Assessment: Course Four Column

Courses (CTE) - Electrical Systems Technology

ELM 134:Intro Progrm Logic Cntrl

Course Outcomes	Assessment Measures	Results	Actions
PLC hardware and uses - Identify and explain PLC hardware and uses in industrial applications **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Quiz -** Homework and quiz/test completion. Also, physical parts identification of PLC's. **Criterion:** Complete homework, quizzes and tests with a minimum score of 70%. Complete PLC parts identification lab assignment.	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Students were able to complete all required work to meet this outcome. Results Analysis: Results for this outcome were very good. Students were able to grasp the basic concepts of this outcome very quickly and successfully. (12/11/2018)	**Action:** Purchase more PLC's for classroom demonstrations. (12/11/2018)
Apply hand-held programmers to a specific PLC programming use in industry - Apply hand-held programmers to a specific PLC programming use in industry. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Assignment - Lab -** Be able to write and wire a program using the Eaton PLR setup in our lab. **Criterion:** Develop a written copy of desired program, use Eaton PLR to write program into device, wire desired I/O, and successfully test.	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Students struggled at first with this concept. Making the transition from relay logic to PLC logic is a leap of faith for everyone initially. This outcome was achieved for all students. Results Analysis: As stated previously, this is the first experience the students have with changing their mode of thinking from conventional hard wired logic, to PLC logic. Everyone struggles with this at first. This outcome makes an easy Segway into this method of thinking for the students. (12/12/2018)	**Action:** Purchase eight more Eaton PLR's so we have more availability for students. Re-word outcome to reflect the use of a faceplate rather than a handheld programmer. Handheld programmers are seldom used in industry anymore. (12/12/2018)
Ladder diagram to a logic diagram - Convert a ladder diagram to a logic diagram **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Assignment - Lab -** Successful conversion of a given ladder diagram into a functioning logic diagram. **Criterion:** Conversion of the diagram is done in the PLC software. Once	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Again, students are still learning this new method of thinking, so struggles were apparent. Additional time was spent breaking down all aspects of writing a PLC program.	

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	completed, a simulation of the logic is done within the software and verified for correct operation.	In the end, students were able to successfully convert the ladder diagram into a functioning logic diagram. Results Analysis: Overall pleased with the results. The end result took longer than expected, but was not a detriment to our end results. (12/12/2018)	
Programming language of a PLC to a specific hard wired ladder diagram - Apply programming language of a PLC to a specific hard wired ladder diagram. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Assignment - Lab -** Using a hard-wired circuit, students are required to develop a PLC logic diagram and write a functioning program. **Criterion:** Be able to demonstrate a functioning program in relation to the functioning hard wired ladder diagram.	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Students are beginning to gain a better grasp on PLC programming. This is the start of more advanced programming and the students picked up on it very well. Struggles were evident, but students now have the tools to work through the issues. Results Analysis: Pleased with the outcome. No need for any change to this specific learning outcome. (12/12/2018)	
Branch instructions when writing a program - Develop branch instructions when writing a program. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Assignment - Lab -** Using PLC software, modify an existing program to include functioning branch instruction. **Criterion:** PLC software simulation of functioning branch instructions within an existing, functioning program.	**Reporting Period:** 2017-2018 **Criterion Met:** Yes All students were able to complete this outcome with little to no struggle. Results Analysis: No change is needed for this outcome. The outcome is straight forward and students are able to achieve in a timely manner. (12/12/2018)	
Latching instructions when writing a program - Develop latching instructions when writing a program. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Assignment - Lab -** Using PLC software, modify an existing program to include functioning latch and unlatch instructions. **Criterion:** PLC simulation of functioning latch and unlatch instructions within an existing, functioning program.	**Reporting Period:** 2017-2018 **Criterion Met:** Yes All students were able to complete this outcome with little to no struggle. Results Analysis: No change is needed for this outcome. The outcome is straight forward and students are able to achieve in a timely manner. (12/12/2018)	