help students gain the skills and knowledge necessary to install, maintain and troubleshoot a variety of mechanical systems. These include pumps, seals, lubrication, troubleshooting and maintenance of mechanical equipment, and tools. The program gives students theory and "hands-on" practical experience related to all aspects of this occupation. Successful students will gain experience in Tools, fasteners, anchors, gaskets, packing and craft related mathematics.

## **CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

## 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercises good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

#### 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

## 3) Analytical and Critical Thinking

Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

## 4) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides

appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

#### 5) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

#### **TEXT AND READING MATERIALS:**

Publisher: NCCER Industrial Maintenance Mechanic Level 1 Trainee Guide (3rd Edition) ISBN-10: 0132286084 ISBN-13: 9780132286084

#### **GRADING POLICY**

#### Papers,

Each student may be required to write a formal, typed paper describing his/her emerging personal philosophy of Industrial Maintenance. The paper should relate to the student's understanding of Industrial maintenance technology as it has developed thus far to the educational theories studied in class.

#### Assignments;

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

#### Tests;

Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your weekly progress reports will be included as part of your test grade.

#### Mid Term Exam;

Your midterm grade will be based on your required work during the semester.

#### Final Exam;

The final exam will be based on your research paper and will count as 40% of your final grade

## **Grading Scale**

A - 90-100 B - 80-89 C - 70-79 D - 60-69 F - 59 and below

## ATENDANCE POLICY

- 1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.
- 2. This course will consist of intensive instruction in industrial maintenance and construction principles. Due to the extensive amount of subject matter covered per day, class attendance and punctuality are necessary *and expected* of all students. Only three (3) absences will be allowed in this program. On the forth absent, the student will be dropped from the class.
- 3. Students and their advisors will receive a referral notice on the second and third absence
- 4. On the third absence, the student will also be referred to the Student Success Coordinator
- 5. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.
- 6. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.
- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 8. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means.

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

## MISSED OR LATE ASSIGNMENTS AND EXAMS

Contact the instructor in the event an assignment will not be completed in the allotted time.

## ACADEMIC HONESTY POLICY

Academic dishonesty involves acts that may subvert or compromise the integrity of the educational process of Phillips Community College of the University of Arkansas. Included is an act by which a student gains or attempts to gain an academic advantage for himself or herself or another by misrepresenting his or her or another's work or by interfering with the completion, submission, or evaluation of work. These include, but are not limited to, accomplishing or attempting any of the following acts:

- 1. Altering of grades or official records.
- 2. Using any materials that are not authorized by the instructor for use during an examination.

- 3. Copying from another student's paper during an examination.
- 4. Collaborating during an examination with any other person by giving or receiving information without specific permission of the instructor.
- 5. Stealing, buying, or otherwise obtaining information about an un-administered examination.
- 6. Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
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The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

#### <u>Valves</u> 32109-07

## Identifies and provides installation methods for different types of valves. Also covers valve storage and handling.

## **Objectives;**

Identify types of valves that start and stop flow. Identify types of valves that regulate flow. Identify valves that relieve pressure. Identify valves that regulate the direction of flow. Explain how to properly store and handle valves.

Explain valve locations and positions.

## Introduction to Test Instruments

## <u>32110-07</u>

## Introduces the basic test equipment for industrial maintenance, including tachometers, pyrometers, strobe meters, voltage testers, and automated diagnostic tools.

## Objectives;

Explain the operation of and describe the following pieces of test equipment:

Tachometer

Pyrometers

Multimeters

Automated diagnostics tools

Wiggy<sup>®</sup> voltage tester

Stroboscope

Explain how to read and convert from one scale to another using the above test equipment. Define frequency and explain the use of a frequency meter.

## **Material Handling and Hand Rigging**

## <u>32111-07</u>

## Introduces the equipment and techniques of material handling, and describes the procedures for rigging and communicating with riggers.

## Objectives;

Identify and describe the uses of common rigging hardware and equipment.

Inspect common rigging equipment.

Select, use, and maintain special rigging equipment, including:

Jacks

Block and tackle

Chain hoists

Come-alongs

Tie knots used in rigging.

Use and understand the correct hand signals to guide a crane operator. Identify basic rigging and crane safety procedures.

## Mobile and Support Equipment

## <u>32112-07</u>

## Introduces the safety procedures and methods of operation for motorized support equipment, including forklifts, manlifts, compressors, and generators.

## **Objectives;**

State the safety precautions associated with the use of motor-driven equipment in industrial plants.

Explain the operation and applications of the following motor-driven equipment commonly used in industrial plants:

- 1. Portable generators
- 2. Air compressors
- 3. Aerial lifts
- 4. Forklifts
- 5. Mobile cranes

Operate and perform preventive maintenance on the following equipment:

- 1. Portable generators
- 2. Air compressors
- 3. Aerial lifts

## Lubrication 32113-07

## Explains lubrication safety, storage, and classifications. Also explains selecting lubricants, additives, lubrication equipment, and lubricating charts.

Explain OSHA hazard communication as pertaining to lubrication.

Read and interpret a material data safety sheet (MSDS).

Explain the EPA hazardous waste control program.

Explain lubricant storage.

Explain lubricant classification.

Explain lubricant film protection.

Explain properties of lubricants.

Explain properties of greases.

Explain how to select lubricants.

Identify and explain types of additives.

Identify and explain types of lubricating oils.

Identify and use lubrication equipment to apply lubricants.

Read and interpret a lubrication chart.

#### **Syllabus Receipt**

#### IT-1233 Power and Equipment Systems

#### Spring 2019

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name	
<b>D</b> .	
Date	
Class	
Email	
Phone	



Course Name: The Manufacturing Materials (Independent Study) **Course Number: IT-1243** Semester and Year: Spring, 2016 Meeting Time & Place: TBA **Prerequisites: None Required Laboratories: None** Credit Hours: 3 Clock Hours: 45 **Revision Date: January 10, 2016** 

**INSTRUCTOR INFORMATION:** Instructor: Michael Shaw Location: TI 122 Office Phone #: 870-338-6474, 1056 Email Address:mshaw@pccua.edu

#### COURSE DESCRIPTION

The course is designed to expand upon concepts learned in introductory courses while allowing students to explore how manufacturing enterprises are established, how they maintain control, how they plan, how they produce, package, and market products. As a part of a product development team, students will analyze customer needs, and market requirements, conceptualize a design, and develop a prototype, production tooling and other procedures.

#### **EXPECTED LEARNING OUTCOMES**

The goal of this course is so that the student can go out into the industrial world and be able to demonstrate how systems work in a manufacturing setting.

#### **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES**

Throughout the semester we will have objectives that we will be discussing. It will be your responsibility to make sure that I am teaching you these objectives. We will have a mid-term and final as well as projects throughout the course.

#### PCCUA CORE COMPETENCIES

The six PCCUA core competencies are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students. The division of Applied Technology & Workforce Development perceives these competencies as:

 Communication – The learner will be able to communicate in verbal and non-verbal form by tests and projects that reflect the courses goals.

- 2) Cultural Awareness The learner will understand the diversity of groups through class projects and research of course development in other areas.
- 3) Social and Civic Responsibility The learner will interact within the community and within class groups to develop responsible actions.
- 4) Critical Thinking The learner will evaluate data and predict outcomes within the course to expand the ability to analyze projects.
- 5) Mathematical Reasoning The learner will use strategies to solve problems within course projects and measure results.
- 6) Technology Utilization The learner will use the basic tools and learn advanced technology to achieve the course objectives in a safe manner.

## TEXT AND READING MATERIALS:

Energy Power and Transportation Technology. By: Len S. Litowitz and Ryan A. Brown ISBN: 978-1-60525-555-2

## **GRADING POLICY**

Daily Grade	15%
In-Class Assignments	10%
Quizzes	25%
Chapter Tests	25%
Hands-On Lab	25%

Grading Scale 90-100 A 80-89 B 70-79 C 60-69 D 0-59 F/Incomplete

#### ATTENDANCE POLICY

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- 2. Students and their advisors will receive a referral notice on the second and third absence
- 3. On the third absence, the student will also be referred to the Student Success Coordinator
- 4. Students will receive an EW after the fifth absence.
- 5. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.

- 6. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.
- 7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 8. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means:

Phone: 870-338-6474, ext. 1056 E-Mail: mshaw@pccua.edu

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

## PARTICIPATION

All students are expected to participate in all class activities. NO EXCEPTIONS

## **COURSE EVALUATION & ASSESSMENT**

Grading will be based on class participation, in-class assignments, hands-on lab assignments, quizzes and exams.

