



Faculty Workshop Session 1

For the NSF Project: “Scaling Elements of a Competency-based/
Hybrid Instructional Model in Adv. Mfg. Courses”

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Northwest State Community College





Scaling CBE Elements Faculty Workshop:

- *1. Session 1: 5/20/22, 1:00 – 3:00pm EDT
- 2. Session 2: 5/27/22, 1:00 – 3:00pm EDT
- 3. Session 3: 6/3/22, 1:00 – 3:00pm EDT

Handouts for the Workshop is available at the Project Website:

https://ate.is/Scaling_CBE



Objective of this Workshop:

Give the Participants the knowledge and tools to implement a small change into one or more of their courses, that will increase the effectiveness and/or access of the course for the students.

- *Implementing a YouTube video into your course (or create your own)
- *Moving the assessments to an online format
- *Finding OER to implement to supplement or replace a textbook
- *More hands-on skills development
- *Implement a certification into a course



Workshop Session 1 Topics:

1. Short History of How We Got Here (Competency-Based/Hybrid)
2. Overview of the Scaling CBE Elements Project
3. Examples of how 4 faculty improved their curriculum
4. Define OER and Active Learning Objects
5. Explain the Creative Commons licensing structure
6. Where to find OER, remix it, and reuse it for student learning
7. Alignment of curriculum to employer needs

Instructional Elements to Improve Technical Courses





Learning from Successful Competency-Based Models:

1. This project was designed around the concept of sharing information with faculty on how to improve their courses, based on information learned by converting traditional courses to a Competency-based Hybrid model.
2. Salt Lake Community College, Utah
3. Northwest State Community College, Ohio
4. Front Range Community College, Colorado



A Short History of How NSCC Got Here

1. NSCC won a DOL & NSF grant in 2014
2. Grants were to move Lec/Lab Tech course to a CBE model
3. The initiative was driven by local employers
4. 14 Industrial Tech courses converted to a CBE/Hybrid model.
5. Project focused on innovative technology to accelerate learning
6. Learning objects, interactive simulations & virtualization
7. Scaling Project is about sharing new methods of learning



What is Competency-based Education (CBE)?

Competency-based Education consists of two components:

***Mastery of Skills** - The CBE course is typically parsed into modules, with assessments in each module that must be passed at the mastery level.

***Flexible Pacing** - Student will progress through a course at their pace of learning (and of course mastery). Some students will finish early, and some will take a little longer.



HOME4TECHS

Hands On Maintenance Education 4 TECHnicians



Problem:

- Curriculum needed realignment to employer needs
- Traditional college schedules no longer works for employers
- Inconsistent skill levels of graduates
- Completion of traditional college certificate/degrees take too long

Solution:

- Redesign the curriculum to meet employers needs
- Build a **competency-based, hybrid instructional model**
- Require individual skill assessments
- Move the courses' **lecture portion to an online format**
- Utilize technology tools to accelerate learning
- Offer the students a **flexible open-lab schedule**

Project consists of 3 distinct areas:

Curriculum

- Realignment of curriculum
- Competency-based learning
- Hybrid course model
- Modular online eLearning
- Hands-on assessments
- Open lab learning model

Technology to accelerate learning

- Virtual machines for each student
- Hands-on hardware simulations
- Student access to software 24/7
- Virtual interactive simulations
- MOOCs

Faculty professional development

- Quality matters
- Instructional systems design
- Online course development
- Instructing online courses
- Technical content cross-training
- Learning object development



Programmable Controller Course
Allen Bradley MicroLogix and CompactLogix

Motors & Controls
Allen Bradley PowerFlex 70s and 525s

Servo & Robotics
Fanuc LR Mate 200iD



northweststate.edu/HOME4TECHS





A Few Changes to the Instructional Model:

1. Labs & Skills Development were aligned to Workplace Skills
2. Individual Hands-On Assessments
3. Moved the lecture portion to an Online environment
4. Applied multiple methods of learning (videos, Voice/PPT, etc)
5. Interactive online simulations
6. Tried to transform students to be “Adaptive Learners”



Why Move the Lecture Portion Online (Hybrid)

1. Create more time for Hands-On Learning & Skills Development
2. Efficiency: Faculty have to work too hard preparing to lecture
3. Videos: Minimize faculty showing the same thing multiple times
4. No more test grading (LMS grades), immediate student feedback
5. Dissemination of instructional material to students 24/7
6. Put the task of learning on the shoulders of the student
5. Faculty can spend less time on campus

Current Industrial Tech course delivery model. Course parsed into 8 modules with 2 assessments per module. Lecture is replaced with online content (hybrid).

Course Schedule in an 8-week mini-semester

	Week 1 Module 1	Week 2 Module 2	Week 3 Module 3	Week 4 Module 4	Week 5 Module 5	Week 6 Module 6	Week 7 Module 7	Week 8 Module 8
Asynchronous Available 24/7	Online Content	Online Content	Online Content	Online Content	Online Content	Online Content	Online Content	Online Content
	KAAs	KAAs	KAAs	KAAs	KAAs	KAAs	KAAs	KAAs
Scheduled On campus	Open Lab Time	Open Lab Time	Open Lab Time	Open Lab Time	Open Lab Time	Open Lab Time	Open Lab Time	Open Lab Time
	HOAs	HOAs	HOAs	HOAs	HOAs	HOAs	HOAs	HOAs

What does Scaling Elements actually mean?

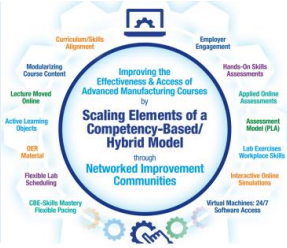


A Mechanical Faculty has decided to integrate Automation Studio software into their Fluid Power Course(s) at their Community College



Series of Videos on how to use Automation Studio software

Fluid Power Course(s)



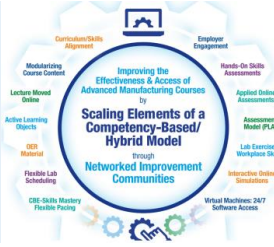
What is Effectiveness & Access?

*Improving the Effectiveness of a Course

- *What is it that students find difficult to learn?
- *How can you make your classroom time more efficient?
- *How can you make your lab time more efficient?
- *Learning objects focused on lab equipment

*Improving the Access of a Course

- *Is material available to the student 24/7 to learn from?
- *Can the students view PDFs and Video on their portable device?
- *Is there flexible lab times in case a student needs flexibility?
- *Self-proctored LMS assessments



Scaling CBE Element Project has 3 Parts

1. Partner college identify a problem, and scale an element into course/curriculum for improvement.
2. NSCC will demonstrate how to convert traditional lecture/lab courses to a CB/H model through reverse design
3. Workshops are offered to faculty in the 4 partner college states, teaching how the CB/H elements can improve student learning



4 Partner Colleges Improving Curriculum

*Ohio: Northwest State Community College, Archbold

*North Carolina: Robeson County CC, Lumberton

*Michigan: Henry Ford CC, Dearborn

*Arkansas: South Arkansas CC, El Dorado



Northwest State Community College:

* Archbold, Ohio

* Working with Faculty Josh Verhoff to build a Video object

* Purpose is to increase effectiveness of student learning, by using a learning objects focused on their lab equipment

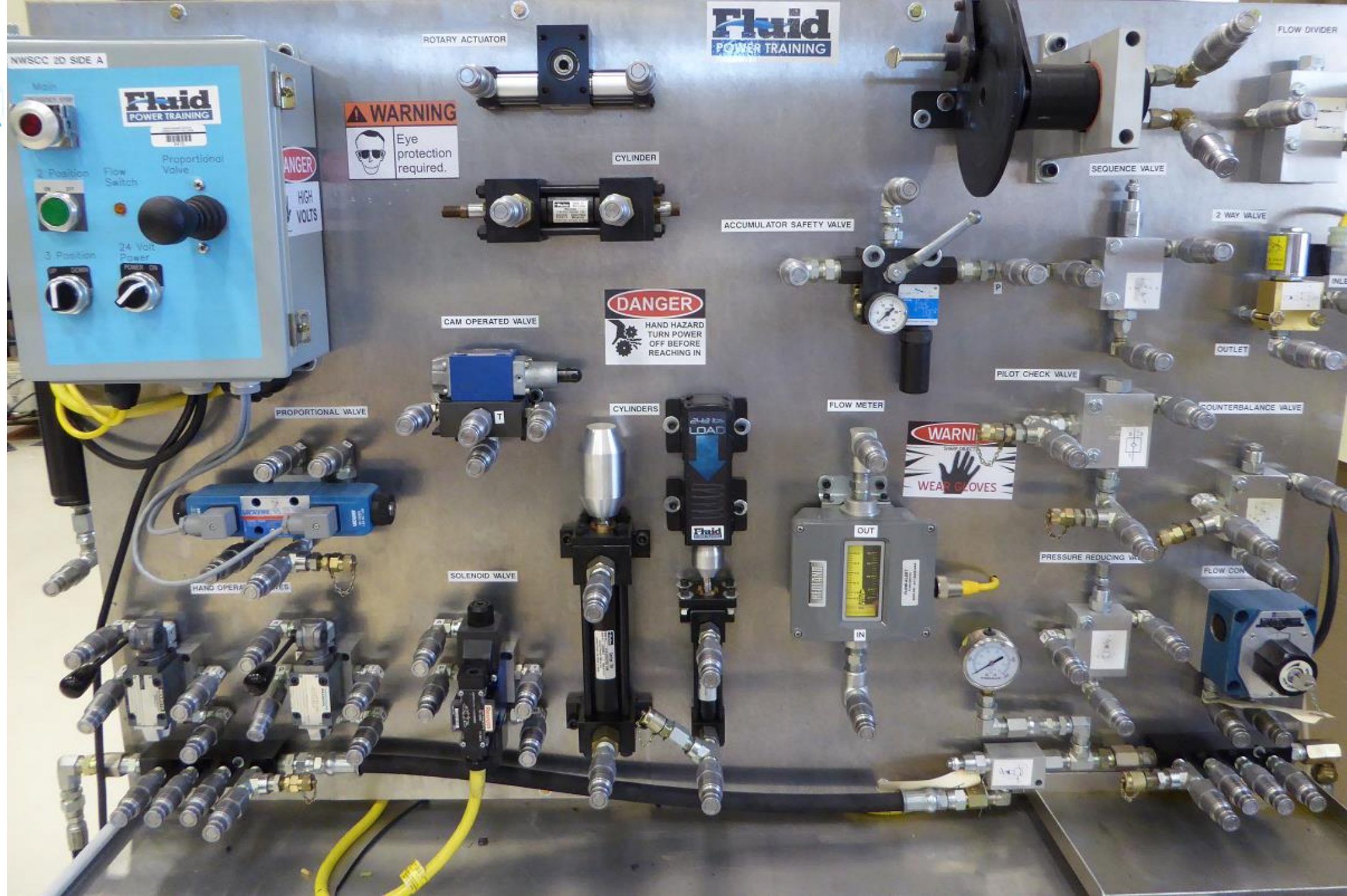
* Using Camtasia Recorder/Producer to create a series of videos on Hydraulics Equipment

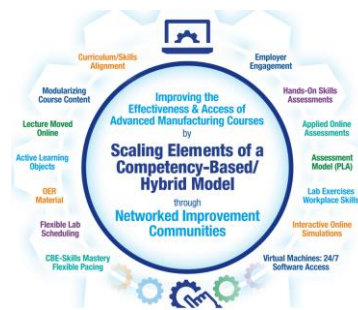
* IND134 Industrial Fluid Power I

Curriculum/Skills Alignment
 Modularity Course Content
 Lecture Moved Online
 Active Learning Objects
 Q&A Material
 Flexible Lab Scheduling
 C&E Skills Mastery
 Flexible Pacing

Improving the Effectiveness & Access of Advanced Manufacturing Courses by
Scaling Elements of a Competency-Based/Hybrid Model
 through
Networked Improvement Communities

