**Continuous Improvement Plan Report to be Completed in Years 2/4 of Program Review Cycle**

**Date: 7 March 2025 Name of Program: Robotics and Automation Technology, Collin Engineering**

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**Table 1: CIP Student/Program Level Learning Outcomes Targeted for Improvement, Description of Assessment Measure(s) and Targets Levels of Success Table (focus on at least one student/program level outcome for the next two years)**

**Description of Fields in CIP Table 1:**

**A. Student Learning Outcome(s)** -Results expected in this program (e.g., students will be able to compare/contrast conflict and structural functional theories). Outcomes must be quantifiable and measurable.

**B. Assessment Measure(s)** –Assessmentinstrument(s)/process(es) used to measure results (e.g., embedded test questions 6 & 7 from final exam)

**C. Targeted Level(s) of Success** -Level of success expected (e.g., X% of students will score at least Y on the indicated assessment)

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| 1. **Student/Program Level Learning Outcome(s)**   **Targeted for Improvement**  (e.g., “Students will be able to…”) | **B. Description of Assessment Measure(s)**  (Assessment instrument(s)/process(es) used to measure results - Include course in which assessment will be given) | **C. Targeted Level(s) of Success**  (e.g., X% of students will score at least Y on the indicated assessment.) |
| Students will be able to create and perform preventive maintenance checklist on electric motors. | Perform a lab on motors using preventive maintenance checklist.  INTC 1357 - AC/DC Motor Control | 80% of Students will score at least 80% or  above on the indicated assessment. |
| Students will be able to network from a  PC to PLC and transfer a file. | Perform a lab (or series of) to  network and transfer file.  ELMT 1301 - Programmable  Logic Controllers | 80% of Students will score at least 80% or  above on the indicated assessment. |
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**Add additional rows if necessary.**

**Table 2. CIP Student Learning Outcomes 1–3 (focus on at least one for the next two years)**

**Description of Fields in CIP Table 2:**

**A. Student/Program Level Learning Outcome(s) Targeted for Improvement** -Results expected in this program (e.g., Students will be able to compare/contrast conflict and structural functional theories). Outcomes must be quantifiable and measurable.

**B. Assessment Measure(s)** – **Assessment** Instrument(s)/process(es) used to measure results (e.g., embedded test questions 6 & 7 from final exam)

**C. Targeted Level(s) of Success** -Level of success expected (e.g., X% of students will earn a score of Y or greater on the embedded test questions)

**D. Description of Action Plan to Improve Learning** -Describe action(s) to be taken to improve student attainment of the indicated student/program level outcome. What will you do?

**E. Summary of Results/Data** - Summarize the information and data collected in year 1/3 when action plan was implemented.

**F. Findings** - Explain how the information and data has impacted the expected student learning outcome.

**G. Implementation of Findings** – Describe how you have used or will use your findings and analysis of the data to make improvements.

**Student/Program Level Learning Outcome Targeted for Improvement #1**

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| 1. **Student/Program Level Learning Outcome Targeted for Improvement #1:**   Students will be able to perform preventive maintenance checklist on electric motors. | |
| 1. **Assessment Measure(s):**   Perform a lab on motors using preventive maintenance checklist. | 1. **Targeted Level(s) of Success:**   80% of Students will score at least 80%  or above on the indicated assessment. |
| 1. **Description of Action Plan to Improve Learning:**   Develop checklist with students from Best Practices samples. | |
| 1. **Summary of Results/Data:**   90% of Students scored at least 80% or above on the indicated assessment. | |
| 1. **Findings:**   Engaging students with details for the checklist, and then practicing the checklist allows students to understand background, and see results. Since the students have been performing well on this measure, we will raise the bar in the next cycle. | |
| 1. **Implementation of Findings:**   This is now a standard practice portion of the Motors class. We are building a motor test stand for this task. | |

