

When and where	Lecture NE 2350 4:00-5:20 pm M,W	Lab NE 2350 11:10-12:50 pm W																		
Instructor	Prof. Wm Ted Evans, PhD, PE (Ohio)-Office: NE 1607, Phone 419-530-3349, cell 419-343-3681 Email: william.evans@utoledo.edu , web: www.eng.utoledo.edu/~wevans																			
Office Hours	9:30-12:00 T, R																			
Prerequisite	Prerequisites: EET 2410 and CSET 2200																			
Textbook	Online text at above website – Hybrid Text, also Hybrid Lab Text																			
Useful References	Various vendor texts at their websites or at the above																			
Grading	Labs 40 %, Test 1 30%, Test 2 30% (A >= 90, B >= 80, C >= 70, D >= 60)																			
Class rules and regulations	<p>1. No eating, drinking, or smoking in classrooms.</p> <p>2. There are no make-up exams for this course. If you have a problem or conflict and cannot attend an exam, let me know beforehand and we will try to work something out. No credit will be given for a missed exam that we haven't made arrangements about beforehand unless you have a really excusable emergency. Cell phone use will not be allowed. If you do not have a calculator, buy one and bring it to class.</p> <p><i>Cheating is not allowed and will be punished by rules of U of Toledo Student Handbook.</i></p> <p>Office procedures:</p> <ul style="list-style-type: none"> • Wearing a face covering while on campus is a university requirement and all employees must adhere to the policy. Reusable masks and disposable gloves are available for your use, we also have disposable masks for visitors. Additionally, please plan to take some disposable masks to your class in case a student shows up without a face covering. • We will keep the doors to the suite locked and all visitors will be by appointment only. There is a sign posted on the door listing contact options for each of us including phone, email. • External visitors should be limited, and they will be asked to contact the ET individual that they have an appointment with. That person will open the door and do a temperature check. The visitor must have a mask on to enter the suite. • The front door (closest to parking lot 19S) will be entrance only and marked as such. • The back door will be exit only and marked as such. • Students' submitted materials (homework, paper, etc.) will not be allowed to be dropped off, I ask you not to accept paper copies of students' work and allow only electronic submission. <p>Laboratory procedures:</p> <ul style="list-style-type: none"> • Safety: In working to ensure laboratory safety, all of our labs have paper dispensers installed with sanitizer spray, I ask you to have students spray a paper towel with disinfectant and to decontaminate work surfaces, equipment, keyboard, mice, etc. at the beginning and end of the laboratory activities. • Delivery Mode: Following is the list of ET instructional laboratories and their social distancing capacity: <table border="1"> <thead> <tr> <th>ROOM</th> <th>CAP</th> <th>DESC</th> </tr> </thead> <tbody> <tr> <td>NE1230</td> <td>15</td> <td>CET Multipurpose</td> </tr> <tr> <td>NE1290</td> <td>12</td> <td>CET Materials Testing Lab</td> </tr> <tr> <td>NE1410</td> <td>12</td> <td>MET Materials Testing Lab</td> </tr> <tr> <td>NE1430</td> <td>12</td> <td>MET Fluid and Thermal Science Lab</td> </tr> <tr> <td>NE1540</td> <td>26</td> <td>Drafting Lab</td> </tr> </tbody> </table>		ROOM	CAP	DESC	NE1230	15	CET Multipurpose	NE1290	12	CET Materials Testing Lab	NE1410	12	MET Materials Testing Lab	NE1430	12	MET Fluid and Thermal Science Lab	NE1540	26	Drafting Lab
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	<p>NE2300 12 IT System Administration Lab</p> <p>NE2330 11 EET Electrical Lab</p> <p>NE2350 10 EET PLC Hardware Lab</p> <p>NE2360 12 CSET Local Area Network Lab</p> <p>NE2380 15 Automatic Controls Lab</p> <p>NE2390 16 EET PLC Computer Lab</p> <ul style="list-style-type: none"> • If the number of students enrolled in you lab session is larger than the social distancing capacity, you can choose to do either of the following, remember it is not a one size fits all approach: <ol style="list-style-type: none"> 1. Split your laboratory in two sessions, i.e. reduce the allocated experimental time to 1/2 of the original time. Students can complete the experimental part in the lab, and data analysis can be done remotely. 2. Or, follow the same lecture approach of rolling classroom model where students rotate between F2F and remote environment each lab session. For remote participants, you can follow either of the following: <ul style="list-style-type: none"> • Video Recorded Labs: Video record your lab procedures and then provide data sets to students to analyze asynchronously. • At Home Labs: This might not be applicable to everyone, but the EET program can benefit from it by creating lab kits for students to be used in-person, such a kit might be a micro-controller evaluation board, or a digital system evaluation board. You can request students to submit short videos or photos to ensure they have actually set up and completed the experiment. • Simulated Labs: Using simulation software that model physical systems in a virtual lab environment.