Employer Engagement
 Hands-On Skills Assessments
 Applied Online Assessments
 Assessment Model (PLA)
 Lab Exercises
 Workplace Skills
 Interactive Online Simulations
 Virtual Machines: 20/7 Software Access

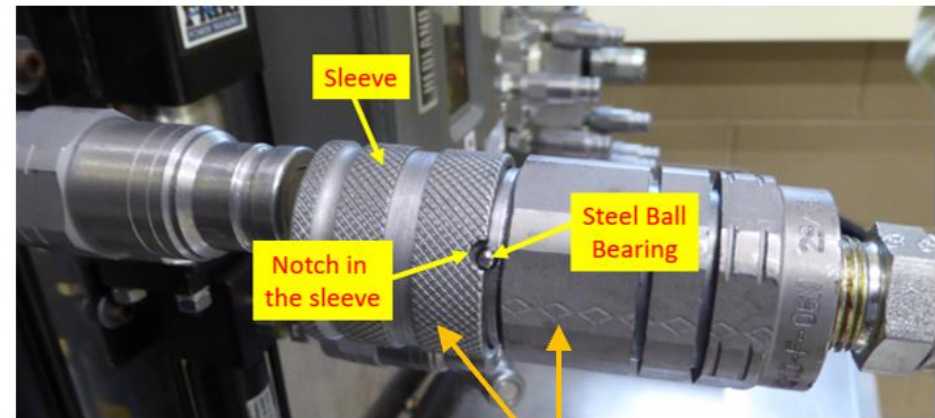




ISO Symbols and Lab Station Components



Double Coupler with Check Valve



- Quick change coupler with check valve
- As shown on end of hose (quick change coupler with check valve)



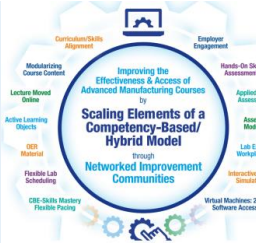
Horizontal Flexible Line



- Flexible hose lines

Replenishing Fluid in Reservoir

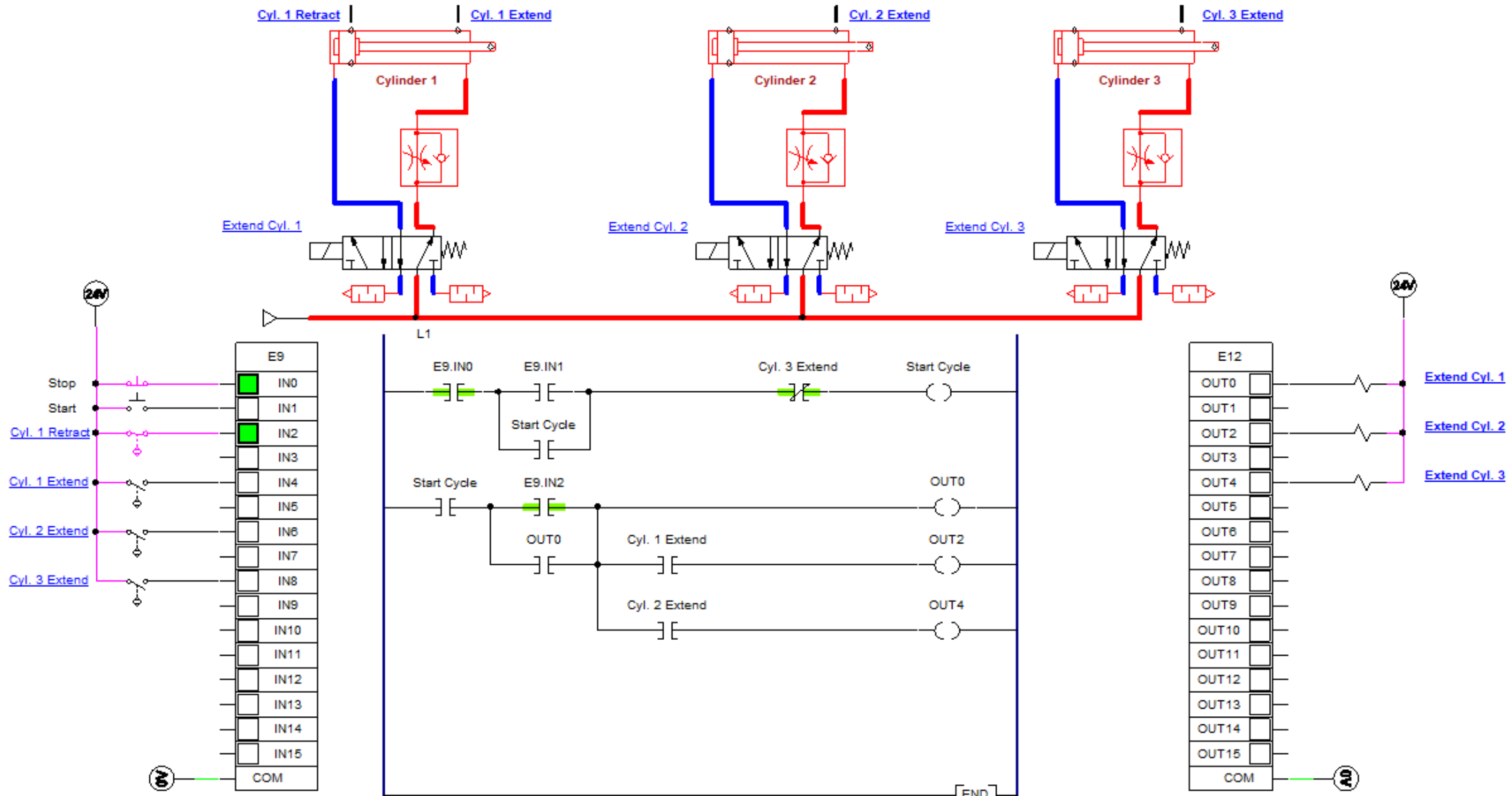
<https://youtu.be/UIYn7mS3yec>

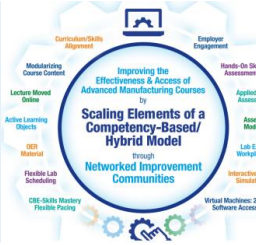




Example of an interactive Simulation in Fluid Power I

Explanation of the Circuit: <https://www.youtube.com/watch?v=H37poG-9z04&feature=youtu.be>





Robeson Community College:

*Lumberton, North Carolina

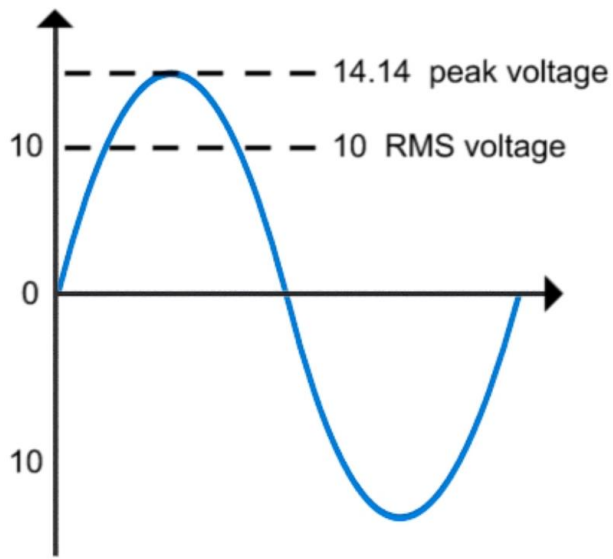
*Working with Faculty Heath Worriax to implement OER, and to implement PLC software through Virtual Machines

*Purpose is to increase effectiveness and access of student learning, using learning objects and simulations

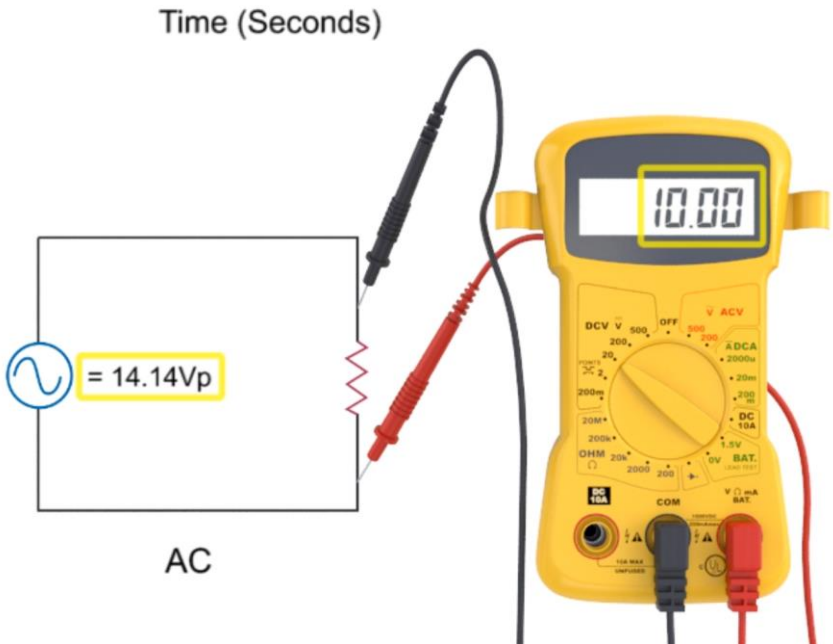
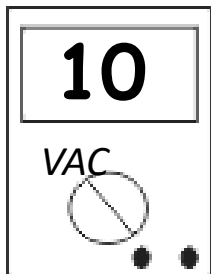
*Used existing OER from Skillscommons, and implemented Virtual Machines into the course for student access to PLC software

*Intro to Programmable Logic Controllers

AC Quantity Terms:



$$V_p = 1.414 \times 10$$



Three important terms to know when working with AC systems is Peak Voltage, Peak to Peak Voltage, and RMS voltage.

First of all, RMS stands for Root Mean Square. RMS is roughly the equivalent of what the voltage would be in a DC circuit. In the lower graphic, notice that the AC voltage is 14.14 Vp (peak), which will be explained in future slides, but the meter reads 10V.

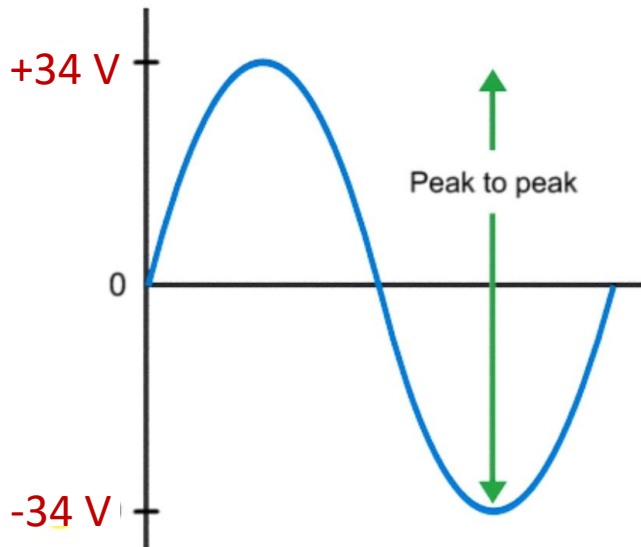
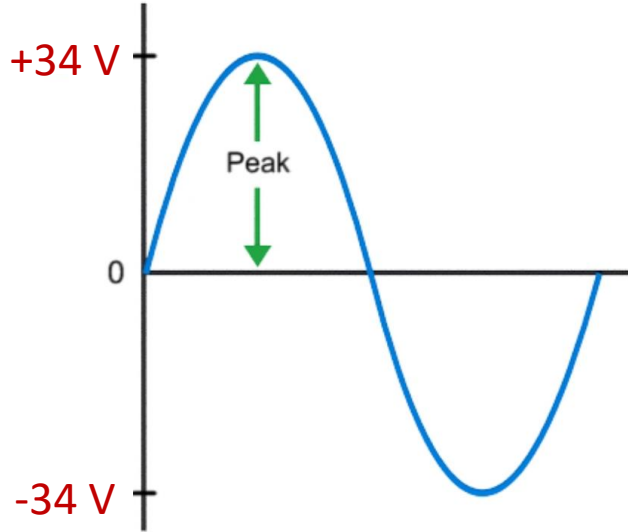
The AC voltages that a Technician reads on a voltmeter is in RMS. So in this example if a meter is on the VAC (voltage AC) scale, the meter would read 10 V (RMS).