**Student/Program Level Learning Outcome Targeted for Improvement #2**

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| 1. **Student/Program Level Learning Outcome Targeted for Improvement #2:**   Students will be able to network from a PC to PLC and transfer a file. | |
| 1. **Assessment Measure(s):**   Perform a lab (or series of) to network and transfer file. | 1. **Targeted Level(s) of Success:**   80% of Students will score at least 80%  or above on the indicated assessment. |
| 1. **Description of Action Plan to Improve Learning:**   Student selects PLC, downloads and installs PLC software from manufacturers on PC, creates PLC software file, downloads software to PLC, operates PLC from download file. | |
| 1. **Summary of Results/Data:**   90% of Students scored at least 80% or above on the indicated assessment. | |
| 1. **Findings:**   Engaging students in all aspects including loading industry software before use fully allows students to understand background, and results. Since the students have been performing well on this measure, we will raise the bar in the next cycle. | |
| 1. **Implementation of Findings:**   This is now a standard practice portion of the PLC class. We do this with at least two different manufacturers and brands. | |

**Program Assessment Data Report**

**Program: Collin Engineering, Robotics and Automation Technology Terms Data Collected: S-F 2022, S-F 2023, S-F 2024**

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| Program-Level Learning Outcome- (From Assessment Plan) | Assessment Measure(s) and Where Implemented in Curriculum – (From Assessment Plan) | Target Outcome(s)- Level of Success Expected – (From Assessment Plan) | Assessment Results – (Provide data in a form related to targeted levels of success to left. Indicate if targeted level of success was met, partially met, or not met.) |
| Students will be able to demonstrate troubleshooting skills in electronics to test, analyze and maintain robotic automation equipment in proper working order. | Perform a lab using instrumentation devices for troubleshooting remote monitoring system  (INTC 1307) | 70% of students will earn a grade of 70% or better on indicated measures | (INTC 1307)  Fall 2023: 95% of students successfully completed 70% or better of targeted levels.  Fall 2024: 95% of students successfully completed 70% or better of targeted levels.  Targeted level of success was met.  Recommendations: Potentially raise the bar for success measurements for future terms. |
| Students will be able to demonstrate troubleshooting skills in electronics to test, analyze and maintain robotic automation equipment in proper working order. | Lab exercise to perform preventive maintenance and general repair on motors (INTC 1357)  Lab exercise to perform preventive maintenance and general repair on hydraulic and pneumatic systems (ELMT 1305) | 70% of students will earn a grade of 70% or better on indicated measures | (INTC 1357)  Fall 2023: 100% of students successfully completed 70% or better of targeted levels.  Fall 2024: 90% of students successfully completed 70% or better of targeted levels.  -------------------------  (ELMT 1305)  Spring 2023: 100% of students successfully completed 70% or better of targeted levels.  Spring 2024: 85% of students successfully completed 70% or better of targeted levels.  Targeted level of success was met.  Recommendations: Potentially raise the bar for success measurements for future terms. |
| Students will be able to safely perform preventive maintenance and general repairs on robotic automation equipment including hydraulics, pneumatics, motors and PLCs (programmable logic controllers). | Complete capstone project to install and integrate multiple control system technologies to develop an automation solution (INTC 2359) | 70% of students will earn a grade of 70% or better on indicated measures | (INTC 2359)  Spring 2023: 100% of students successfully completed 70% or better of targeted levels.  Spring 2024: 100% of students successfully completed 70% or better of targeted levels.  Targeted level of success was met.  Recommendations: Potentially raise the bar for success measurements for future terms. |
| Students will be able to program industrial control and robotic systems for industrial automation. | Lab exercise requiring robot programming to control an automation system (RBTC 2345)  Lab exercise requiring PLC programming to control components of an automation system (ELMT 2339) | 70% of students will earn a grade of 70% or better on indicated measures | (RBTC 2345)  Fall 2023: 100% of students successfully completed 70% or better of targeted levels.  Fall 2024: 77% of students successfully completed 70% or better of targeted levels.  --------------------------  (ELMT 2339)  Spring 2023: 100% of students successfully completed 70% or better of targeted levels.  Spring 2024: 100% or students successfully completed 70% or better of targeted levels.  Targeted level of success was met.  Recommendations: Potentially raise the bar for success measurements for future terms. |

**Add additional rows if necessary.**