## MISSED OR LATE ASSIGNMENTS AND EXAMS

Deadlines for each assignment are attainable if you attend class as required. **Therefore**, <u>NO</u> late work will be accepted, unless you were absent and have discussed this with your instructor. In-class assignments throughout the term will consist of assigned readings, project ideas management concepts. Your assigned projects will be submitted by each individual deadline and will be included in your midterm and final grades. Your final grade will be the average of all of your assignment grades, including any and all exams. All make-up tests will be given on one day in each term. This day will be designated toward the last week of the term for which grading can be recorded.

## **STUDENT RESPONSIBILITIES**

Punctuality is expected. Classes will begin at the time designated by the college. <u>After class</u> <u>attendance has been taken, your arrival to class is considered an absence. You are</u> <u>responsible for making up any assignment missed during your absence</u>. An absence DOES NOT release you from your assignment or their deadlines. All students are expected to complete all assignments. No exceptions!

## ACADEMIC HONESTY POLICY

## Phillips Community College of the University of Arkansas Academic Misconduct Policy

If a student discovers or attempts to discover the contents of an exam before the contents are revealed by the instructor, or obtains, uses, and/or attempts to supply to any person unauthorized material or devices, he/she will be subject to punishment for academic misconduct. The instructor has the responsibility for instructional activities of the course being taught, including the determination of cheating, plagiarism, or any other activity pertinent to the course or program function. Any student found guilty of an act of academic misconduct may be subject to either of the following penalties:

- 1. His/her grade in the course or on the examination affected by the misconduct may be reduced to any extent, including reduction to failure.
- 2. The student may be placed on probation or suspended from the college for a specific definite period.

In the case of repeated offenses, appropriate action up to and including permanent suspension from the college will be taken. The student may appeal either the finding of cheating or the penalty, or both, to the Student Relations Committee. Suspension and dismissal for academic reasons are not governed by the due process requirements of the Fourteenth Amendment; therefore, the disciplinary procedures do not apply.

## LABORATORY PROCEDURES:

- 1. No food or drink allowed in the classroom and/or lab.
- 2. <u>Absolutely no rude attitudes or behavior</u>. Please refer to the student discipline policies.
- 3. Come in prepared and ready to work
- 4. <u>NO horseplay allowed under any circumstances!</u>!
- 5. <u>Cell phones must be turned to "silent" or "vibrate" mode while in class.</u> <u>NO EXCEPTIONS!</u> Absolutely NO phone conversations or text messaging during class. No wireless headset devices allowed during class.
- 6. No personal cds, **NO** music devices, No cell phones are allowed in the lab without authorization of the instructor.
- 7. <u>All</u> internet use must be approved by instructor. Please refer to the Internet Acceptable Usage Policy
- 8. The academic honesty policy must strictly be adhered to.

## CAMPUS SUPPORT SERVICES

Phillips Community College of the University of Arkansas provides student support services that assist students in achieving their educational objective. Those services include advising, financial aid, counseling and guidance, and safety and security.

## ADA POLICY:

Scott Post, the Vice Chancellor for Student Services serves as the ADA Compliance Officer. If you reside in Arkansas County you may contact Vice Chancellor Carolyn Turner (DeWitt) or Dr. Anne Gentry (Stuttgart). The process of student referral under the Americans with Disabilities Act can be found in the Student Handbook.

### FERPA POLICY

Phillips Community College of the University of Arkansas complies with the Family Educational Rights and Privacy Act (FERPA) of 1974. A student has the right to inspect and review all of his/her records that meet the definition of educational records. No third party has the right to review student records.

## ACTS

The Arkansas Course Transfer System (ACTS) contains information about the transferability of courses within Arkansas Public Colleges and universities. Students are guaranteed the transfer of applicable credits and the equitable treatment in the application of credits for the admission and degree requirements. Course transferability is not guaranteed for courses listed in ACTS as "No Comparable Course." Additionally, courses with a "D" frequently do not transfer and institutional policies may vary. ACTS may be accessed on the Internet by going to the ADHE Website and selecting Course Transfer.

The syllabus and the policies, guidelines, and dates included are subject to change at the instructor's discretion.

## Syllabus Receipt IT- 1243 Manufacturing Materials Fall 2016

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name			
Date			
Class _			
Email _			

Phone \_\_\_\_\_



Course Name: Engineering Design and Problem Solving

Course Number: IT 1273 Semester and Year: Spring, 2017 Meeting Time & Place: Wednesday 05:30 to 08:30 TI 122 INSTRUCTOR INFORMATION:

**Instructor: Stanley Herrington** 

**Office Location: 122** 

Office Phone #: NA Email Address: Stanley.herrington@harcros.com

Prerequisites: none Required Laboratories: none Credit Hours: 3 Clock Hours: 3

**Office Hours:** 

#### **COURSE DESCRIPTION**

The course will introduce some new concepts related to engineering design and problem solving, however, the primary function of this course will be to serve as a venue for students to place all previous learning into a manufacturing context. Students will solve a given manufacturing challenge that requires the use of advanced manufacturing technology systems, design skills, communication skills and a thorough understanding of manufacturing materials, processes and techniques.

#### **EXPECTED LEARNING OUTCOMES**

The goal of this course is so that the student can go out into the industrial world and be able to demonstrate or reiterate advanced manufacturing technology systems, design skills, communication skills and a thorough understanding of manufacturing materials, processes and techniques.

**COURSE GOALS** 

#### PCCUA CORE COMPETENCIES

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

**Social and Civic Responsibility:** Behavior demonstrates adherence to legal/ethical standards established by society.

**Technology Utilization:** Use tools of the trade to achieve a specific outcome.

**Analytical & Critical:** Thinking Modes of reasoning including analyzing data, evaluating alternatives, setting priorities, and predicting outcomes.

**Communication** The interactive process through which there is an exchange of verbal and/or nonverbal information.

**Cultural Awareness:** Acknowledgement that society is diverse with groups of individuals possessing differing beliefs, values, attitudes, and customs that are shared from one generation to the next.

PCCUA Core	Student Learning	Assessment	Assessment Criteria
Competency	Outcome	Method/Measurement	
Technology Utilization	Students will demonstrate the ability to use engineering design tools to solve problems in manufacturing.	Lab rubric	70% of the students will score 70% or higher
Analytical and Critical Thinking	Students will solve a given manufacturing challenge that requires a thorough understanding of manufacturing materials, processes and techniques	Written tests	70% of the students will score 70% or higher

In this course, we will assess the following core competencies:

#### TEXT AND READING MATERIALS:

Technology & Engineering, 6<sup>th</sup> Ed.- R. Thomas Wright, ISBN: 978-1-60525-412-8

Technology & Engineering Workbook – R. Thomas Wright, ISBN: 978-1-60525-413-5

## **GRADING POLICY**

Grading will consist of quizzes, homework, and class activities.

## **GRADING SCALE**

The grading scales of all General Technology courses are:

A - 1000-900 B - 901-800 C - 801-700 D - 701-600 F - 599 and below

Quizzes	(16 x 20 points) = 320 points
Homework	(16 x 20 points) = 320 points
Activities	(15 x 24 points) = 360 points

#### Total 1000 points

#### ATTENDANCE POLICY

- 1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and <u>on time</u>.
- 2. Two tardies will be equivalent to one absence
- 3. Students and their advisors will receive a referral notice on the first, second and third absence
- 4. On the third absence, the student will also be referred to the Student Success Coordinator
- 5. Students will receive an EW after the fourth absence.
- 6. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, the door will be closed and your arrival to class is considered as tardy.
- 7. You are responsible for any assignment missed during your absence. An absence does not release you from your assignment or their deadlines. You are aware of all assignment deadlines well in advance of their due dates.
- 8. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.
- 9. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means:

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

## PARTICIPATION

All students are expected to participate in all class activities.

#### **COURSE EVALUATION & ASSESSMENT**

Lecture/Discussion Video Tapes/Films/DVDs Study Guides Laboratory Demonstration Internet Handouts Group Discussion Transparencies Gaming Computer Assisted Instruction (CAI) Critical Thinking Exercises

## EARLY ASSESSMENT MEASURE

An assignment will be given and completed before the 4<sup>th</sup> week of class to demonstrate the basic knowledge of manufacturing problems and their understanding of possible ways to solve them.