Make sure when you are using a digital voltmeter to measure AC voltage (such as the 120Vac on your outlets at home) that the dial on the meter is set for AC volts.

The peak voltage (Vp) is shown in the top graphic as the highest point on the AC sine wave.

Also notice at the top graphic, there is a formula that shows that show: $V_p = 1.414 * V_{rms}$.

AC Quantity Terms cont.:



Continuing the AC quantity explanation, peak voltage is the highest point that the sine wave will go to. This value can be measured using an oscilloscope, or calculated from the measurement of the RMS value with the digital voltmeter measurement.

The other term that is important is voltage peak-to-peak (V_{p-p}). This value is obtained by measuring the maximum positive voltage and the maximum negative voltage, then adding them together. In this example, the V_p is 34V. This means that the V_{p-p} is 64V.

The RMS voltage can be calculated as: $V_{rms} = V_p \times 0.707$.

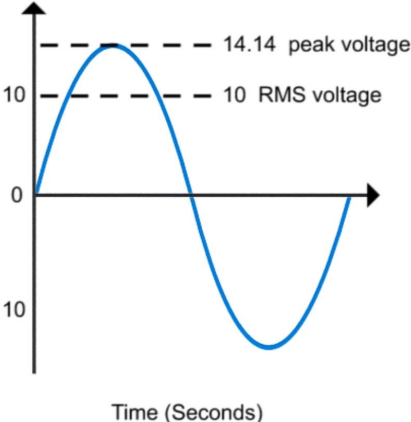
So, in this application: $34V \times 0.707$ is equal to 24 V. This is what the meter will read

Oscilloscopes:



Old style Oscilloscopes used on a bench or cart

Handheld Oscilloscope, a more modern type of testing device



$V_p = 1.414 \times 10$

This slide shows a piece of test equipment named an Oscilloscope. This is a device that can show the full waveform of the AC sine wave, so a Technician can see what is happening on an AC line.

From the aspect of the Maintenance Technician, this is not a device that they would carry to a job for troubleshooting, as they do a digital voltmeter.

Typically there may be one of these in a maintenance shop, and one or two people that would know how to use it.

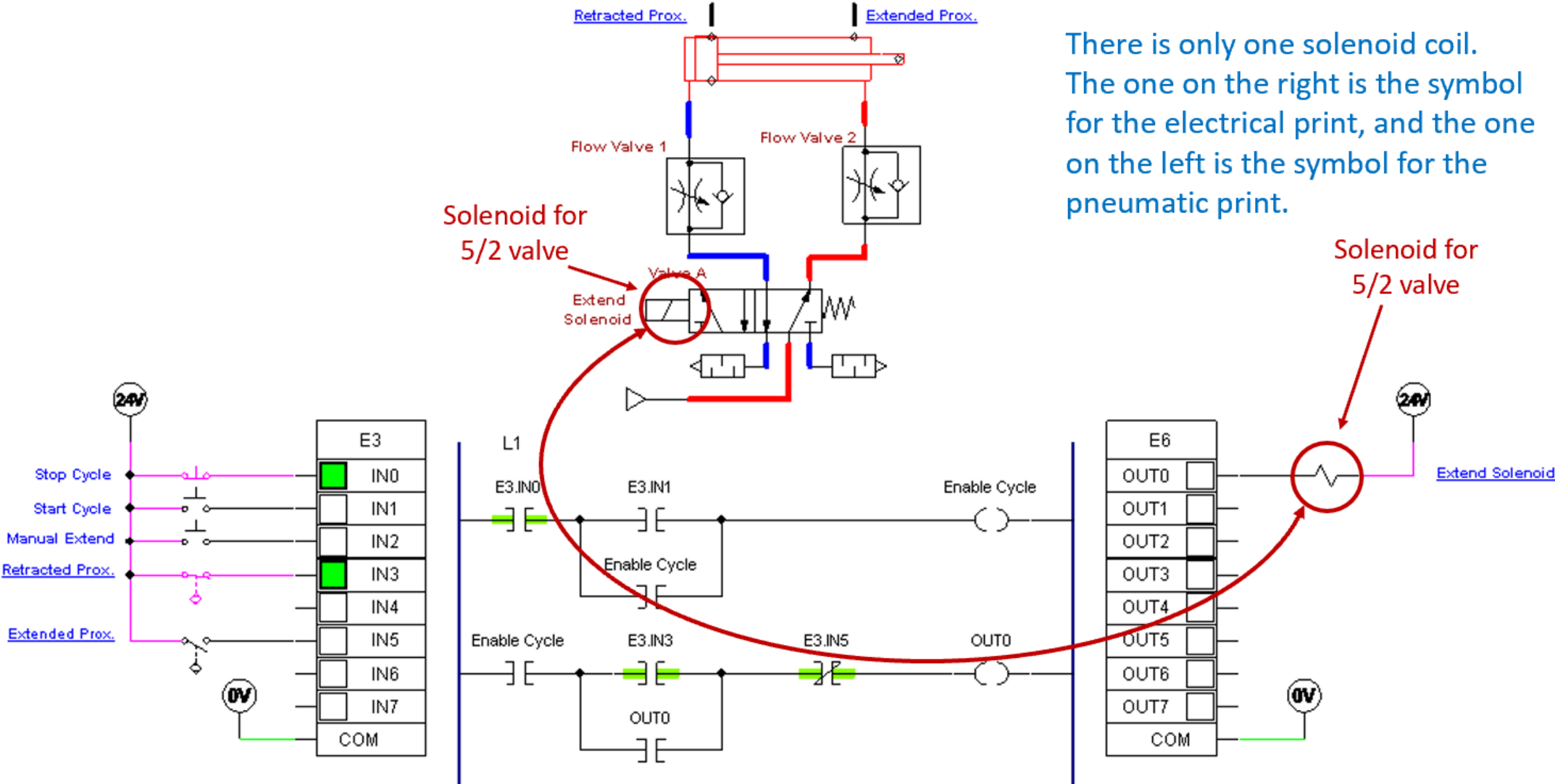
A couple of applications for these devices is measuring the switching of an AC waveform on a welding unit used in a production process. Another application would be using this device on the output of a variable frequency drive to measure and test for harmonic activities that could create problems in the operation of the solid state drive.

Reason for introducing this: to know what it is, and what the purpose of it is.

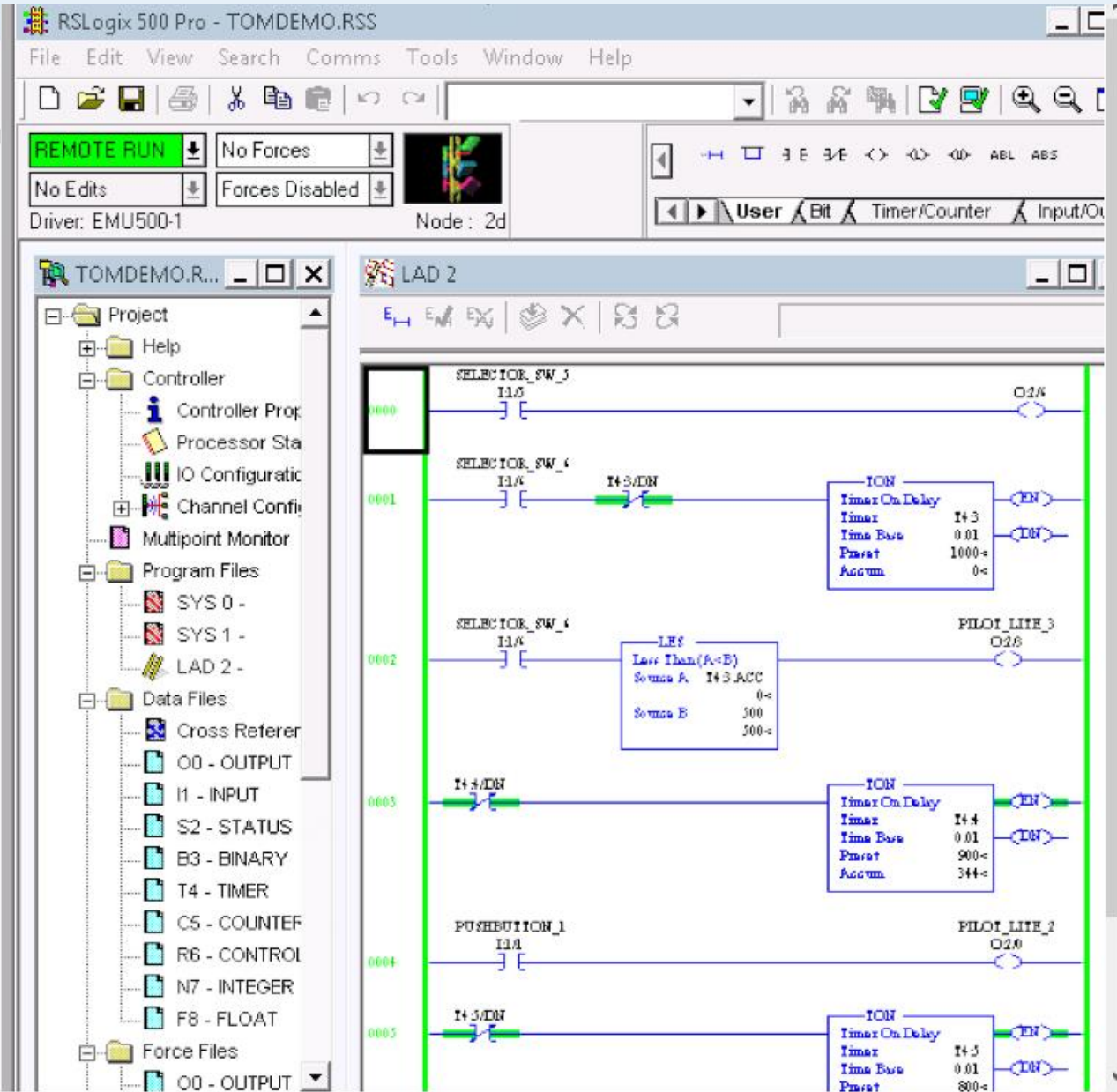
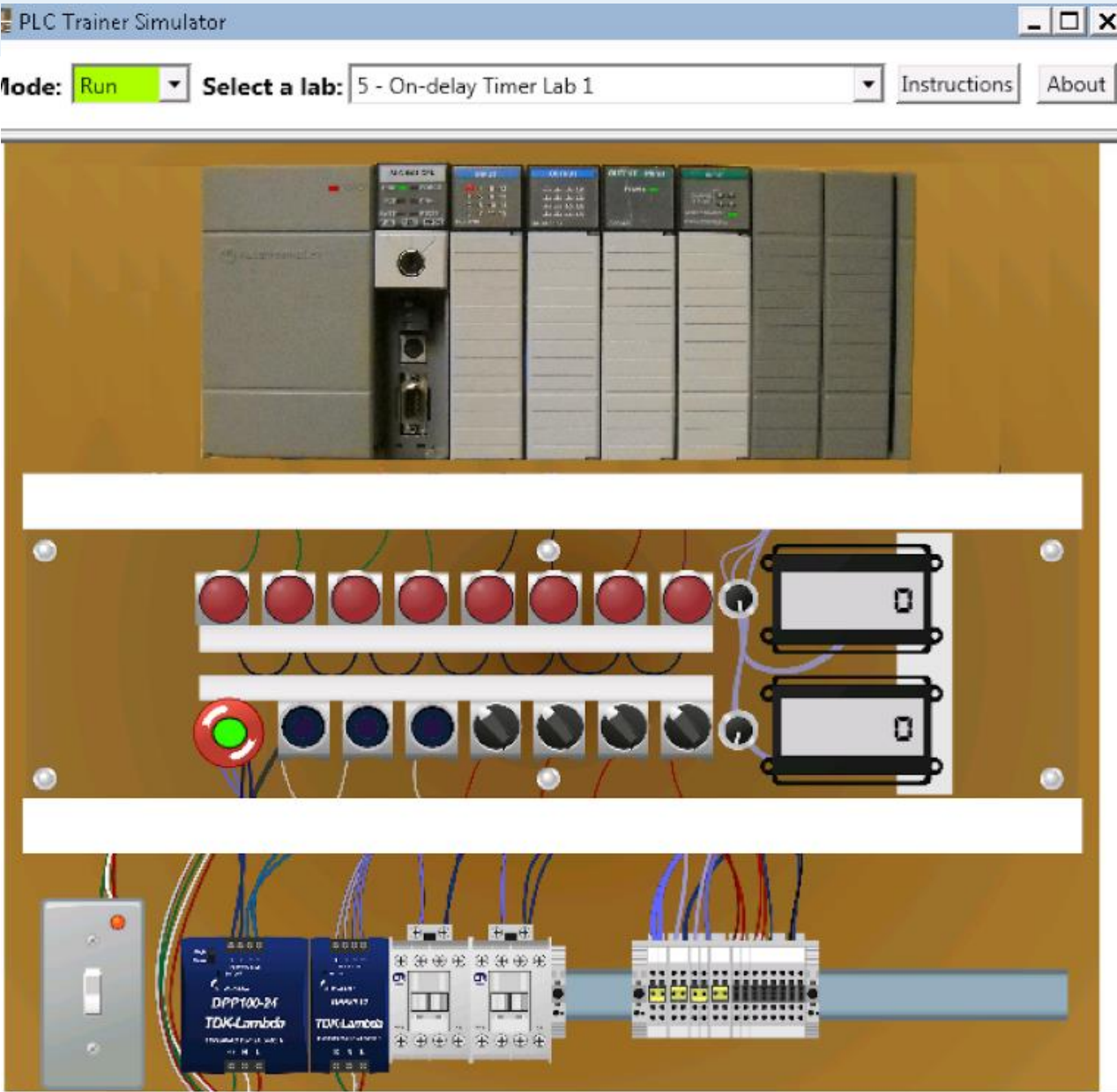


