

**Course Outline for:** VACT 1302 Vacuum System Automation Capstone

**A. Course Description**

1. Number of credits: 1
2. Lecture hours per week: 1
3. Prerequisites: VACT 1301
4. Corequisites: None
5. MnTC Goals: None

In this course, the student will apply their knowledge of vacuum system automation to a working automated vacuum system. Students will create a human machine interface (HMI) to interact with the vacuum system and document their system for future users..

**B. Date last reviewed/updated:** May 2023

**C. Outline of Major Content Areas**

1. Wiring Test Board to Remote I/O
2. Configuring Remote I/O
3. Adding Remote I/O Points to HMI
4. Creating HMI
5. Documenting Operation Procedures

**D. Course Learning Outcomes**

Upon successful completion of the course, the student will be able to:

1. Create a documentation package to support an automation system.
2. Wire inputs and outputs to a remote I/O device.
3. Create an HMI to operate components on the system and display information collected from devices.

**E. Methods for Assessing Student Learning**

Methods for assessment may include, but are not limited to, the following:

1. Unit quizzes
2. A summative exam
3. Homework assignments
4. Discussions
5. Collaborative projects
6. Other quizzes

**F. Special Information**

This course is the third of 3 modular 1-credit courses VACT 1300 (Intro to Vacuum System Automation), VACT 1301 (I/O for Vacuum System Automation) and VACT 1302.

Course instruction includes access to I/O components, a data acquisition unit, data acquisition and HMI application, a basic multimeter unit and access to a vacuum equipment trainer system to support HMI development project work.