## INTERVENTION BASED ON EARLY ASSESSMENT OUTCOME

Each student will meet with the instructor and discuss the results of the assigned project. If the results indicate improvement is needed, additional lab time and tutoring will be available.

## MISSED OR LATE ASSIGNMENTS AND EXAMS

## No class/lab work will be made up.

Concerning Class/Lab grades:

I. Missing three (3) class/lab sessions will lower your final grade average by one letter grade

# II. It is mandatory to be in lab on time TWO TARDIES WILL BE EQUIVALANT TO ONE ABSENCE.

## STUDENT RESPONSIBILITIES

Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered **TARDY**. No late assignments will be accepted for full grade value. All assignments will be lowered by one letter grade for each day it is late. **You** are responsible for any assignment missed during your absence to place in

your final portfolio. An absence does not release you from your assignment or their deadlines. All students are expected to complete all assignments for their final portfolio. The portfolio is an on-going assignment to be completed on your own time. It **WILL** be in a paper **AND** digital format. **No exceptions!** 

## If you require extra lab time, please contact and schedule time through your instructor.

## SUPPORT FOR LEARNING

Students will be assessed for learning outcomes by the fourth week of classes. In this course students have several options to assist with learning course material. Each student will meet with the instructor to discuss his/her progress on this assignment. Lectures, power points, and handouts will be available to assist the student.

## ACADEMIC HONESTY POLICY

## Phillips Community College of the University of Arkansas

## Academic Misconduct Policy

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- 1. His/her grade in the course or on the examination affected by the misconduct may be reduced to any extent, including reduction to failure.
- 2. The student may be placed on probation or suspended from the college for a specific definite period.

In the case of repeated offenses, appropriate action up to and including permanent suspension from the college will be taken. The student may appeal either the finding of cheating or the penalty, or both, to the Student Relations Committee. Suspension and dismissal for academic reasons are not governed by the due process requirements of the Fourteenth Amendment; therefore, the disciplinary procedures do not apply.

## LABORATORY PROCEDURES: (if applicable)

1. No food or drink allowed in the classroom and/or lab.

2. <u>Absolutely no rude attitudes or behavior</u>. Please refer to the student discipline policies.

- 3. Come in prepared and ready to work
- 4. <u>NO horseplay allowed under any circumstances!</u>!
- 5. <u>Cell phones must be turned to "silent" or "vibrate" mode while in class.</u> <u>NO EXCEPTIONS!</u> No phone conversations or text messaging during class. No wireless headset devices allowed during class.
- 6. No personal cds and **NO** music devices are allowed in the lab.
- 7. <u>All</u> internet use must be approved by instructor. Please refer to the Internet Acceptable Usage Policy
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## CAMPUS SUPPORT SERVICES

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## ADA POLICY:

Scott Post is the Vice Chancellor for Student Services and serves as the ADA Compliance Officer. As an open enrollment college, PCCUA strives to meet the needs of students with self-disclosed disabilities who wish to advance their education. A student with a disability must meet with the campus Disabilities Coordinator to obtain reasonable accommodations. Students who have met with the Coordinator are more likely to experience success in a positive learning environment. If you have a disability, please contact the Student Disabilities Coordinator for your campus.

• Helena-George White (870) 338-6474 ext. 1135

The process of student referral under the Americans with Disabilities Act can be found in the Student Handbook OR ON THE College Web site at <u>http://www.pccua.edu/students/student-assistance/students-with-disabilities/</u>

## FERPA POLICY

Phillips Community College of the University of Arkansas complies with the Family Educational Rights and Privacy Act (FERPA) of 1974. A student has the right to inspect and review all of his/her records that meet the definition of educational records. No third party has the right to review student records.

## INSURANCE

Phillips Community College of the University of Arkansas does not provide insurance for its students. The college does encourage each student to secure his/her own insurance, and for that reason, the college has contacted United Healthcare Student Resources. Forms for this insurance are available in the Registrar's office.

## ACTS

The Arkansas Course Transfer System (ACTS) contains information about the transferability of courses within Arkansas Public Colleges and universities. Students are guaranteed the transfer of applicable credits and the equitable treatment in the application of credits for the admission and degree requirements. Course transferability is not guaranteed for courses listed in ACTS as "No Comparable Course." Additionally, courses with a "D" frequently do not transfer and institutional policies may vary. ACTS may be accessed on the Internet by going to the ADHE Website and selecting Course Transfer.

http://www.adhe.edu/divisions/academicaffairs/Pages/aa\_acts.aspx

Tentative Course Outline				
1/18	Course Overview; Syllabus Review;			
1/25	Chapter 1 – Technology: A Dynamic, Human Created System Chapter 2 – Technology as a System	Homework Chapter 1 – Test Your Knowledge & STEM Applications Homework Chapter 2 - Test Your Knowledge & STEM Applications		
2/1	Chapter 3 – Types of Technological Systems Activity 1 A	Quizzes Chapter 1 & 2 Homework Chapter 3 - Test Your Knowledge & STEM Applications		
2/8	Activity 1 B Chapter 4 – Inputs to Technological Systems	Quiz Chapter 3 Homework Chapter 4 - Test Your Knowledge & STEM Applications		
2/15	Chapter 4 Activity	Test of STEM applications		
2/22	Chapter 5 – Technological Processes	Quiz Chapter 4 Homework Chapter 5 - Test Your Knowledge & STEM Applications		
3/1	Chapter 6 – Outputs and Feedback and Control	Quiz Chapter 5		

	Activity 2 A	Homework Chapter 6 - Test Your Knowledge & STEM Applications
	Activity 2 B	Quiz Chapter 6
3/8	Chapter 7 – Production Tools and Their Safe Use	Homework Chapter 7 - Test Your Knowledge & STEM Applications
	Chapter 8 – Measurement Systems and	Quiz Chapter 7
3/15	Tools and Their Role in Technology Activity 3 A	Homework Chapter 8 - Test Your Knowledge & STEM Applications
3/20-3/24	Spring Break	
	Activity 3 B	Quiz Chapter 8
3/29	Chapter 9 – The Problem Solving and Design Process	Homework Chapter 9 - Test Your Knowledge & STEM Applications
5/25	Home Assignment	Take Your Technology Knowledge Home Assignment
	Chapter 10 – Developing Design	Quiz Chapter 9
4/5	Solutions Chapter 11 – Evaluating Design Solutions	Homework Chapter 10 - Test Your Knowledge & STEM Applications
4/5		Quiz Chapter 10
		Homework Chapter 11 - Test Your Knowledge & STEM Applications
	Chapter 12 – Communicating Design	Quiz Chapter 11
4/12	Solutions	Homework Chapter 12 -
	Activity 4 A	STEM Applications
4/19	Activity 4 B	Quiz Chapter 12
	Chapter 27 – Energy: The Foundation of Technology	Homework Chapter 27 - Test Your Knowledge &
	Take Your Technology Knowledge Home Assignment	STEM Applications

		Take Your Technology Knowledge Home Assignment
	Chapter 28 – Energy Conversion Systems Activity 8 A	Quiz Chapter 27 Homework Chapter 28 -
4/24	Activity 8 B Take Your Technology Knowledge	STEM Applications
	Home Assignment	Take Your Technology Knowledge Home Assignment
4/26	Chapter 35 – Technology: A Societal View	Quiz Chapter 28 Homework Chapter 35 -
	Chapter 36 – Technology: A Personal View	Test Your Knowledge & STEM Applications
	Activity 11 A Start Activity 11 B	Test Your Knowledge & STEM Applications
5-3	Present Activity 11 B	Final Quizzes Chapter 35 & 36

#### **Assignment Deadlines**

All assignments will be completed by the assigned deadlines. No late assignments will be accepted for full grade value. All assignments will be lowered by one letter grade for each day it is late. <u>You</u> are responsible for any assignment missed during your absence. All due dates are attainable if you attend class regularly and on time.