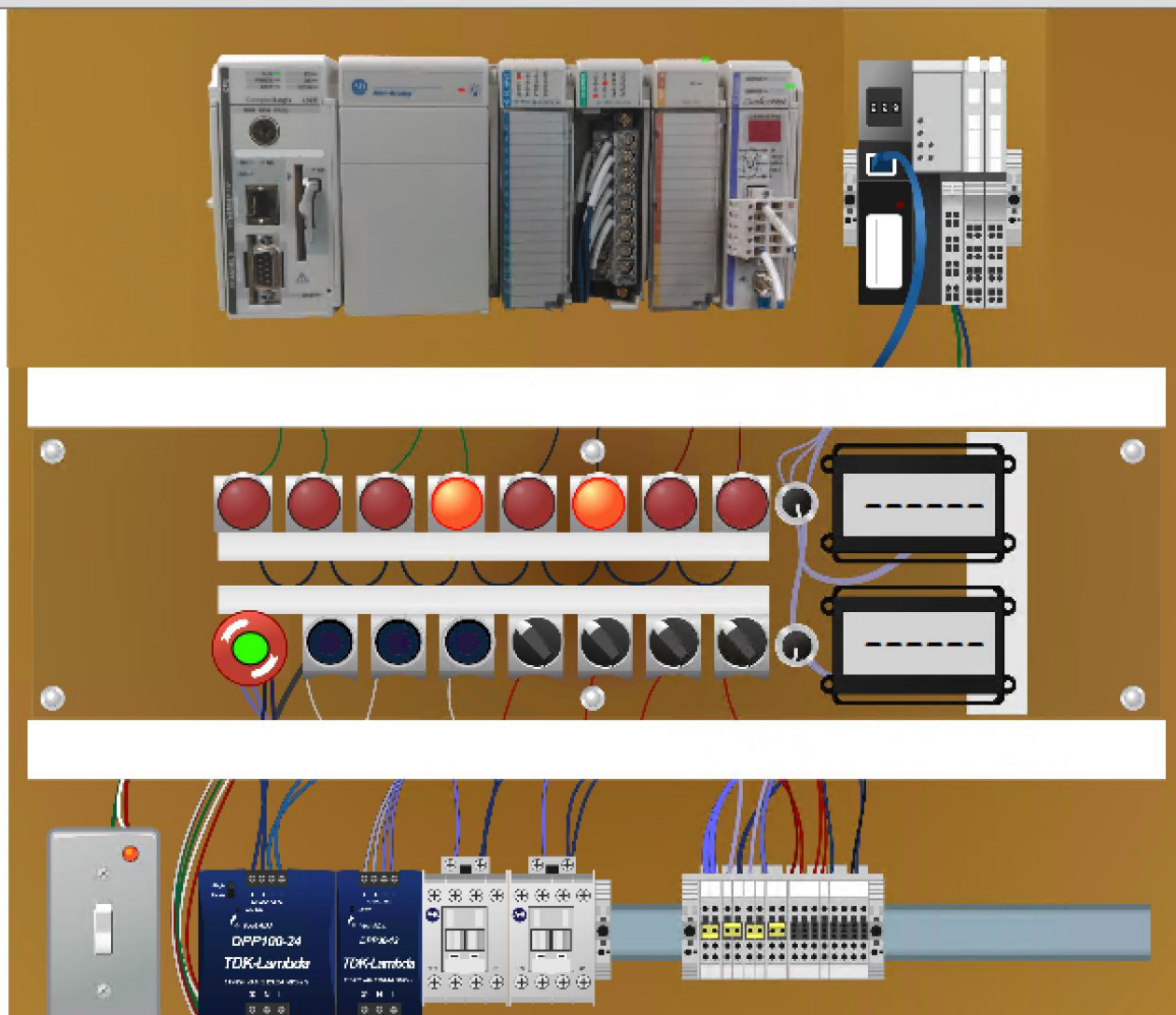
Example of OER material for PLCs

There is only one solenoid coil. The one on the right is the symbol for the electrical print, and the one on the left is the symbol for the pneumatic print.



Example of an interactive Simulation in PLC I





lute [Emulate 5570 32.11]

lab18_CompactLogix_Relay Instructions Lab.pdf - Adobe Acrobat Reader DC

View Window Help

Tools PLC200_Lab18_Co... x

1 / 5 68.1%

Put the processor into the RUN (or Remote Run Mode).

```

    graph TD
        subgraph 0
            A0[Cycle Stop Pushbutton STOP_PB <Local 1:1 Data 0>] --- B0[ ]
            B0 --- C0[ ]
            C0 --- D0[Flyback Solenoid South Machine Base FLYBACK_SOL <Local 2:0 Data 3>]
        end
        subgraph 1
            A1[Cycle Start Pushbutton START_PB <Local 1:1 Data 1>] --- B1[ ]
            B1 --- C1[ ]
            C1 --- D1[Downloaded Solenoid DOWN_FD_SOL <Local 2:0 Data 5>]
        end
        subgraph 2
            A2[Cycle Stop Pushbutton STOP_PB <Local 1:1 Data 0>] --- B2[ ]
            B2 --- C2[ ]
            C2 --- D2[Downloaded Solenoid DOWN_FD_SOL <Local 2:0 Data 5>]
        end
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        PI --- PJ[ ]
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        PK --- PL[ ]
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        YQ --- YR[ ]
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        ZR --- ZS[ ]
        ZS --- ZT[ ]
        ZT --- ZU[ ]
        ZU --- ZY[ ]
        ZY --- ZZ[ ]
    
```

Page 1 of 5

Studio 5000® Logix Emulate™

Slot View Options All Modules Help

Computer: WIN10-ROCKWELL

0	1	2	3	4	5	6	7	8
RS LINX	FTLinx	EMULATOR	1789-SIM		1789-SIM			

For Help, press F1

RSLinx Classic Gateway - [RSWho - 2]

File Edit View Communications Station DDE/OPC Security Window Help

Autobrowse Refresh Not Browsing

Workstation, WIN10-ROCKWELL

- Linx Gateways, Ethernet
- AB_ETHIP-1, Ethernet
- AB_VBP-1, 1789-A17/A Virtual Chassis
- EMU500-1, DH-485

Linx Gateway...	AB_ETHIP-1 Ethernet
AB_VBP-1 1789-A17...	EMU500-1 DH-485

Logix Designer - FriNite [Emulate 5570 32.11]

FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW HELP

Run Mode Controller OK Battery OK I/O OK

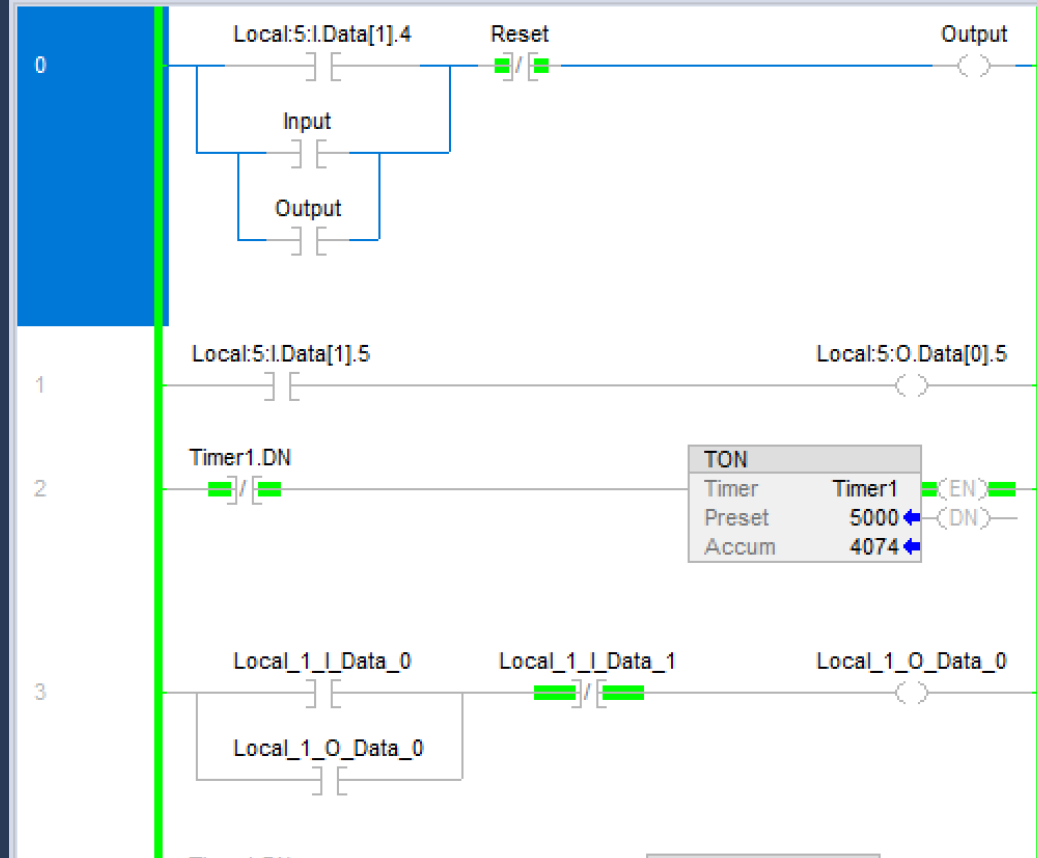
Path: AB_VBP-1\2*

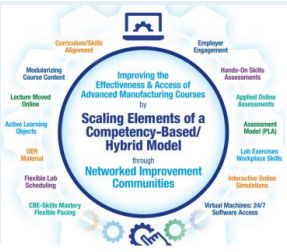
Rem Run No Forces No Edits

Controller Organ... MainProgram - MainRoutine

Controller FriNite

- Controller Tags
- Controller Fault Handler
- Power-Up Handler
- Tasks
 - MainTask
 - MainProgram
 - Parameters
 - MainRoutine
- Unscheduled
- Motion Groups
 - Ungrouped Axes
- Assets
- Logical Model
- I/O Configuration
 - 1756 Backplane, 1756
 - [2] Emulate 5570
 - [3] 1756-MODU
 - [5] 1756-MODU