Catalog descriptions	Use of programmable controllers and computers in factory automation. Topics include process control, supervisory software, PLC networking, PLC/CNC integration, device configuration, use of programming software and PLC language standards.
Topics and reading assignments (subject to change, any changes will be notified in the class beforehand)	<ul style="list-style-type: none"> • Review of A-B, Siemens PLC programming • Addressing Review • Introduction Siemens' Function/Function Block concept • Introduction to HMI concepts • Introduction to motion programming • PID algorithms – writing control programs to control processes • Safety programming • PLC networking concepts • Discrete and analog I/O concepts
	<p>Assignments for Labs are found below. There are a number of optional labs. Any 2 optional labs will count for a test, either the midterm or final. One optional lab will give credit for 50% of one of these tests.</p> <p>You must do any two of the three from Ch. 15, Lab 15.1 and 15.2. The third one in each category is optional and will be added to the optional scores.</p> <p>If Ch. 20 is not ready, it will not be required. So, there are 9 or 10 labs required.</p>

Lab Assn 13.1 by end of term	Ch. 13	13.1.1A Simon	optional	points .5 test
Lab Assn 13.2 by end of term	Ch. 13	13.2b Whack-a-mole	optional	points .5 test
Lab Assn 13.3 by end of term	Ch. 13	13.3 Bicycle	optional	points .5 test
Lab Assn 14.1 2/22/21	Ch. 14	Lab 14.1 (Ch. 14, pg. 32)	Demo with Siemens Processor	required
Lab Assn 15.1 3/25/22	Ch. 15	Lab 15.1	Demo with Siemens	4 of 6 required
	Ch. 15	Lab 15.1	Demo with A-B Studio	4 of 6 required
	Ch. 15	Lab 15.1	Demo with A-B Factory Talk	4 of 6 required
Lab Assn 15.2 3/22/22	Ch. 15	Lab 15.2	Demo with Siemens	4 of 6 required
	Ch. 15	Lab 15.2	Demo with A-B Studio	4 of 6 required
	Ch. 15	Lab 15.2	Demo with A-B Factory Talk	4 of 6 required
Lab Assn 16.1 by end of term	Ch. 16	Lab 16.1	Optional	points .5 test
Lab Assn 16.2 by end of term	Ch. 16	Lab 16.2	Optional	points .5 test
Lab Assn 16.3 by end of term	Ch. 16	Lab 16.3	Optional	points .5 test
Lab Assn 17.1 4/5/21	Ch. 20	Lab Text	Demo with A-B	required
Lab Assn 17.1 4/5/21	Ch.21	Lab Text	Demo with Siemens	required
Lab Assn 19.1 4/28/21	Ch. 22	Lab Text	Demo with Siemens	required
Lab Assn 19.1 4/28/21	Ch. 25	Lab Text	Demo with Siemens	required
Lab Assn 20.1 by end of term	Ch. 20		Optional	points .5 test