The syllabus and the policies, guidelines, and dates included are subject to change at the

instructor's discretion.
**Syllabus Receipt** 

IT 1273 Spring 2017

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name \_\_\_\_\_

Date\_\_\_\_

Class \_\_\_\_\_

Email \_\_\_\_\_

Phone \_\_\_\_\_



Course Name: Introduction Renewable Energy Course Number: College RET-103 Semester and Year: Fall 2017 Meeting Time & Place: Helena; Prerequisites: none Required Laboratories: none Credit Hours: 3 Revision Date: 7-24-2017

INSTRUCTOR INFORMATION: Instructor: Michael W. Shaw Office Location: Helena Office Phone #: 870-672-4201 ext. 1850 Stuttgart Helena Email Address: mshaw@pccua.edu Office Hours: Posted

#### **COURSE DESCRIPTION:**

This course is designed to provide students with an introduction and comprehensive overview of renewable energies, including biomass, geothermal, wind power, solar power, tidal power, nuclear power, fuel cells, and hydropower. Emphasis will be placed on the exploration of principles and concepts as well as the application of renewable energy technologies (RET) through the completion of experiments and design projects in existing and emerging renewable energy technologies. The primary topics include the principles of renewable energy, the future and past of energy consumption, the pros and cons of renewable energy, energy production and costs, energy conversion, energy assessments, fossil fuels, regulations, environmental issues and concerns, energy systems, power systems, calculating efficiency, alternative energy forms, and the social and cultural impact of renewable energy.

#### **COURSE GOALS**

The goal of this course is so that the student can go out into the industrial world and be able to demonstrate or reiterate how things work in manufacturing setting.

#### **METHODS OF INSTRUCTION:**

Lecture/Discussion Video Tapes/Films/DVDs Study Guides Laboratory Demonstration Internet Handouts Group Discussion Transparencies Gaming Computer Assisted Instruction (CAI) Critical Thinking Exercises

#### **INSTRUCTIONAL OBJECTIVES & MEASURES**

Throughout the semester we will have objectives that we will be discussing. It will be your responsibility to make sure that I am teaching you these objectives. We will have a mid-term and final as well as projects throughout the course.

- 1. Understand the history, significant milestones, and economic impacts of energy technologies;
- 2. Understand the history, significant milestones, and economic impacts of renewable energy technologies;

3. Demonstrate a basic understanding of the core concepts of energy technology;

- 4. Understand the primary forms and sources of energy;
- 5. Identify careers, career fields, and educational requirements for numerous occupational areas within the fields of energy and renewable energy technology;
- 6. Understand the potential and kinetic forms of energy;
- 7. Identify and discuss the various energy systems and sub-industries;
- 8. Describe the roles of renewable energy in meeting residential, commercial, industrial, and transportation wants, needs, and expectations;
- 9. Use basic hand and power tools to perform simple operations related to energy production and/or transformation;
- 10. Use software to complete tasks and solve problems related to energy and renewable energy technology;
- 11. Understand the basic principles underlying the production, measurement, and transport of energy products;
- 12. Demonstrate the ability to use common energy industry communication tools and practices;
- 13. Describe the future of energy use in the United States and technologies that could cause changes, and;
- 14. Describe energy conservation practices that can be used to reduce dependence of non-renewable energy sources.

#### **EXPECTED LEARNING OUTCOMES**

Reflect upon the critical skills and evaluate their own performance.

#### **PCCUA CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

All students receiving an Associate's Degree from PCCUA will possess the following competencies:

*Social and Civic Responsibility:* Behavior demonstrates adherence to legal/ethical standards established by society.

*Technology Utilization:* Use tools of the trade to achieve a specific outcome.

*Analytical & Critical Thinking*: Modes of reasoning including analyzing data, evaluating alternatives, setting priorities, and predicting outcomes.

*Communication:* The interactive process through which there is an exchange of verbal and/or nonverbal information.

*Cultural Awareness:* Acknowledgement that society is diverse with groups of individuals possessing differing beliefs, values, attitudes, and customs that are shared from one generation to the next.

PCCUA Core	Student Learning	Assessment	Assessment Criteria
Competency	Outcome	Method/Measurement	
Social and	Students will identify how	Lab Rubric	70% of the students will
Civic	a production line can be		score
Responsibility	run efficiently		70% or higher
Social and Civic Responsibility	Students will be able to explain the concepts of terms 'Just in Time manufacturing' and 'Lean manufacturing' and relate them to basic contexts	Written Tests	70% of the students will score 70% or higher

In this course, we will assess by the following criteria:

## TEXT AND READING MATERIALS: Alternative Energy Trainee Guide



By . NCCER

- Pub. Date: Sep 27, 2011 by Pearson.
- ISBN-10: 0-13-266625-1
- ISBN-13: 978-0-13-266625-1

#### **GRADING POLICY**

All Grades are calculated from 0 to 100% All exams are added and averaged throughout the semester.

Grading Scale 90-100 A 80-89 B 70-79 C 60-69 D 0-59 F/Incomplete

#### ATTENDANCE POLICY

1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and <u>on time</u>.

2. Students and their advisors will receive a referral notice on the second and third absence

3. On the third absence, the student will also be referred to the Student Success Coordinator

4. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.

5. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.

7. There are no excused absences, unless the student misses class while engaged in approved <u>college</u> activities. It is the student's responsibility to make up any missed work.

8. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means:

870-672-4201 ext. 1850 Stuttgart 870-338-7542 ext. 1056 Helena E-Mail: mshaw@pccua.edu \*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

#### **Electronic Devices:**

Cell phones, laptops, I-Pads, Kindles, and other electronic devices must be turned off and put away during class. Anyone who is observed text messaging or using an electronic device during class could be asked to drop the course.

# <u>Note</u>; this is a college class where college rules apply. If college rules are not adhered to during the semester you will be dropped from the college rolls.

#### PARTICIPATION

All students are expected to participate in all class activities. NO EXCEPTIONS

#### **COURSE EVALUATION & ASSESSMENT**

Grading will be based on class participation, in-class assignments, hands-on lab assignments, quizzes and exams.

INTERVENTION BASED ON EARLY ASSESSMENT OUTCOME (what intervention do you plan to implement if early assessment of student learning indicates the student is having problems with the material-must identify intervention which could be tutoring, review or material, review sessions after class, study sheets, one on one assistance)

#### MISSED OR LATE ASSIGNMENTS AND EXAMS

Deadlines for each assignment are attainable if you attend class as required. Therefore, **NO** late work will be accepted, unless you were absent and have discussed this with your instructor. In-class assignments throughout the term will consist of assigned readings, project ideas management concepts. Your assigned projects will be submitted by each individual deadline and will be included in your midterm and final grades. Your final grade will be the average of all of your assignment grades, including any and all exams. **All make-up tests will be given on one day later in each term. This day will be designated toward the last week of the term for which grading can be recorded.** 

#### **STUDENT RESPONSIBILITIES**

Punctuality is expected. Classes will begin at the time designated by the college. <u>After class attendance has</u> <u>been taken, your arrival to class can be considered an absence. You are responsible for making up any</u> <u>assignment missed during your absence</u>. An absence does not release you from your assignment or their deadlines. All students are expected to complete all assignments. **No exceptions! Not in chair they are absent.** 

#### SUPPORT FOR LEARNING

Students will be assessed for learning outcomes by the fourth week of classes. In this course students have several options to assist with learning course material. (Explain how this will be accomplished.)

#### The material that will be covered in the class is listed below;

#### 74101-11 Introduction to Alternative Energy

Identifies the need for alternative energy development. Describes the contributions and potential of individual alternative energy sources. Also covers the present U.S. electrical grid and issues affecting specific alternative energy source tie-in and reliability.

#### 74102-11 Biomass and Biofuels

Defines potential sources of biomass and biofuels and discusses their advantages and disadvantages for energy production. Discusses the future of biomass as well as biomass energy applications.

#### 74103-11 Nuclear Power

Describes nuclear power and its sources. Discusses the advantages and disadvantages of nuclear power, the future of nuclear energy, and nuclear power generation.

#### 74104-11 Solar Power

Describes solar photovoltaic (PV) power and how it is harnessed. Identifies the advantages and disadvantages of solar energy. Discusses the past, present, and future of solar energy, as well as solar PV applications.

#### 74105-11 Wind Power

Describes wind power and how it is harnessed. Identifies the advantages and disadvantages of wind energy. Discusses the past, present, and future of wind energy, as well as wind energy applications

#### ACADEMIC HONESTY POLICY

#### Phillips Community College of the University of Arkansas Academic Misconduct Policy

If a student discovers or attempts to discover the contents of an exam before the contents are revealed by the instructor, or obtains, uses, and/or attempts to supply to any person unauthorized material or devices, he/she will be subject to punishment for academic misconduct. The instructor has the responsibility for instructional activities of the course being taught, including the determination of cheating, plagiarism, or any other activity pertinent to the course or program function. Any student found guilty of an act of academic misconduct may be subject to either of the following penalties:

- 1. His/her grade in the course or on the examination affected by the misconduct may be reduced to any extent, including reduction to failure.
- 2. The student may be placed on probation or suspended from the college for a specific definite period.

