

Mission Statement

To fulfill the needs of the local advanced technology based industry, FLCC is offering an **AAS degree in Instrumentation and Control Technologies**. The program will provide project based 'hands-on' training in the areas of advanced automation while improving problem solving, teamwork, verbal and written communication skills. Completion of the degree requirements will enable the graduate to enter an industrial engineering environment with the training required to begin work as a skilled technologist, and requiring less 'on-the-job' training. These innovative and adaptable technologists will help leverage local and regional engineering expertise.

****New Courses****

TECH 230 Introduction to Process Improvement

3 Credits (3 Lect)

Students will learn the principles and practice of process improvement through specific methodologies such as Lean Six Sigma. Six Sigma techniques, introduced to industry in the late 1980's, facilitate using data driven decisions to reduce defects, drive down costs, and increase efficiency. It is a methodology that focuses on minimizing process variation, thereby enabling the process to operate more smoothly and efficiently. The technique uses data based decisions for improvements. Lean is a process that focuses on eliminating waste and streamlining operations. Lean Six Sigma, a more recent technique combines the two processes. Data driven decisions are still present, but the emphasis on speed for the processes improvement is key. Combining these two methods into Lean Six Sigma provides a powerful tool to make improvements in any process or business. Prerequisites: MAT 152 Pre Calculus, ENG 101 English I

TECH 231 Automation of Data Acquisition

3 Credits (2 Lect, 2 Lab)

The automation of data acquisition is essential for measurements in R&D as well as industrial environments where massive amounts of data are collected, especially when the data are collected more rapidly than what is possible manually. The main topics covered include: sources of signals, selection of appropriate transducers, and signal conditioning needed before signal is converted to digital format for computer controlled data acquisition and analysis. Students will complete a team-based case study project in which they will define and develop an innovative data acquisition solution using appropriate hardware and software tools. Prerequisites: TECH 122 Electronic Theory I, TECH 123 Digital Circuits, ESC 172 Computing for Engineers, and MAT 152 Pre-Calculus.

TECH 232 Automation Control I

4 Credits (3 Lect, 2 Lab)

Control tools and techniques used in automation are introduced using Microcontrollers, Programmable Logic Controllers, and Programmable Automation Controllers. Students will apply concepts and techniques learned to complete a team based case study project to solve problems encountered in high technology businesses. Prerequisites: TECH 122 Electronic Theory I, TECH 123 Digital Circuits, PHY 119 College Physics II, ESC 172 Programming for Engineers, and MAT 152 Pre-Calculus. Co-requisites: TECH 231 Automation of Data Acquisition

TECH 233 Automation Control II

4 Credits (3 Lect, 2 Lab)

Control tools and techniques used in automation are developed using Mechatronics (automated motion control) and Industrial Machine Vision (acquisition, processing and use of images in automation control). Students will apply concepts and techniques learned to complete a team based case study project to solve problems encountered in high technology businesses. Prerequisites: TECH 231 Automation of Data Acquisition, TECH 232 Automation I and ESC 210 Engineering Design Project I. Co-requisite: ESC 220 Engineering Design Project II