Henry Ford Community College:

*Dearborn, Michigan

*Working with Faculty Glen Wisniewski to build a Video object

*Purpose is to increase effectiveness of student learning, by using a learning object focused on their lab equipment

*Using Camtasia Recorder/Producer to create a series of videos on Electrical Print Reading

*Systems Integration Course



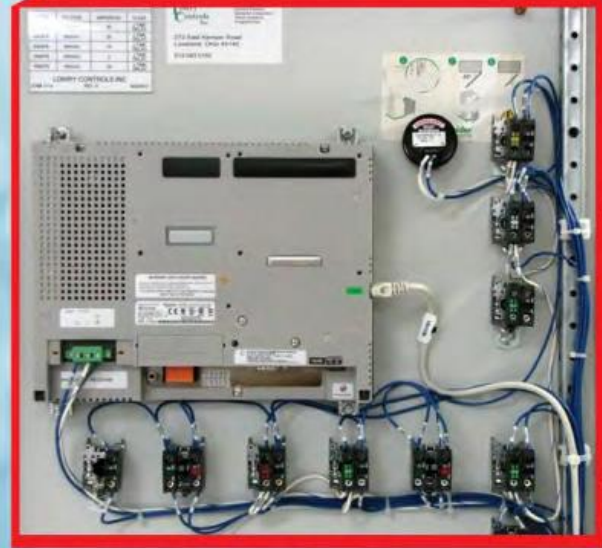
The AMTEC Training Unit at HFCC:



Variable
Frequency
Drives



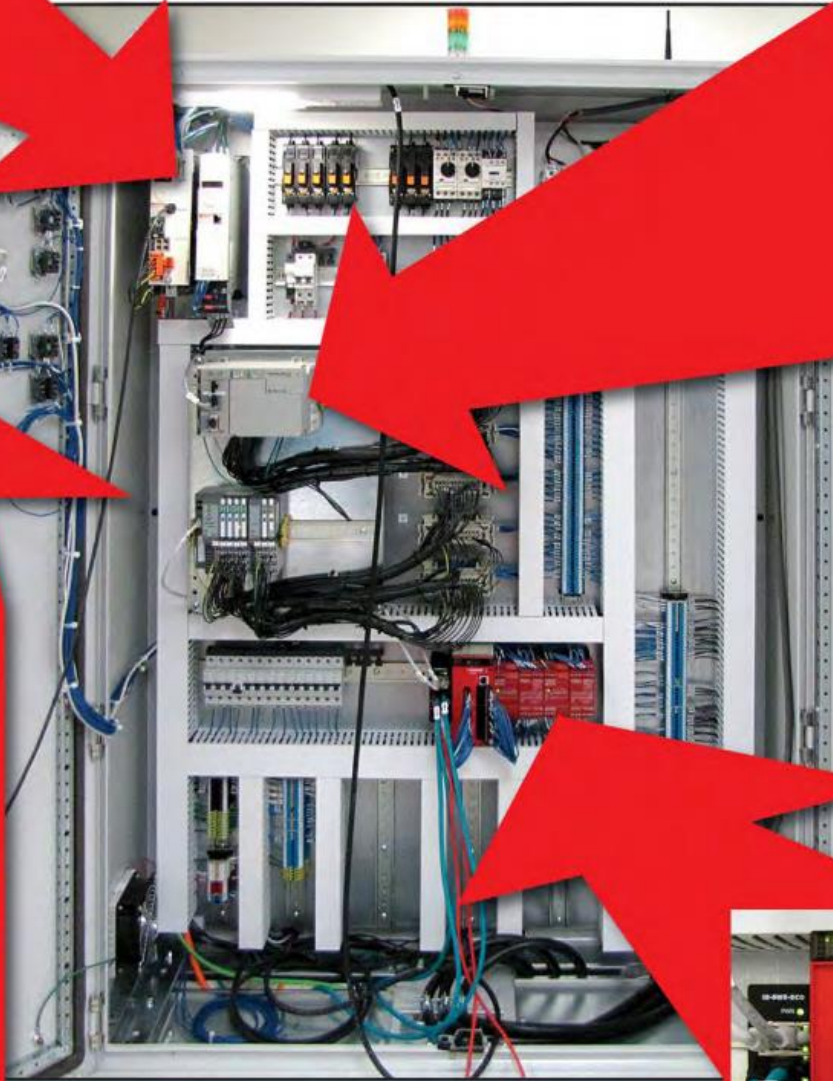
Process
Logic
Controller



Human Machine
Interface/Controls



Safety Circuits





South Arkansas Community College:

*El Dorado, Arkansas

*Working with Faculty Dave Carty to build a PDF object

*Purpose is to increase effectiveness of student learning, by using a learning object focused on their lab equipment

*Started with existing OER from Skillscommons.org, then added graphics and text to the document

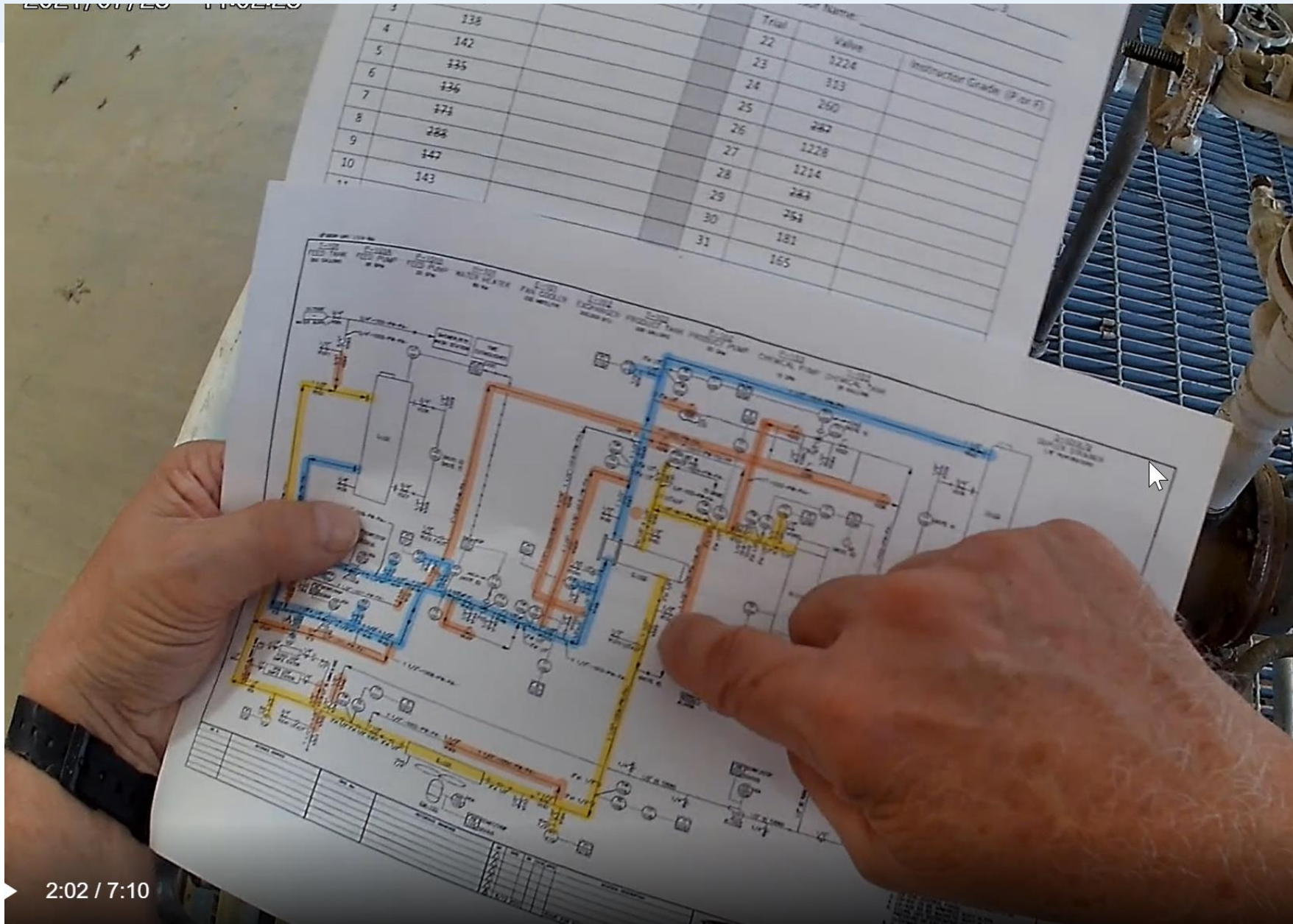
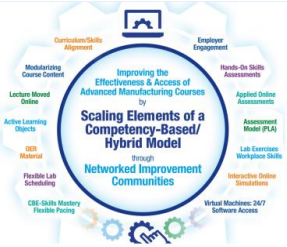
*Process Instrumentation Course

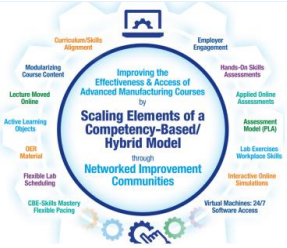


Polaris HOT Skid Training Unit South Ark CC:

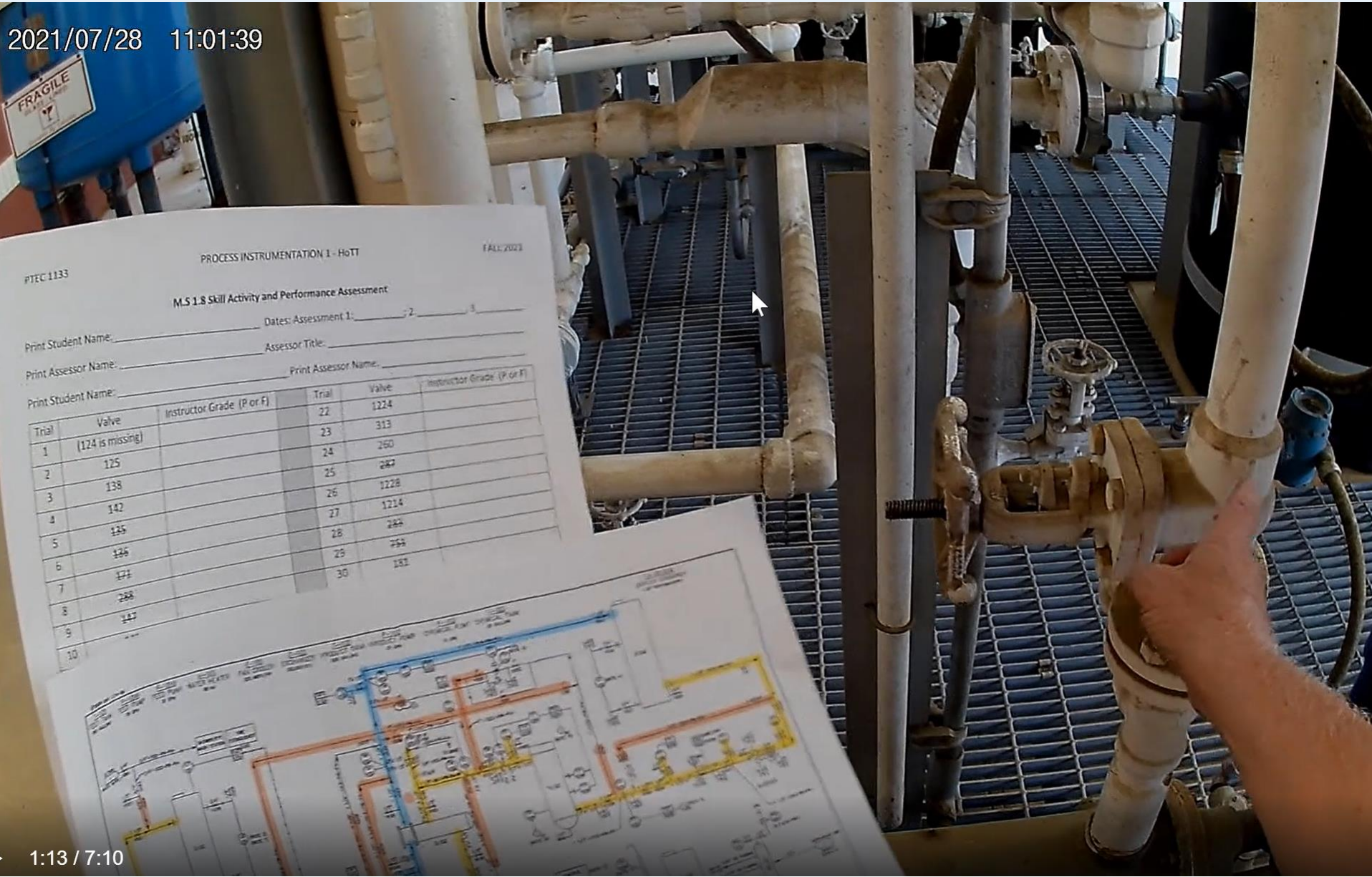


Polaris HOT Skid Training Unit South Ark CC:





Polaris HOT Skid Training Unit South Ark CC:



2021/07/28 11:01:39

PTCC 1133

PROCESS INSTRUMENTATION 1 - HOT

FALL 2021

M.S.1.S Skill Activity and Performance Assessment

Print Student Name: _____ Dates: Assessment 1: _____/_____/_____
 Assessor Title: _____

Print Assessor Name: _____ Print Assessor Name: _____

Trial	Valve	Instructor Grade (P or F)	Trial	Valve	Instructor Grade (P or F)
1	(124 is missing)		22	1224	
2	125		23	313	
3	138		24	260	
4	142		25	287	
5	135		26	1228	
6	126		27	1214	
7	171		28	284	
8	288		29	254	
9	147		30	181	
10					



What is OER?

1. Open Educational Resources
2. Free material that can be used for instruction
3. Some Faculty replace textbooks with OER
4. Some Faculty use OER in addition to the textbook
5. Most OER can be modified and reused
6. All materials funded through federal agencies (DOL, NSF, DOE) is considered OER and can be used based on the licensing



What are Learning Objects

1. Passive Learning versus Active Learning
2. Active Learning Objects are: Video, Voice over PPT, & Simulations
3. Targeted Learning Objects are PDFs to focus on a topic area, or even a video on how to do something
4. Hands-on students learn best with videos or a simulations, but also learn with a targeted learning object
5. Study guides and quizzes/tests are learning object



URLs Used in OER Workshop:

Engineertech.org: Eastern Iowa CC Videos on Technical Topics

<http://engineertech.org/>

Wisconsin Online Learning Object:

<https://www.wisc-online.com/>

The DOL document repository:

www.skillscommons.org

The NSF ATE document repository:

www.atecentral.net

Jim Pytel, Big Bad Tech, Video Lectures with Graphics

<https://www.youtube.com/user/bigbadtech>

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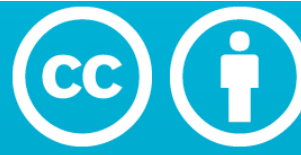
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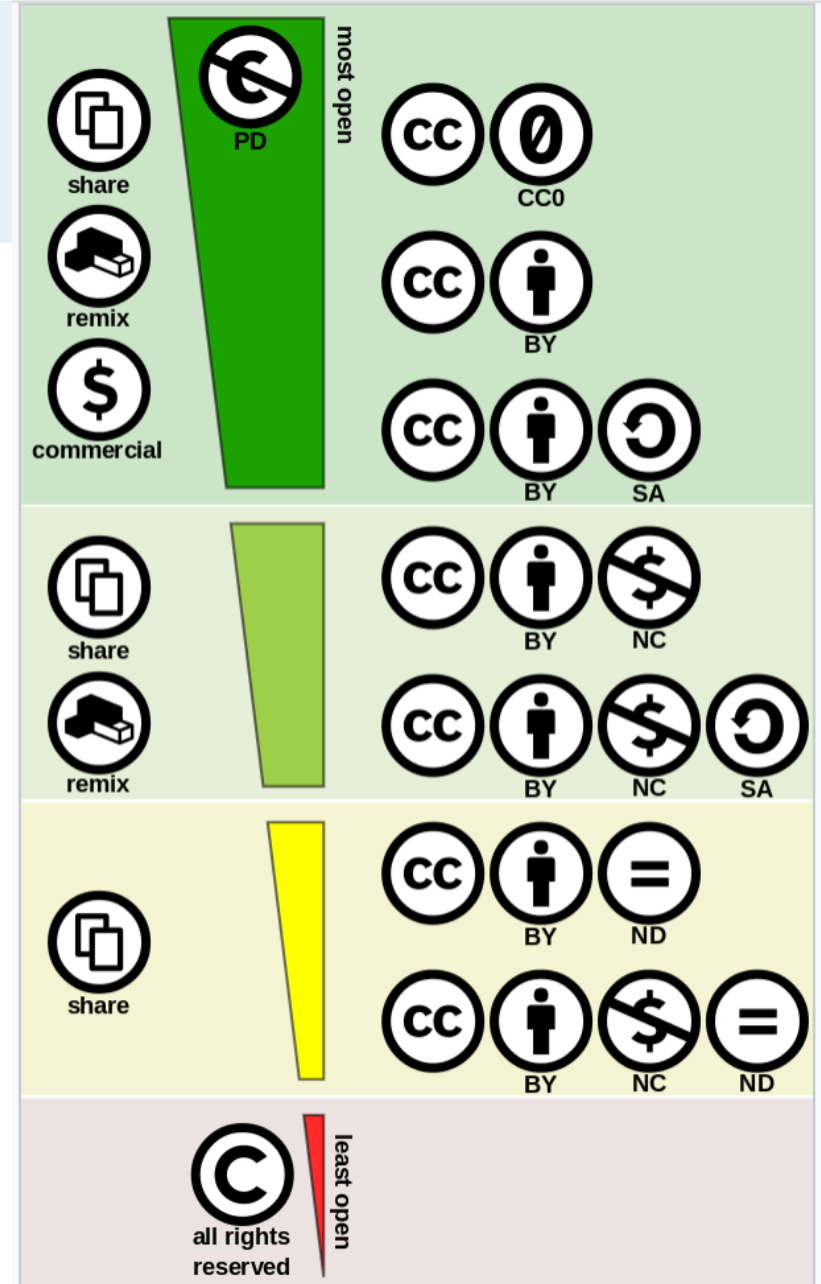
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WiscOnline Licensing

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- The Team
- Learning Objects
- API

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Wisc-Online is a creation of Wisconsin's Technical Colleges and maintained by Fox Valley Technical College.

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Referencing Original Work in OER

Video: Piping and Instrumentation Diagrams

http://engineertech.org/courses/process-control/?submit=view&vimeography_gallery=46&vimeography_video=135569941

This video was created by Eastern Iowa Community College in TAACCCT Round 2. The link to the licensing information can be found at:

<http://www.skillscommons.org/handle/taaccct/10039>

Simulation: Proportional Control Amplifier

<https://www.wisc-online.com/learn/technical/industrial-automation/iau12008/proportional-control-amplifier>

This learning object is linked from Wisc-Online (Wisconsin-Online), a nonprofit educational website. Fox Valley Technical College maintains fiscal and operational responsibility for Wisc-Online with guidance from an advisory council that includes representation from all of the colleges in the Wisconsin Technical College System. For a link to the page with the Creative Commons licensing information, copy the following link into an internet browser:

<https://www.wisc-online.com/our-story>



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<http://engineertech.org/>

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ENGINEERTECH.ORG:

ENGINEERTECH.ORG is a website created to house videos created by Eastern Iowa Community College with funds from TAACCCT Round 2 grant. This is the user interface to the videos that are housed at VIMEO.COM (instead of YouTube). A college LMS can link to each video. The MP4 videos can also be downloaded from Skillscommons. The link to the CC license can also be found at Skillscommons.

Not secure | engineertech.org

Open Courseware & Educational Resources for Instructors & Students

Choose a Topic VIEW

- Choose a Topic
- AC Circuit Analysis
- Basic Math Topics
- DC Circuit Analysis
- Digital Circuits & Systems
- Electrical Motor Control & Power
- Fluid Power Control
- Fluid Power Design/Application
- Fluid Power Fundamentals
- Industrial Print Reading
- Industrial Robotics
- Lean Manufacturing
- Microcontrollers
- Motion Control
- Motors & Drives
- Physics Fundamentals

FREE TO USE

Each simulation can be embedded into your online courses or used in the classroom. Use, Modify, or Share for free under the Creative Commons license.

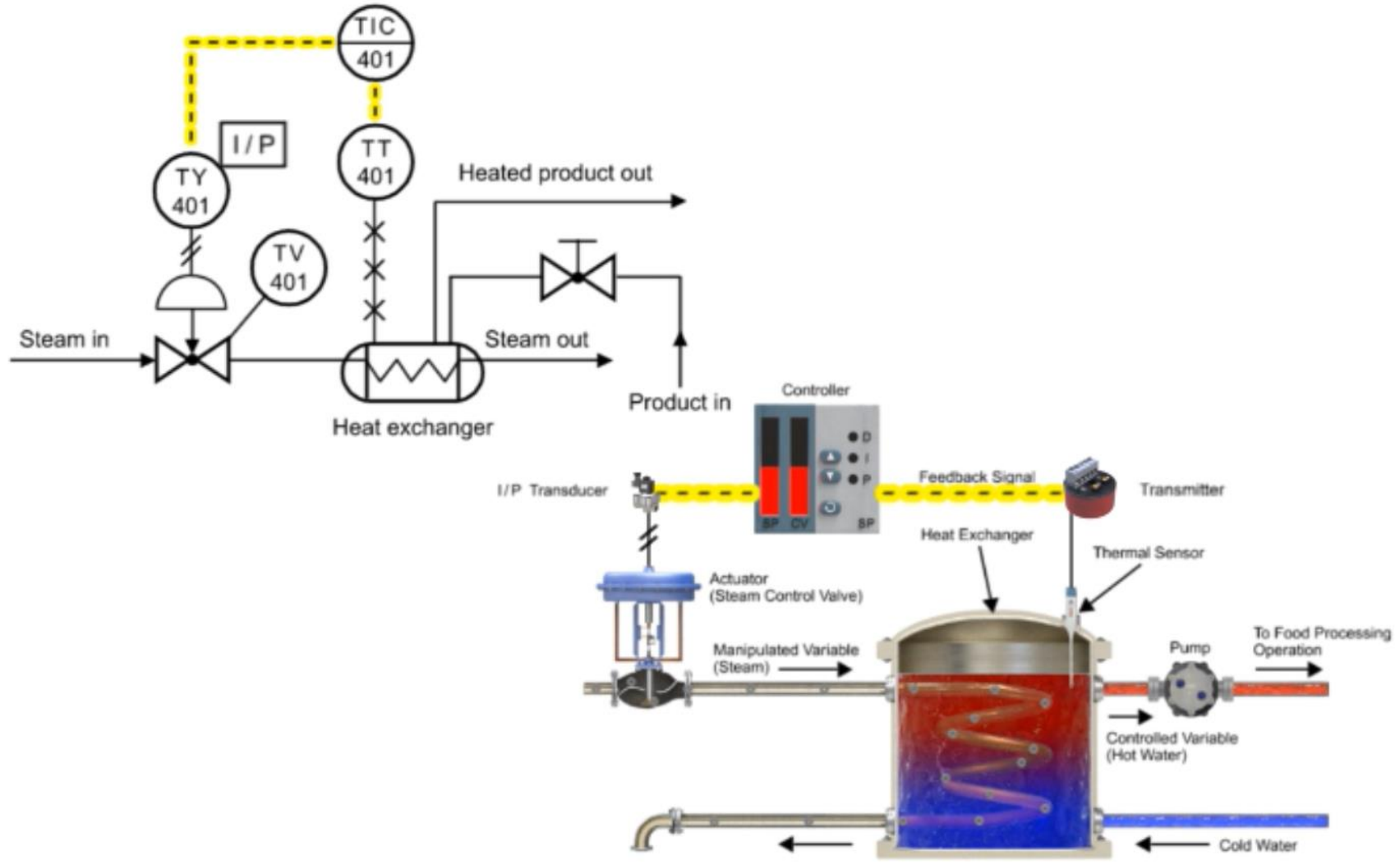
ENGINEER FOCUSED

Learning simulations covering Automation & Electrical & Motor Control, Process Control or Renewable Energy.