In the case of repeated offenses, appropriate action up to and including permanent suspension from the college will be taken. The student may appeal either the finding of cheating or the penalty, or both, to the Student Relations Committee. Suspension and dismissal for academic reasons are not governed by the due process requirements of the Fourteenth Amendment; therefore, the disciplinary procedures do not apply.

#### LABORATORYPROCEDURES:

1. No food or drink allowed in the classroom and/or lab.

- 2. <u>Absolutely no rude attitudes or behavior</u>. Please refer to the student discipline policies.
- 3. Come in prepared and ready to work
- 4. <u>NO horseplay allowed under any circumstances!</u>!

5. <u>No Cell Phones.</u> **NO EXCEPTIONS!** Absolutely NO phone conversations or text messaging during class. No wireless headset devices allowed during class.

6. No personal cds, **NO** music devices, No cell phones are allowed in the lab without authorization of the instructor.

- 7. <u>All</u> internet use must be approved by instructor. Please refer to the Internet Acceptable Usage Policy.
- 8. The academic honesty policy must strictly be adhered to.
- 9. Students in all lab activities are required to wear the required personal protective equipment.

#### **CAMPUS SUPPORT SERVICES**

Phillips Community College of the University of Arkansas provides student support services that assist students in achieving their educational objective. Those services include advising, financial aid, counseling and guidance, and safety and security.

#### ADA POLICY:

Scott Post is the Vice Chancellor for Student Services and serves as the ADA Compliance Officer. As an open enrollment college, PCCUA strives to meet the needs of students with self-disclosed disabilities who wish to advance their education. A student with a disability must meet with the campus Disabilities Coordinator to obtain reasonable accommodations. Students who have met with the Coordinator are more likely to experience success in a positive learning environment. If you have a disability please contact the Student Disabilities Coordinator for your campus.

- DeWitt-Phyllis Fullerton (870) 946-3506 ext. 1610
- Helena-George White (870) 338-6474 ext. 1135
- Stuttgart-Sylvia Boyd (870) 673-4201 ext. 1809

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# The syllabus and the policies, guidelines, and dates included are subject to change at the Instructor's discretion.

#### Syllabus Receipt RET 103 – Intro to Renewable Energy Fall 2017

I understand the attendance policy as explained in this document and am aware that I am responsible for making up assignments and learning the material missed during my absence. An absence does not release me from submitting my assignments on due date.

I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name	
Date	
Class	
Email	
Phone	



Course Name: Biofuels ACTS Name; N/A Course Number: RET-113 ACTS Course Number: N/A Academic Year: 2018 Meeting Time & Place: TI-133 Prerequisites: None Required Laboratories: None Credit Hours: 3 **INSTRUCTOR INFORMATION:** 

Instructor: Michael W. Shaw Office Location: TI 133 Office Phone #: (870) 338 6474 ext. 1850 Email Address: mshaw@pccua.edu Office Hours: 8:00am 5:30pm

#### **COURSE DESCRIPTION**

This course introduces the history and early applications of Biodiesel and ethanol. Understanding biochemical methods involved in the generation of Biodiesel from feedstocks, animal fats, and waste vegetable oil. Structure, function and production of ethanol and its uses. Social, environmental, and economical aspects of the production and usage of alternative fuels. Exploring the new advancements in alternative fuel production.

#### **EXPECTED LEARNING OUTCOMES**

The Renewable Energy program is intended to provide students with the opportunity to begin a career in the renewable energy technology's occupation. The courses will provide the students with exposure to commercial and industrial chemistry procedures required for the production of biofuels. This exposure will provide them with the versatile job skills to build upon and flexibility during changing economic conditions.

#### **INSTRUCTIONAL GOALS, OBJECTIVES & MEASURES PCCUA**

This program will help students gain the skills and knowledge necessary to install, maintain and troubleshoot a variety of mechanical and chemical systems in the biofuel industry. The program gives students theory and practical experience related to all aspects of this occupation. Successful students will gain entry level experience in the basic chemistry and processes.

## **CORE COMPETENCIES**

The five core competencies (STACC) are incorporated within the context of the subject being taught. The competencies address skills the College has committed to developing in all students.

## 1) Social and Civic Responsibility

Students will demonstrate ability to identify, analyze, and remediate problems critical to their chosen discipline. The student will exercises good judgment and makes effective, sound, timely and informed decisions. Seeks to identify, analyze and resolve problems effectively.

## 2) Technology Utilization

Students will demonstrate ability to perform technical operations to their chosen discipline. They will lead their own technology integration through experimental applications with their colleagues and curriculum. Using systematic approach to integrating technology into their life both effectively and efficiently.

## 3) Analytical and Critical Thinking

Promotes efforts aimed at improving current business processes through a culture that fosters continuous improvement and innovation. Identifies and implements improvements and innovations that increase efficiency and enhance work quality.

## 4) Communication

Students will demonstrate the ability to communicate effectively in their chosen discipline using visual and oral media and facilitates open communication. Uses discretion and demonstrates sensitivity to confidentiality concerns. Listens effectively and provides appropriate feedback. Uses appropriate modes and media, targeting the amount, level of detail, and content of the information to the needs of the audience. Prepares clear, concise, and well-organized written documents and oral presentations required in an industrial environment. Conveys information clearly, confidently, and with the proper tone.

## 5) Cultural Awareness

Students will acknowledge the diversity of groups and demonstrate toward ideas from others. Displays and fosters integrity and honesty through the promotion of mutual trust

and respect, demonstrates and fosters high ethical standards, and treats others fairly and ethically.

#### **TEXT AND READING MATERIALS:**

Publisher: None Material for this class will be supplied by the instructor.

#### **GRADING POLICY**

#### Papers,

Each student may be required to write a formal, typed paper describing his/her emerging personal philosophy of the biofuel industry. The paper should relate to the student's understanding of biofuels technology as it has developed thus far to the educational theories studied in class.

#### Assignments;

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

#### Tests;

Tests will be given throughout the semester and will be based on what has been covered throughout the semester. Your weekly progress reports will be included as part of your test grade.

#### Mid Term Exam;

Your midterm grade will be based on your required work during the semester.

#### Final Exam;

The final exam will be based on your research paper and will count as 40% of your final grade

#### **Grading Scale**

A – 90-100 B – 80-89 C – 70-79 D – 60-69 F – 59 and below

## ATENDANCE POLICY

1. College attendance policies will be strictly adhered to. Students will be expected to attend each class regularly and on time.

2. Students and their advisors will receive a referral notice on the second and third absence

3. On the third absence, the student will also be referred to the Student Success Coordinator

4. Punctuality is expected. Classes will begin at the time designated by the college. After class attendance has been taken, your arrival to class is considered an absence.

5. You are responsible for making up any assignment missed during your absence. An absence does not release you from your assignment or their deadlines.

7. There are no excused absences, unless the student misses class while engaged in approved college activities. It is the student's responsibility to make up any missed work.

8. \*If you know of an impending absence or tardy, please contact the instructor by one of the following means.

\*Exceptions to this attendance rule may be based on individual circumstances and the instructor's assessment of the student's ability to finish course requirements. The final decision concerning absences is left to the instructor's discretion. A student's attendance will directly affect their grade in this course.

## MISSED OR LATE ASSIGNMENTS AND EXAMS

Contact the instructor in the event an assignment will not be completed in the allotted time.

## ACADEMIC HONESTY POLICY

Academic dishonesty involves acts that may subvert or compromise the integrity of the educational process of Phillips Community College of the University of Arkansas. Included is an act by which a student gains or attempts to gain an academic advantage for himself or herself or another by misrepresenting his or her or another's work or by interfering with the completion, submission, or evaluation of work. These include, but are not limited to, accomplishing or attempting any of the following acts:

- 1. Altering of grades or official records.
- 2. Using any materials that are not authorized by the instructor for use during an examination.
- 3. Copying from another student's paper during an examination.

