

MECHATRONICS (AAS)

Associate of Applied Science

Career-Technical Program

Interest Areas:

Manufacturing and Trades

Mechatronics is a multifaceted field that utilizes many areas of mechanics including electronics, automation, computers, hydraulics, programmable logic controllers, electrical systems, and mechanical systems. The Mechatronics program is designed to prepare students for employment as entry-level technicians, and emphasizes extensive practical experience in both theory and laboratory settings using mock-up equipment and assemblies similar to those found in industry. Instruction advances many of the concepts learned in the first year Industrial Mechanics/Millwright portion of the program and includes theory, troubleshooting, and hands-on application in mechatronics, programmable logic controllers, pneumatics, AC and DC electrical systems, hydraulics, and motor control. Successful completion of the first two semesters of the one-year Industrial Mechanic/Millwright (IMM) Intermediate Technical Certificate program or permission of the instructor is required to enroll in the mechatronics program. The second year of the program leads to an Advanced Technical Certificate or A.A.S. degree in Mechatronics and is intended to advance the skills learned in the one year IMM Intermediate Technical Certificate program.

Successful completion of each semester or permission of the instructor is required to continue into successive semesters. Placement in specific English and Math courses is determined by the college assessment test. Prospective students who do not meet the initial eligibility requirements for a professional-technical limited-enrollment program will need to take selected courses to receive necessary skill- building prior to entering the program.

Current industry professionals may enroll in individual courses on a space-available basis and with the instructor's permission.

Program Website (https://www.nic.edu/programs/viewprogram.aspx?program_id=107)

Program Requirements

Course	Title	Credits
Semester 1		
MM-150	Industrial Mechanics I	8
MM-151L	Industrial Mechanics Lab I	5
MM-155	Industrial Blueprints	2
GEM 3 - A.A.S. Mathematical Ways of Knowing		3-5
	Credits	18-20
Semester 2		
MM-152	Industrial Mechanics II	7
MM-152L	Industrial Mechanics Lab II	5
MM-156	Industrial Hydraulics	3
ENGL-101	English Composition	3
	Credits	18
Semester 3		
COMM-101	Introduction to Speech Communication	3

MECH-210	Mechatronics I	5
MECH-210L	Mechatronics Lab I	4
MECH-211	Programmable Logic Controllers I	3
	Credits	15
Semester 4		
MECH-220	Advanced Mechatronics II	4
MECH-220L	Advanced Mechatronics Lab II	4
MECH-221	Advanced Programmable Logic Controllers II	3
GEM 6 - A.A.S. Social and Behavioral Ways of Knowing		3
A.A.S. Institutionally Designated		3
	Credits	17
	Total Credits	68-70

Course Key



GEM



WCHE



AAS

Institutionally Designated



Gateway



Milestone

Program Outcomes

Upon completion of the program, students will be able to:

- Adhere to safety, health and environmental rules and regulations.
- Selection and safe use of hand and power tools.
- Accurately use precision measurement tools.
- Install and test components in a basic hydraulic circuit.
- Troubleshoot industrial hydraulic circuits.
- Interpret fluid power schematics.
- Troubleshoot industrial pneumatic circuits.
- Install and test components on industrial pneumatic circuits.
- Perform machine maintenance procedures.
- Perform preventative maintenance.
- Perform predictive maintenance.
- Systems troubleshooting methodologies.
- Install and test AC and DC electrical motors.
- Interpret electrical control power schematics.
- Install and test electro-fluid power components and circuits.
- Perform power transmission troubleshooting.
- Perform troubleshooting and maintenance on PLC's.
- Create a basic PLC ladder style program.
- Install and test basic PLC components.
- Perform SMAW, GTAW, and GMAW welding procedures.
- Perform oxy-acetylene cutting procedures.
- Perform mechanical drive system repair procedures.
- Equipment installation and alignment.
- Interpret industrial blueprints.
- Perform maintenance on seals and pumps.
- Perform maintenance on bearings and packings.
- Adhere and perform safe rigging practices.
- Advanced electrical motor control.
- Perform service and maintenance on conveyer systems.

In addition to the program outcomes, students will meet the following North Idaho College General Education (GEM) Requirements: Written and Oral Communication; Mathematical

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Ways of Knowing; Social and Behavioral Ways of Knowing; and an additional program-designated or selected course from any of the GEM requirements.