Featured Simulati



Piping and Instrumentation Diagrams



Download Embeddable Simulation with Interactive Quiz Questions:
bit.ly/1lspWI8



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<https://www.youtube.com/user/bigbadtech>



WISC-ONLINE:

WISC-ONLINE is an online repository for active learning objects that is accessible by going to their website: <https://www.wisc-online.com/>, and searching for a topic, or look into categories. These links can be posted in an LMS system for students to view on a computer or on their portable devices.

The screenshot shows the WISC-ONLINE website interface. On the left is a dark sidebar with a list of categories: Computer Science, Manufacturing & Engineering, Electronics, Industrial Automation, Machine Tool, Welding, View All, Math, Science, and Social Science. At the bottom of the sidebar are 'Wisc-Online Categories' and 'WTCS Categories'. The main content area has a search bar and sorting options: 'By Rating v', 'By Name', and 'By Views'. The results are displayed in a grid of 8 items. Each item has a title, a play button icon, the author's name, and icons for likes, views, and a 'More' link. A pagination bar at the top right shows 'Displaying 0 - 25 of 306 results.' and page numbers 1 through 5, with 'Last' and 'Page 1 of 13'.

Category	Title	Author	Likes	Views	More
Computer Science	Troubleshooting a Three Phase Motor that is Overheating	Excelsior College	419	721	More
Computer Science	Using Blueprints to Troubleshoot a Defective Compressor Motor	Excelsior College	243	234	More
Computer Science	Using Blueprints to Troubleshoot a Defective Water Pump	Excelsior College	222	536	More
Computer Science	Work and Power (Screencast)	James Bourassa, John ...	204	638	More
Math	PID Control (Screencast)	Terry Bartelt	184	1,439	More
Science	Identifying Lever Classes	James Bourassa	227	18.2k	More
Science	Pneumatic Schematic Symbol Flashcards	Terry Bartelt	208	11.8k	More
Science	P&ID Tag Numbers	Terry Bartelt	216	26.2k	More





WISC-ONLINE:

Operational | Business Focus



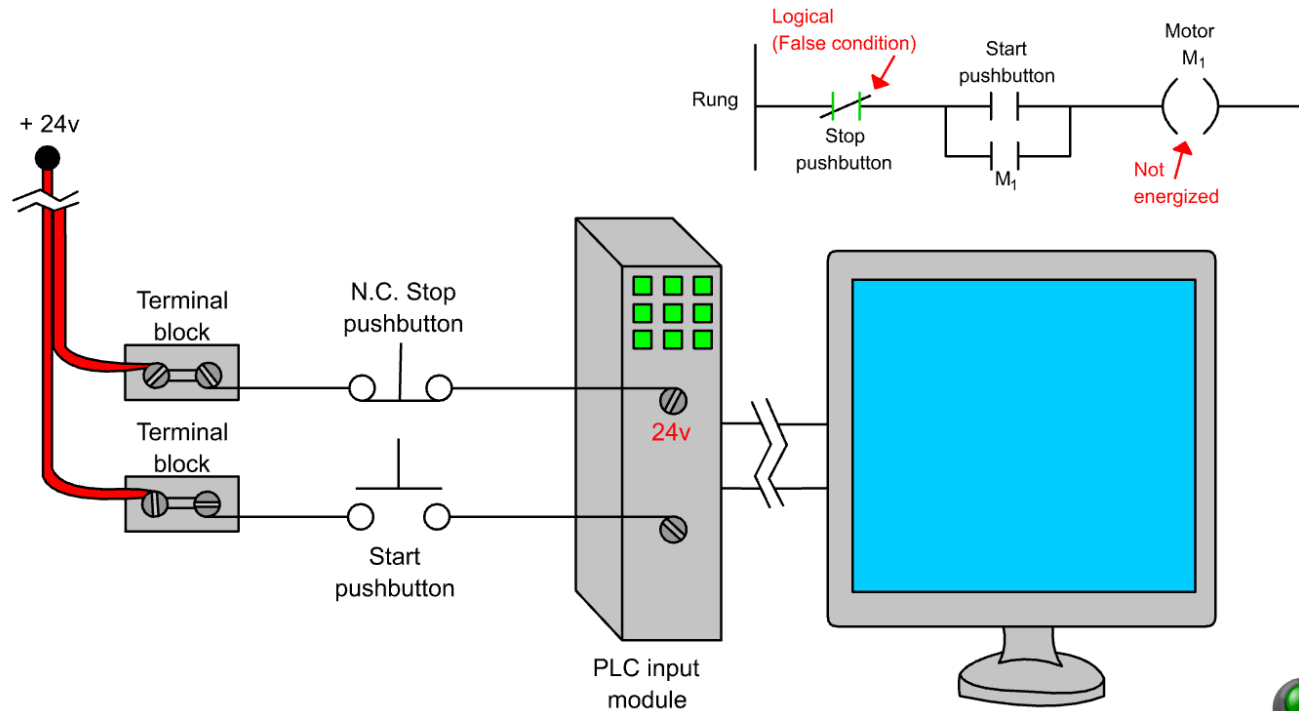


WISC-ONLINE:

Stop-Button Wiring to a PLC

Using a Normally Closed Switch and an Examine-Off Contact

There is a common mistake made by PLC programming beginners. They incorrectly wire a normally closed pushbutton to perform the stop function, and then program an Examine-Off contact on the PLC ladder diagram that corresponds to the pushbutton.



WISC-ONLINE:



Calculating Horsepower, RPM & Torque

Narration

Horsepower Calculation Problems

Calculate
Horsepower

Torque	RPM	Horsepower
2352.9 ft-oz	198	<input type="text" value="0"/>

Round to the tenth decimal place.

Reference Window

Check Answer



< BACK

NEXT >





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<http://engineertech.org/>

Wisconsin Online Learning Object:

<https://www.wisc-online.com/>

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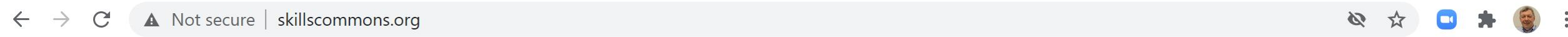
Jim Pytel, Big Bad Tech, Video Lectures with Graphics

<https://www.youtube.com/user/bigbadtech>



SKILLSCOMMONS.ORG:

SKILLSCOMMONS.ORG is a website created to house the instructional content that was developed with DOL dollars, especially materials developed in the TAACCCT grant project. There are thousands of learning objects that are stored there. A person can spend hours searching within their site. A search can be done on a person, college or technical content topic. All of the licensing information is stored with the object.



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Eastern Iowa Community College



EEM162

electrical safety

Eastern Iowa Community College

EEM221

These MP4 videos can be uploaded to an LMS system, or could be put on YouTube.

Some colleges are loading MP4s into the LMS, stored on their own servers so they can monitor when a student opens the learning object, and to assure that only their registered students can get to it.

These MP4s can also be edited in Camtasia to add or move content.

All the videos Eastern Iowa Community College has at ENGINEERTECH.ORG, housed by VIMEO, is stored as MP4s in Skillscommons.

Material Type

- Syllabus (2637)
- Recruitment and Outreach (1551)
- Hybrid/Blended Course (1343)
- Presentation (1314)
- Grant Management Materials (1246)
- Collection (1214)
- Student Support Materials (1125)
- Assignment (1121)
- Reference Material (1096)
- Instructor and/or Advisor/Case Manager Support Materials (846)
- ... View More

Credential Type

- Certificate (6496)
- Associate Degree (5885)
- Stacked/Latticed Credential Model (2900)
- None (2284)
- Credential (1563)
- Other (1051)
- Diploma (982)
- Bachelors Degree (325)
- III (5)

Timer Functions On/Off Delays in PLCs preview

Simulation

Eastern Iowa Community College

This narrated animation illustrates timer functions on/off delays in PLCs.

NPN Transistors preview

Simulation

Eastern Iowa Community College

This narrated animation illustrates the operation and functions of NPN transistors.

Pressure Relief Valves preview

Simulation

Eastern Iowa Community College

This narrated animation illustrates the principles and operations of pressure relief valves.

Hydrostatic Pressure in Process Control preview

Simulation

Eastern Iowa Community College

This narrated animation illustrates hydrostatic pressure issues in process control.

The Law of Gravity - Fundamental Physics preview

Simulation

Eastern Iowa Community College

This narrated animation illustrates the Law of Gravity.

[Link to video in EngineerTech.org](#)

Piping and Instrumentation

Hunter, Tim

This narrated animation illustrates piping and instrumentation associated with process control.

Raw MP4 that can be edited

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[This narrated animation describes the principles associated with Piping and Instrumentation associated with Process Control.](#) (8 MB)

[This guide describes how to reach the 508 accessibility transcript and how to include the power concept into one's courseware.](#) (1 MB)

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Total hits all time



Additional Public Access To Materials:

<http://www.engineertech.org/>

Website for links to all of the Eastern Iowa CC videos



The user can search by the Author of the materials in Skillscommons, or the organization, or the topic area.

Advanced search

Results 1-10 of 46

sort by: **relevance** | newest f

Has preview



Industry

- Manufacturing -- Miscellaneous Manufacturing (339) (14)
- Developmental Education (6)
- Manufacturing -- Plastics and Rubber Products Manufacturing (326) (6)
- Information Technology -- Computer Operating Systems (Programming), Digital Forensics, Cyber Security, Network Security, IT Security (51) (3)
- Manufacturing -- Miscellaneous Manufacturing -- Other Miscellaneous Manufacturing (3399) (3)
- Administrative and Support and Waste Management and Remediation Services -- Waste Management and Remediation Services

Servo and Robotics

Hybrid/Blended Course

Northeast State Community College

Servo/Robotics Systems is an introductory Hybrid course in industrial robotics with emphasis on the Fanuc R-J30iA series robot controller. The course is intended for students who wish to gain insight into robot operations in order to program, test, run, and trouble-shoot FANUC material handling appl . . .

Industrial Electricity II

Hybrid/Blended Course

Northwest State Community College

The purpose of this course is to develop the student's knowledge and skills in the area of electrical safety, DC/AC machines and basic control circuits. The electrical safety module will focus on lockout/tagout, arc-flash standards, PPE, electrical panels and overcurrent protection. The DC/AC machin . . .

Industrial Wiring

Hybrid/Blended Course

Northwest State Community College

industrial safety



Browse by [industry](#), [credentials](#) & [material type](#) | [Advanced search](#)



Industry

- Manufacturing -- Miscellaneous Manufacturing (339) (472)
- Developmental Education (460)
- Information Technology -- Computer Operating Systems (Programming), Digital Forensics, Cyber Security, Network Security, IT Security (51) (328)
- Health Care and Social Assistance (62) (241)
- Professional, Scientific, and Technical Services (54) (207)
- Professional, Scientific, and Technical Services -- Professional, Scientific, and Technical Services (541) (202)
- Manufacturing -- Fabricated Metal Product Manufacturing (332) (138)
- Mining, Quarrying, and Oil and Gas Extraction - - Oil and Gas Extraction -- Oil and Gas Extraction (2111) (137)
- Manufacturing -- Miscellaneous Manufacturing -- Other Miscellaneous Manufacturing (3399) (132)
- Construction (23) (125)
- ... View More

In this example the user can search for any topic on Industrial Safety.