- 4. Collaborating during an examination with any other person by giving or receiving information without specific permission of the instructor.
- 5. Stealing, buying, or otherwise obtaining information about an un-administered examination.
- 6. Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
- 7. Substituting for another person or permitting any other person to substitute for oneself to take an examination.
- 8. Submitting as one's own any theme, report, term paper, essay, computer program, other written work, speech, painting, drawing, sculpture, or other art work prepared totally or in part by another.
- 9. Submitting, without specific permission of the instructor, work that has been previously offered for credit in another course.
- 10. **Plagiarizing,** that is, the offering as one's own work the words, ideas, or arguments of another person without appropriate attribution by quotation, reference, or footnote. Plagiarism occurs both when the words of another are reproduced without acknowledgement and when the ideas or arguments of another are paraphrased in such a way as to lead the reader to believe that they originated with the writer. It is the responsibility of all College students to understand the methods of proper attribution and to apply those principles in all materials submitted.
- 11. Sabotaging of another student's work.
- 12. Falsifying or committing forgery on any University form or document.
- 13. Submitting altered or falsified data as experimental data from laboratory projects, survey research, or other field research.
- 14. Committing any willful act of dishonesty that interferes with the operation of the academic process.
- 15. Facilitating or aiding in any act of academic dishonesty

## PARTICIPATION

Guidelines for class participation will be designed and controlled by the instructor or negotiated with your students. By asking for their input, the instructor will give students a sense of ownership that can help them take the guidelines more seriously. The following guidelines will be strictly adhered to which will promote an atmosphere of mutual respect and collective inquiry.

- 1. Respect others' rights to hold opinions and beliefs that differ from your own. Challenge or criticize the idea, not the person.
- 2.

- 3. Listen carefully to what others are saying even when you disagree with what is being said. Comments that you make (asking for clarification, sharing critiques, expanding on a point, etc.) should reflect that you have paid attention to the speaker's comments.
- 4. Be courteous. Don't interrupt or engage in private conversations while others are speaking.
- 5. Support your statements. Use evidence and provide a rationale for your points
- 6. Allow everyone the chance to talk. If you have much to say, try to hold back a bit; if you are hesitant to speak, look for opportunities to contribute to the discussion.
- 7. If you are offended by something or think someone else might be, speak up and don't leave it for someone else to have to respond to it.
- 8. All students are expected to participate in all class activities. NO EXCEPTIONS

## **Electronic Devices:**

Cell phones, laptops, I-Pads, Kindles, and other electronic devices must be turned off and put away during class. Anyone who is observed text messaging or using an electronic device during class could be asked to drop the course.

Note; this is a college class where college rules apply. If college rules are not adhered to during the semester you will be dropped from the college rolls.

## **COURSE EVALUATION & ASSESSMENT**

All assignment will be due at the end of class each class period. Weekly updates on your research paper are expected.

## EARLY ASSESSMENT OF LEARNING MEASURE

An assessment of the students' progress will be evaluated prior the fourth of class. The assessments will include but not limited to; testing results, participation, lab activities, attendance and note taking.

## INTERVENTION BASED ON EARLY ASSESSMENT OUTCOME

If the student is not performing to his/her required levels, they be referred to their advisor for further recommendations or help such as tottering.

#### MISSED OR LATE ASSIGNMENTS AND EXAMS

Contact the instructor in the event an assignment will not be completed in the allotted time.

## STUDENT RESPONSIBILITIES

Punctuality is expected. Classes will begin at the time designated by the college. <u>After class</u> attendance has been taken, your arrival to class can be considered an absence. You are responsible for making up any assignment missed during your absence. An absence does not

release you from your assignment or their deadlines. All students are expected to complete all assignments. **No exceptions! Not in chair they are absent.** 

## SUPPORT FOR LEARNING

Students will be assessed for learning outcomes by the fourth week of classes. In this course students have several options to assist with learning course material. Any student not having a passing grade or have excessive absences will be referred to their college advisor or college support services.

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## LABORATORY PROCEDURES:

- 1. No food or drink allowed in the classroom and/or lab.
- 2. <u>Absolutely no rude attitudes or behavior</u>. Please refer to the student discipline policies.
- 3. Come in prepared and ready to work
- 4. <u>NO horseplay allowed under any circumstances!</u>!

# 5. <u>No Cell Phones.</u> **NO EXCEPTIONS!** Absolutely NO phone conversations or text messaging during class. No wireless headset devices allowed during class.

6. No personal cds, **NO** music devices, No cell phones are allowed in the lab without authorization of the instructor.

7. <u>All</u> internet use must be approved by instructor. Please refer to the Internet Acceptable Usage Policy.

- 8. The academic honesty policy must strictly be adhered to.
- 9. Students in all lab activities are required to wear the required personal protective equipment.

## **CAMPUS SUPPORT SERVICES**

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#### **FERPA POLICY**

Phillips Community College of the University of Arkansas complies with the Family Educational Rights and Privacy Act (FERPA) of 1974. A student has the right to inspect and review all of his/her records that meet the definition of educational records. No third party has the right to review student records without the student's permission, with very limited exceptions. For more information contact the Registrar's Office.

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## **Unit 1: Introduction to Biofuels**

- 1. Biofuels: Fuel such as methane produced from renewable biological resources such as plant biomass and treated municipal and industrial waste.
- 2. Biomass: Living and recently dead biological material that can be used as fuel or for industrial production.
- 3. Bioethanol: The same type of alcohol found in alcoholic beverages. It can be used as a fuel, mainly as a biofuel alternative to gasoline.
- 4. Feedstocks: Crops or products, like waste vegetable oil, that can be used as or converted into biofuels and bioenergy.
- 5. Carbon: A widely distributed element that forms organic compounds in combination with hydrogen, oxygen, etc.
- 6. Cellulose: The chief constituent of the cell walls of plants and of wood, cotton, hemp, paper, etc.
- 7. Enzyme: any of various proteins, as pepsin, originating from living cells and capable of producing certain chemical changes in organic substances by catalytic action, as in digestion .

Glucose: A syrup containing dextrose, maltose, and dextrin, obtained by the incomplete hydrolysis of starch.

- 9. Fatty Acid: any of a class of aliphatic acids, esp. palmitic, stearic, or oleic acid, consisting of a long hydrocarbon chain ending in a carboxyl group that bonds to glycerol to form a fat .
- 10. Glycerin: An oily, viscous liquid, C3H5(OH)3, colorless and odorless, and with a hot, sweetish taste, existing in the natural fats and oils as the base.

- 11. Emissions: A substance discharged into the air, especially by an internal combustion engine.
- 12. Byproduct: A secondary or incidental product, as in a process of manufacture.
- 13. Biodiesel: a fuel made primarily from oily plants (such as the soybean or oil palm) and to a lesser extent from other oily sources (such as waste cooking fat from restaurant deep-frying)..
- 14. Carbon Dioxide: A colorless, odorless, incombustible gas, CO2, present in the atmosphere and formed during respiration, usually obtained from coal, coke, or natural gas by combustion, from carbohydrates by fermentation.
- 15. Ester: A compound produced by the reaction between an acid and an alcohol with the elimination of a molecule of water.
- 16. Fossil Fuel: Any combustible organic material, as oil, coal, or natural gas, derived from the remains of former life.
- 17. Hydrocarbon: Any of numerous organic compounds, such as benzene and methane that contain only carbon and hydrogen.
- 18. A biotic: Of or characterized by the absence of life or living organisms.
- 19. Yeast: Something that causes fermentation in carbohydrates into alcohol and carbon dioxide.

## Unit 2: BASIC BIOFUEL PRODUCTION

- 1. Stirling Engine: An external-combustion engine in which heat from outside the cylinders causes air confined in the cylinders to expand and drive the pistons.
- 2. Internal Combustion Engine: An engine where the compression of gases occurs inside the cylinder.
- 3. Biogases: Gases created by the anaerobic fermentation of biological materials.
- 4. Gums: Colloidal mixtures of polysaccharides and mineral salts.
- 5. Canola Oil: a type of edible oil derived from plants. The oil is extracted from a group of cultivars of rapeseed variants.
- 6. Peanut Oil: An organic oil derived from peanuts, noted to have the slight aroma and taste of its parent legume.

- 7. Soybean Oil: The oil is extracted either with solvents, hydraulic presses or expirers from the soybean seed.
- 8. Fuel Chemistry: The chemical composition of various fuels used in biofuel production.

