# Automated Integrated Systems II Course No. 39020 Credit: 0.5

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| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes: **Automated Engineering Pathway (15.0406)**

****Prerequisite: 39010 – Automated Integrated Systems I****

Course Description: This course focuses on Automation in Manufacturing and is designed with the primary focus on the design and development of automated systems in manufacturing. The course focuses on the integration and application of various mechanical and automated systems being used in the manufacturing industry.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Click or tap here to enter text.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Students will discuss the importance of automation in the manufacturing industry |  |
| 1.2 | Students will design an automated system using the common building blocks of an automated systems and working principles |  |
| 1.3 | Student will fabricate and/or select the various components of an automated system |  |
| 1.4 | Students will demonstrate skills associated with the various sensors required in a typical automated system for manufacturing |  |
|  | a. Identify the construction techniques used in the operation of sensors |  |
|  | b. Identify the common principles of operation associated with sensors |  |
| 1.5 | Students will apply knowledge of microprocessor technology (signal conditioning, data acquisition, microprocessors microcontrollers configurations and workings as it applies automation in the manufacturing sector. |  |
| 1.6 | Students will learn and apply knowledge of electrical drives (types, selection criteria, construction, and operating principles) as it applies to automation in the manufacturing sector. |  |
| 1.7 | Students will learn and apply knowledge of mechanisms (ball screws, linear motion bearings, cams, systems controlled by camshafts) as it applies to automation in the manufacturing sector. |  |
| 1.8 | Students will learn and apply knowledge of mechanisms (electronic cams, indexing mechanisms, tool magazines, and transfer systems) as it applies to automation in the manufacturing sector. |  |
| 1.9 | Students will learn and apply knowledge of hydraulic systems (hydraulic power pack, pumps valves) as it applies to automation in the manufacturing sector. |  |
| 1.10 | Students will learn and apply knowledge of hydraulic systems (designing of hydraulic circuits) as it applies to automation in the manufacturing sector. |  |
| 1.11 | Students will learn and apply knowledge of pneumatic systems (configurations, compressors, valves, distribution, conditioning) as it applies to automation in the manufacturing sector. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

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