Machine Shop Safety Challenge Test

Student Support Materials

Front Range Community College

Challenge test for machine shop safety

Ohio TechNet SAFE 145 Safety in General Industry

Other

Lorain County Community College

These are course materials for OSHA Safety in General Industry 30 Hour

EIC 103 Safety & Industry Certificate

Hybrid/Blended Course

Trinidad State Junior College

This course cartridge contains material to teach EIC 103 Safety & Industry Certificate including materials for a comprehensive review of electrical industry safety standards. When applicable, the student will earn a permit and/or certification in the following areas: CDL Licensing, First Aid/CPR/AED . . .

Ohio TechNet LCCC_Safety

Recruitment and Outreach

Lorain County Community College

These are outreach materials for the LCCC Safety program and courses, and one LCCC Curriculum Guide for the 2 year Associate Degree.

Industrial Safety Syllabus

Syllabus

Programmable Controls I

Wylie, Tom

1

The course is a study of the installation, programming and troubleshooting of programmable controlled systems currently used in an industrial environment. The focus will be on Installation, Programming, Engineering and Maintenance tasks performed with PLC systems. The primary PLC used for this class will be the Allen Bradley SLC-500 and CompactLogix, using RSLogix 500, RSLogix5000 and RSLinx software. The topics presented will be learned through Online instructional material, and hands on labs. After completing this course the student will: 1. Explain the function of a PLC in an industrial environment 2. Set up communications between a PLC and a programming panel 3. Configure and program an Allen Bradley SLC-500 system. 4. Install and maintain basic control system based on the SLC-500 5. Troubleshoot an Allen Bradley SLC-500 system. 6. Program an Allen Bradley CompactLogix with RSLogix5000 7. Maintain and troubleshoot an Allen Bradley CompactLogix system 8. Interpret AB PLC-5 hardware addressing & block transfer instructions

ZIPPED Files in Skillcommons.org

Many objects (files) are zipped within Skills Commons, thus they can be retrieved easily and added to a course within your unique LMS. NSCC objects are all in their native format: Word, PPT, MP4.

- Module One (17 MB)
- Module Two (7 MB) 2
- Module Three (7 MB)
- Module Four (4 MB)
- Module Five (3 MB)
- Module Six (10 MB)
- Module Seven (583 KB)

- Name
- PLC200 M2 (1).zip
- 3 open-pro240-process-troubleshooting-export (1) (1).imsc
- 17_1212_+QM+Alignment+-+IND-121+lite+version+latest+version.docm
- open-pro100-intro-to-process-technology-export (2).imsc

Open with WinZip

Print file list

Scan with Windows Defender...

Share

Open with >

Give access to >

WinZip >

Restore previous versions

Send to >

Cut

Google Chrome

Windows Explorer 4

WinZip

Search the Microsoft Store

Choose another app

- Name
- 21_PLC200 Module 2 Learning Sequence Sheet 010617.docx
- 22a_PLC200 Module 2 Information on RSLinx and RSLogix500.pptx
- 22b_PLC200 Module 2 Intro to Virtual Machines.pptx
- 23_PLC200 Module 2 KAA Study Guide.docx
- 24_PLC200 Module 2 Practice Quiz.docx
- 25a_PLC200_Lab03_SLC-500 Getting Started with RSLogix500 Lab M2.docx
- 25b_PLC200_Lab04_SLC-500 Relay Instructions Lab M2.doc


5




Common Cartridge Files found on Skills Commons

PRO240 Industrial Troubleshooting

This course Provides instruction in the different types of troubleshooting techniques, procedures, and methods used to solve process problems. Topics include application of data collection and analysis, cause-effect relationships, and reasoning.

 Course description and competencies (131 KB)

 Course material imsc file that can be imported to an LMS using a standard import or changed to a zipped file command or opened/viewed with a zipped file application. (2 MB)


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Date:

2014-07-01

Primary Material Type:

skillscommons.org/bitstream/handle/taaccct/2712/open-pro240-proce...

open-pro240-pr....imsc 

Some authors do not want to license all of their objects, so they export their online course with all of the object as a “.imsc” type of file. This way they can license only the online course. The .imsc file can be imported into the LMS.

A Canvas exported courses (as a .imsc file can import into Canvas at another institution, but some objects are removed if imported into Blackboard or Sakai.



Some of my Favorites on Skills Commons Site

MTE247 Strength of Materials Course Pikes Peak CC

<http://www.skillscommons.org/handle/taaccct/3914>

EEM151 Motors and Controls I, Midlands CC, SC

<http://www.skillscommons.org/handle/taaccct/741>

OPT1100 Tooling & Machining Metrology, Stark State College, OH

<http://www.skillscommons.org/handle/taaccct/16107>

Mechanical Components, Purdue University Northwest, IN

<http://www.skillscommons.org/handle/taaccct/10929>

Introduction to Electrical Circuit Simulation, Colorado Mountain College, CO

<http://www.skillscommons.org/handle/taaccct/18698>



URLs Used in OER Workshop:

Engineertech.org: Eastern Iowa CC Videos on Technical Topics

<http://engineertech.org/>

Wisconsin Online Learning Object:

<https://www.wisc-online.com/>

The DOL document repository:

www.skillscommons.org

The NSF ATE document repository:

www.atecentral.net

Jim Pytel, Big Bad Tech, Video Lectures with Graphics

<https://www.youtube.com/user/bigbadtech>

ATECENTRAL.NET:



ATECentral.net is a website that houses all the information about NSF Projects and NSF Centers throughout the nation. It also holds all of the resources that were developed with NSF funds.

The screenshot shows the top navigation bar of the ATECentral.net website. On the left is the ATECENTRAL logo with the tagline "SUPPORTING ADVANCED TECHNOLOGICAL EDUCATION". To the right of the logo is a search bar with the text "Search" and a "GO" button. Below the search bar is a link for "Advanced Search". The main navigation menu includes links for "HOME", "ATE 101", "COMMUNITY", "RESOURCES", and "ABOUT".

What is ATE?

With an emphasis on two-year colleges, the National Science Foundation's ATE (Advanced Technological Education) program focuses on the education of technicians for the high-technology fields that drive our nation's economy.

- Learn More About ATE
- ATE Central Tools & Services

ATE Events

- 6** Photonics West Mar 6
- 7** ABRF Annual Meeting Mar 7
- 10** Food & Agriculture Mar 10
- 10** Seminar w/ Xinwei Wang

ATE Centers and Projects

The map displays the United States with various states labeled. A legend at the bottom of the map includes categories: All, Mfg, Ag/Env, Bio/Chem, Eng, Gen, Info, and Nano. The map also shows a filter for "All Active Inactive New" and "All Centers Projects".

What Can ATE Central Do for Me?

You are logged in.

Welcome, twylie

- Your Microsite Add
- Preferences Edit
- Log Out Edit

Folder

Main Folder Edit

There are no resources in this folder.

Toolbox

Recent Searches





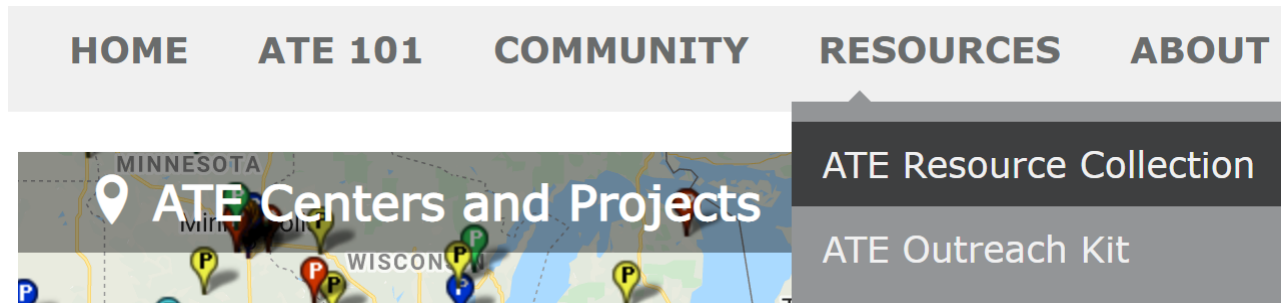
ATECENTRAL.NET:

If the user clicks on the “All” option on the map (shown by the red arrow), it will display all of the active NSF ATE Projects and Centers within the country. The user can click on any of the pins, and it will show the name of the award, as shown below.

ATECENTRAL.NET:



Click on Resources, then choose ATE Resource Collection. The user can choose any of the categories at the bottom of the page.



Browse Resources

The ATE Central resource collection and archive contain curriculum, professional development materials, videos and other valuable resources created and collected by the ATE community. Browse the resource collection using the categories listed below, or search for ATE resources via the box at upper right.

7 classifications found.

- **Browse by:**
- **Education Level**
- **Format**
- **GEM Subject**
- **Resource Type**

[Advanced Manufacturing Technologies](#) 623

[Agricultural and Environmental Technologies](#) 858

[Bio and Chemical Technologies](#) 575

[Engineering Technologies](#) 1,473

[General Advanced Technological Education](#) 995

[Information and Security Technologies](#) 816

[Micro and Nanotechnologies](#) 388

ATECENTRAL.NET:



<http://tijj.org/issues/issues/winter09/Winter09/cheng.pdf>



Industrial Automation Tutorials

Presented on behalf of Galil, these videos, presented by "industry leader" Jacob Tal, provide compensation, piezo-ceramic actuators, microstepping, and more. These two-minute videos cover common motion and I/O problems such as connecting to a Galil controller, PID temperature control, and more.

<http://www.galil.com/learn/online-videos>



Mechatronics Certification

This four-page document demonstrates how the College of Lake County (CLC) Mechatronics Systems Certification Program, Level 1 Mechatronics Systems Assistant and Level 2 Mechatronics Systems Assistant, includes a short introduction to the Florida Advanced Technological Education Center (FLATE), includes a short introduction to the program.



Hydraulics & Pneumatics

This site, created by Penton, is the leading international technical magazine of fluid power. It covers fluid power technology, through both technology articles and application stories. Emphasis is on fluid-powered machines and the plant engineer who maintains them. Also included in the site are news, product information, and more.

<https://www.hydraulicspneumatics.com>



PRDE 2420 - Capstone Project Syllabus

This is a syllabus for a four credit course offered at Macomb Community College that integrates problem solving, time and team management, and process changes. Upon completion of this course, students will be able to present ideas in a team environment and complete a group concept, (2) utilize research to solve a problem, and (3) manage a team.



Emergency Preparedness Management: Occupational Profile

This document, created by Eastern Iowa Community Colleges, serves as an overview of job management. What does emergency preparedness management involve? As the document explains, it is the application and coordination of a process that brings resources together to prepare, respond to, and recover from an emergency.



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Wisconsin Online Learning Object:

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Jim Pytel, Big Bad Tech, Video Lectures with Graphics

<https://www.youtube.com/user/bigbadtech>



Jim Pytel YouTube Channel:

youtube.com/watch?v=XfcM4WhJmJc



jim pytel



Motor Nameplates (Full Lecture)

3,008 views • May 14, 2021

103 0 SHARE SAVE ...



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70K subscribers

SUBSCRIBE

In this lesson we'll learn to interpret important manufacturer, electrical, and mechanical information





Jim Pytel YouTube Channel:



jim pytel

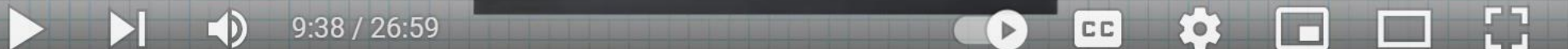
Manufacturer
 Model
 Serial Number

Electrical Characteristics

- Phase
- Frequency
- Voltage
- Current
- Power Factor
- Efficiency
- Inrush Code
- Connection Diagrams

Mechanical Characteristics:

- Rated Power
- Rated Speed
- Design Code
- Frame
- Enclosure
- Insulation Class
- Temperature Data
- Duty Cycle





How-To Videos for Session 1:

YouTube Video: T. Wylie, Video on Finding OER Videos and Simulations 042221

<https://youtu.be/uo934NaFoxs>

YouTube Video: T. Wylie, Video Searching for OER in Skillscommons 042221

<https://youtu.be/ep4Erjg46bs>



The End of the Presentation

Please email the presenter with
Any questions you may have, as
well as any feedback on the session
(twylie@northweststate.edu)