## Unit 3: BIODIESEL

- 1. Diesel: An internal-combustion engine that burns heavy oil, or diesel.
- 2. Batch Production: The primary characteristic of batch production is that all components are completed at a workstation before they move to the next one.
- 3. pH Meter: An electronic instrument used to measure the pH (acidity or alkalinity) of a liquid.
- 4. Flash Point: The lowest temperature at which a liquid in a specified apparatus will give off sufficient vapor to ignite momentarily on application of a flame.
- 5. Gas Chromatography: A chromatograph used for the separation of volatile substances.
- 6. Meniscus: The convex or concave upper surface of a column of liquid, the curvature of which is caused by surface tension.

## Unit 4: OTHER BIOFUEL SYSTEMS

- 1. Unintended consequences, distilleries, reactors, methanol, ethanol, grain crops, algae.
- 2. Distilleries: A place or establishment where distilling, esp. the distilling of liquors, is done.
- 3. Reactors: Any of several kinds of apparatus that maintain and control a reaction for the production of energy or artificial elements.
- 4. Methanol: A light volatile flammable poisonous liquid alcohol; used as an antifreeze and solvent and fuel and as a denaturant for ethyl alcohol.
- 5. Ethanol: Any of a series of hydroxyl compounds, the simplest of which are derived from saturated hydrocarbons.
- 6. Grain Crops: Grains mostly found cultivated for their edible brans or fruit seeds.
- 7. Algae: Any of various chiefly aquatic, eukaryotic, photosynthetic organisms, ranging in size from single-celled forms to the giant kelp.

## **Unit 5: BIOFUEL EXPERIMENTATION AND TESTING**

- 1. Nitrogen: a colorless, odorless, gaseous element that constitutes about four-fifths of the volume of the atmosphere and is present in combined form in animal and vegetable tissues.
- 2. Catalysts: A substance, usually used in small amounts relative to the reactants, that modifies and increases the rate of a reaction without being consumed in the process.
- 3. Thermocouple: Used to determine the temperature of a third substance by connecting it to the junction of the metals and measuring the electromotive force produced.
- 4. Yield: To give forth or produce by a natural process or in return for cultivation.
- 5. Cultures: The growing of microorganisms, tissue cells, or other living matter in a specially prepared nutrient medium.
- 6. Phosphorus: A highly reactive, poisonous, nonmetallic element occurring naturally in phosphates.
- 7. Lye: A highly concentrated, aqueous solution of potassium hydroxide or sodium hydroxide.
- 8. Sulfur Oxide: Formed from the sulfur contained in raw materials such as coal, oil and metalcontaining ores during combustion and refining processes.
- 9. Carbon Neutral: The effort to emit no carbon dioxide into the atmosphere; also, employing a technique to absorb carbon dioxide so it is not emitted

#### **Class Assignments;**

- 1. Write and present a paper on a selected topic in biofuels production or operation systems
- 2. Demonstrate the ability to describe the core concepts and principles of biofuel production and distribution
- 3. Participate in a discussion on the fundamentals of biofuel production, conversion, and use
- 4. Define the following terms: Biofuels, biomass, bioethanol, feedstocks, carbon, cellulose, enzyme, glucose, fatty acid, glycerin, emissions, byproduct, biodiesel, carbon dioxide, ester, fermentation, fossil fuel, hydrocarbon, a biotic, yeast
- Develop a written biography of a pioneer in the field of energy (i.e., Rudolf Diesel, Thomas Edison, Michael Faraday, James Prescott Joule, Gutliemo Marconi, Georg Simon Ohm, Nikola Tesla, Isaac Newton, etc.)
- 6. Conduct an Internet search to identify as many local energy companies or industries as possible (within a 50 mile radius) and sort them into logical categories (i.e., traditional, alternative, production, transportation, distribution, etc.)

- 7. Disassemble and reassemble a small gasoline engine and identify the various engine components
- 8. Participate in a discussion on basic fuel chemistry that includes information on feedstock chemistry, the chemistry of fats, oils and gums.
- 9. Prepare and present a multi-media presentation that outlines the risks, benefits, and costs associated with biofuel conversions
- 10. List the farming, transportation, commercial, and industrial applications of the modern diesel engine.
- 11. Describe the major components and working principles of a diesel engine and diesel fuel systems.
- 12. Complete a technical paper that provides an illustration of a diesel engine, a numbered parts list, and a brief description of the diesel engine operation
- 13. Participate in a discussion of the various sources of biomass (i.e., wood, plants, algae, farm waste, urban waste, etc,) that can be used to generate biofuels, the benefits and drawbacks of each, and research being conducted on each
- 14. Write a 3-page paper exploring the unintended consequences of technological change and the likely affect of increased biofuel usage in the United States

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## Syllabus Receipt RET 113 Biofuels Spring 2018

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I have read and understand the content of this syllabus provided by my instructor. I agree that I follow the policies within this syllabus

Name _	
Date	
Class	
Email	
Phone	



#### Applied Technology Division Welding

Course Title: Introduction to Welding DWE-Metal Fab, (Welding Technology) Course Number: WG 115,1152,1153 Academic yr .Spring, 2019 Credits: 5 Class Time: DeWitt Campus: 9:43am to 10:28am, 12:52pm to 1:37pm, Mon. thru Fri. Helena Campus; 5:00pm to 10:00pm Tues. Date of Preparation: Revised Jan. 4, 2019 Instructor: Daniel Whitted 870-946-3506 ext. 1618 Email: dwhitted@pccua.edu Office Hours: 9;00am—2:30pm Mon. thru Fri.

Text: <u>Welding Skills</u> 4th edition B. J. Moniz & R. T. Miller

> <u>Welding Skills Workbook</u> 4th edition Jonathan F. Gosse

Additional Reading Material: Furnished by Instructor as appropriate.

**Materials Required:** Welding helmet with shade #10 or darker lens, leather gloves, leather cape and bib, chipping hammer, wire brush, tape measure, soap stone, pliers, cutting goggles, ear plugs, safety glasses, welders skull cap, paper & pencil/pen (<u>Absolutely NO red/pink ink</u>).

**Course Description:** This is the study of the theory and application of basic Shielded Metal Arc Welding, Gas Metal Arc Welding, Gas Tungsten Arc Welding and Oxy-Fuel Cutting. This course will include the setting of equipment, selecting electrodes, running beads in the flat position along with covering the principles and procedures for flame cutting processes including: oxy-acetylene cutting, plasma cutting, exothermic cutting, air carbon arc cutting, correct handling of cutting equipment and safe shop practices.

## Prerequisite: None

**Assignments:** Assignments will be made prior to lectures and the student should be prepared for discussion in the classroom. All homework assignments are due on time. When the student completes each lab assignment he/she will bring the specimen to the instructor for evaluation and check off on the competency profile.

## Each student will be responsible in helping clean the lab area.

## **Objectives:**

By the end of this course the student will be able to:

- A. List five safety rules for handling oxyacetylene welding/cutting equipment.
- B. Identify oxyacetylene welding/cutting equipment.
- C. Demonstrate safety for handling various cutting equipment.
- D. Name two factors that determine tip size in oxy-fuel cutting.
- E. Identify three types of oxyacetylene welding/cutting flames.
- F. Demonstrate use of various sizes and types of cutting tips based on metal thickness.
- G. Make a 90 degree cut on mild steel, stainless steel and aluminum.
- H. Cut a hole in mild steel, stainless steel and aluminum.
- I. Make a beveled cut on mild steel, stainless steel and aluminum.
- J. Perform back gouging technique.
- K. SMAW stringer bead overlay, weave bead overlay, lap joint, tee joint, corner joint and single vee butt joint in the flat position.
- L. List five properties of a good weld.
- M. Set up power supply for Mig.
- N. Set up wire feeder for Mig.
- O. Select and install wire (electrode).
- P. Select/adjust current and gas.
- Q. Demonstrate GMAW push/pull stringer bead overlay, weave bead overlay, lap and tee joint in the flat position.
- R. Set up variable voltage power supply for AC and DC Tig welding.
- S. Select and prepare electrode for Tig.
- T. Select proper filler metal.
- U. Demonstrate GTAW stringer bead, lap joint, tee joint and corner joint in the flat position.

Electrodes used in each process may be one or a combination of the following. SMAW 1/8", E-7018, E-6010 GMAW .035", .045", ER70S-6, ER308L-Hi Silicon GTAW 3/32", EWTh-2 Filler rod for GTAW 1/16", 3/32", ER70S-2, ER308L

Additional objectives will be listed on handouts as appropriate.

The objectives will be achieved through a combination of written & listening experiences, performance tests along with observation on a daily basis.

The instructor reserves the right to make curriculum changes.

