

GENERAL INFORMATION

The Mechatronics Systems Certificate program is designed to provide students with the basic skills in electrical, mechanical and computerized components in an industrial mechatronic system used for manufacturing and assembly. The hands-on training and instruction will view the components or devices in terms of their roles within the system, with an emphasis on the system running at maximum capacity.

Upon completion, the student will function as a well-grounded machine operator in a complex system, with responsibility for efficient operation of the equipment, with minimal down-times. Students will be able to assist in identifying where malfunctions are occurring and communicate with experts who can carry out the required repairs.

This certificate may be considered a stand-alone credential for people seeking to enter the manufacturing field, or as part of a stackable set of certificates in the EvCC Advanced Manufacturing degree pathway.

PROGRAM INFORMATION

The certificate program will focus on skills used in plant assembly sites, warehouse and service operations which utilize complex mechatronics systems. The foundational skill set for these integrated systems are interrelated in a variety of industries – aerospace, automotive, farming, mining, pharmaceuticals, power and energy, and food processing.

Mechatronics combines the study of mechanics, electronics, pneumatics, and digital control technology with a focus on an integrated systematic approach. By studying the system as a whole, students gain understanding of the intertwined system. They learn how the electronics, mechanics and digital control interact; how to analyze operations; and how to trouble shoot to solve problems.

GETTING STARTED AT EVCC

Our Enrollment Services Office provides information about application, advising, orientation and registration for new and continuing students. If students have questions about applying or getting started they may contact Enrollment Services. Contact:

- ◆ Enrollment Services, Parks Student Union, 425-388-9219
- ◆ Advising Center, Rainier Hall 108, 425-388-9339

COURSE INFORMATION

MFG T 120 - Electrical Components

Basic functions and physical properties of electrical components, and the roles they play within a complex mechatronics system.

MFG T 121 – Mechanical Components and Electrical Drives

Based upon a physical system, basic functions and physical properties of mechanical components, electrical drives (AC/DC), flow of energy, trouble shooting, and preventative maintenance.

MFG T 122 – Electro-Pneumatic and Hydraulic Control Circuits

Basics of pneumatic, electro-pneumatic and hydraulic control circuits in a complex machatronic system; properties and documentation of same.

MFG T 123 – Digital Fundamentals and Programmable Logic Controllers

Fundamentals of digital logic and introduction to PLCs with a focus on the automation system and appropriate programming software; basic PLC elements; and trouble shooting strategies.

CERTIFICATE OUTCOMES

- Understand and explain the principal operations of the mechatronics subsystems in a complex system;
- Understand how these subsystems work together;
- Recognize potential or impending malfunctions, and contact expert assistance in order to keep the production line functioning; prevent production loss;
- Perform routine, preventative maintenance; localize, and identify causes and sources of malfunctions where possible;
- Read and understand the technical documents, reports and outlines specific to the systems and subsystems; be able to consult with experts; and be able to document malfunctions;
- Work effectively as a team member and coordinate the activities with upstream and downstream operations;
- Understand and implement safety regulations required for operation of the system.

Certificate: Mechatronics Systems (19 Credits)

This checklist is targeted at students with a Mechatronics interest. Courses have prerequisites. 12 weeks prior to the anticipated receipt of this certificate, this checklist should be submitted with a diploma application to the Enrollment Services Office.

Student: _____ Advisor: _____ Date: _____

Course Number	Course Title	Credits	Quarter Planned	Quarter Done	Grade
REQUIRED COURSES					
MECH 120	Electrical Components	5	_____	_____	_____
MECH 121	Mechanical Components & Electrical Drives	5	_____	_____	_____
MECH 122	Electro-Pneumatic and Hydraulic Control Circuits	5	_____	_____	_____
MECH 123	Digital Fundamentals and PLCs	4	_____	_____	_____
TOTAL:		19 credits	Minimum 2.0 GPA		

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