## Content:

- A. Safety
- B. History
  - 1. Development
  - 2. Types of welding processes
- C. Equipment
  - 1. Shielded metal arc
  - 2. Gas metal arc
  - 3. Gas tungsten arc
- D. Special Cutting Processes
  - 1. Oxy-fuel cutting
  - 2. Plasma
  - 3. Air carbon-arc cutting
  - 4. Exothermic cutting
- **Evaluation:** Examinations 80% of grade. Quizzes, worksheets, class participation equal 20% of grade. Lab grade will consist of A, B, C, D or F for quality of welds.

Written exams and quizzes will contain short answer, fill in the blank, multiple choice, matching, true and false and/or essay type questions. Lab tests will consist of visual and destructive examinations.

Pop tests/quizzes **CANNOT** be made up and a grade of **ZERO** is recorded.

Total grade will consist of 80% lab, 20% lectures.

## Please follow this procedure to get your assignment.

- 1. Call the principal's office early the morning to get your assignment for the day you are absent.
- 2. An assignment sheet will be sent around to your child's teacher.
- 3. The assignments can be made to send them home with another student.

Students are responsible for all assignments covered during their absence in addition to keeping up with current assignments. Students are responsible for seeing instructor to set up a make-up schedule. All make up tests will be completed by the last day of the grading period (mid-term or semester) or it becomes a zero. Each lab assignment not completed by the end of the grading period will receive an F.

All welding supplies are to be used efficiently.

Grading Scale: A 100-90, B 89-80, C 79-70, D 69-60, F 59-0

Attendance: Students are expected to attend classes. Students becoming excessively absent will receive an EW as stated in the college catalog (3 <u>absences</u>).

## Early Assessment of Learning Measure:

Students will be assessed by the fourth week of class to evaluate possible need for intervention for successful progression in coursework. Assessment will be based upon current course grades and attendance record. Grades will be discussed with at risk students and a written plan with individualized interventions will be developed with the student and placed in student's file.

#### Intervention Based On Early Assessment Outcome:

- 1. Meeting with HS relations staff; formal notice to HS counselors
- 2. Discussing study skills and grading policy
- 3. Participation in class discussion

**Punctuality:** Tardiness will not be tolerated -- Students are expected to arrive at their classroom/lab prior to the beginning of classroom/lab activities. Any student entering the classroom/lab after the class roll has been called will be considered absent. There is one exception to this rule: Students who have been held over by their instructors.

#### Cellular phones will not be permitted in class. TURN THEM OFF!

Course CalendarIntro to Welding WG 115This schedule is tentative and scheduled to change.

Development of the Welding Processes Types of Welding Processes Selection of the Proper Welding Processes	Chapter 1 Week One	
Safety Accidents Ventilation Personal Protective Equipment Hazardous Substance Containers Material Safety Data Sheets Electromagnetic Spectrum (Welding Rays) Fires	Chapter 2 Week Two	
Welding Terminology A.W.S. Welding Positions Welding Location Weld Joints Weld Types Joint Selection Joint Geometry	Chapter 3 Week Three	
Oxygen Acetylene & Alternate Fuels Protective Equipment	Chapter 4 Weeks Four and Five	

Flash Arrestors Check Valves Cylinders Torches Welding/Cutting Tips Regulators Welding – Oxy-Fuel Equipment Special Gas Welding Processes

Assembling the Welding/Cutting Outfits Set Up & Operation Acetylene Flames Backfire/Flashback

Oxy-Fuel Gas Cutting (OFC) Pressures Gases Cast Iron Plasma Arc Cutting Air Carbon Arc Gouging Exothermic Cutting Washing Safety Precautions

**Electrical Terms** Welding Current – AC/DC Welding Machines **Classification of Machines** Personal Equipment Shop Equipment Ventilation Machine Settings Proper Arc Lengths Electrode Angles (Work & Travel) **Travel Speed Proper & Improper Beads** Checking & Adjusting Equipment Electrode Holder (Stinger) Adjusting Amperage Crater Formation **Undercutting & Overlapping** Weld Cleaning **Electrode Selection & Angle Crater Formation** 

Chapter 5 Week Six

Chapter 25 Weeks Seven and Eight

Chapters 8, 10 & 11 Weeks Nine and Ten Restarting an Arc Weave Patterns Surfacing (Padding) Arc Blow Lab clean up

Week Fifteen

#### Welding Lab Competencies

Flat Position SMAW

Stringer bead overlay pad 7018 Stringer bead overlay pad 6010 Weave bead overlap pad 7018 Weave bead overlap pad 6010 Lap joint 7018 Lap joint 6010 Tee joint multi-pass 7018 Tee joint multi-pass 6010 1G & test 7018

Flat Position GMAW, short circuit, spray & pulse transfer

Stringer bead overlay pad push/drag Stringer weave bead overlay pad push/drag Lap joint push/drag Tee joint multi-pass push/drag

**Oxy-Acetylene Cutting** 

¼" plate straight cut3/8" plate straight cut3/8" plate 45 degree bevel3/8" plate circles

Flat Position GTAW, mild steel

Pad ER70S-2 Lap joint ER70S-2 Tee joint ER70S-2 Corner joint ER70S-2

Plasma Cutting Exothermic Cutting Air-Carbon-Arc-Cutting

## **Academic Honesty Policy**

Plagiarism and other forms of academic dishonesty are prohibited. Plagiarism includes, but is not limited to, copying another individual's work and taking credit for it.

## **Campus Support Services**

Phillips Community College of the University of Arkansas provides student support services that assist students in achieving their educational objective. Those services include advising, financial aid, counseling and guidance, and safety and security.

## **ADA Policy**

Scott Post, Vice chancellor for Student Services, serves as the ADA Compliance Officer. If you reside in Arkansas County you may contact Vice Chancellor Carolyn Turner (DeWitt) or Kim Kirby (Stuttgart). The process of student referral under the Americans with Disabilities Act can be found in the Student Handbook.

Helena- George White (870)-338-6474 ext. 1135 DeWitt- Phyllis Fullerton (870)-946- 3506 ext. 1610

#### **FERPA Policy**

Phillips community College of the University of Arkansas complies with the family Educational Rights and Privacy Act (FERPA) of 1974. A student has the right to inspect and review all of his/her records that meet the definition of educational records. No third party has the right to review student records.

#### Insurance

Phillips Community College of the University of Arkansas does not provide insurance for its students. The college does encourage each student to secure his/her own insurance, and for that reason, the college has contacted United Healthcare Student Resources. Forms for this insurance are available in the Registrar's office.

## ACTS

The Arkansas Transfer systems (ACTS) contains information about the transferability of courses within Arkansas Public Colleges and universities. Students are guaranteed the transfer of applicable credits and the equitable treatment in the application of credits for the admission and degree requirements. Course transferability is not guaranteed for courses listed in ACTS as 'No Comparable Courses.) Additionally, courses with a "D" frequently do not transfer and institutional policies may very, ACTS may be accessed on the internet by going to the ADHE Website and selecting Course Transfer.

## **PCCUA Core Competencies**

#### Communication:

The interactive process through which there is an exchange of verbal and/or nonverbal information.

Cultural Awareness:

Acknowledgement that a society is diverse with groups of individuals possessing differing beliefs, values, attitudes, and customs that are shared from one generation to the next.

Social and Civic Responsibilities:

Behavior that demonstrates adherence to legal/ethical standards established by society.

Analytical & Critical:

Thinking modes of reasoning including analyzing data, evaluating alternatives, setting Priorities, and predicting outcomes.

Technology Utilization:

Use tools of the trade to achieve a specific outcome.

## **Classroom Behavior & Course Syllabus**

Students are reminded that this is a college course. Therefore, students are expected to behave in an appropriate manner. **Disruptive, offensive, rude, inconsiderate and/or disrespectful behavior will not be tolerated at any time.** Some examples of inappropriate behavior include the use of offensive language, excessive talking, aggressive behavior, disrespect for others, destruction to college property, stealing college property, etc. Also included is student refusal or nonparticipation in his or her classroom assignments. Students who chose to behave inappropriately will be asked to leave and they will not be allowed to return without permission from the proper administrators.

I acknowledge that I have received a copy of the course syllabus for this class and that I fully understand the content and will abide by its rules and regulations.

Course Title: Intro to Welding

Course Number: WG-115, 1152, 1153

Name:<u>(</u>print)\_\_\_\_\_

Signature: \_\_\_\_\_