

# 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 includes theory, troubleshooting, and hands-on application in mechatronic concepts and principles, programmable logic controllers, pneumatics, AC and DC electrical systems, and motor controls. Successful completion of both the Mechatronics Program and Industrial Mechanic/Millwright Program and associated general education coursework will lead to an Advanced Technical Certificate or A.A.S. Degree in Mechatronics.

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 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.**

#### Contact Information:

Trades & Industry Division

Parker Technical Education Center

7064 West Lancaster Road

Rathdrum, ID 83858

Phone: (208) 769-3448

Program Website (<https://www.nic.edu/programs/mechatronics/>)

## Program Requirements

**Note:** Students can begin the course sequence for this program with either the Industrial Mechanic/Millwright courses or the Mechatronics courses.

Course	Title	Credits
<b>Semester 1</b>		
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
<b>Credits</b>		<b>18-20</b>
<b>Semester 2</b>		
MM-152	Industrial Mechanics II	7
MM-152L	Industrial Mechanics Lab II	5
MM-156	Industrial Hydraulics	3

ENGL-101	Writing and Rhetoric I	3
<b>Credits</b>		<b>18</b>
<b>Semester 3</b>		
MECH-210	Mechatronics I	5
MECH-210L	Mechatronics Lab I	4
MECH-211	Industrial Automation Control Systems	3
COMM-101	Fundamentals of Oral Communication	3
<b>Credits</b>		<b>15</b>
<b>Semester 4</b>		
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
<b>Credits</b>		<b>17</b>
<b>Total Credits</b>		<b>68-70</b>

### Course Key



GEM



AAS  
Institutionally  
Designated



Gateway



Milestone

## Program Outcomes

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

1. Adhere to safety, health and environmental rules and regulations.
2. Selection and safe use of hand and power tools.
3. Accurately use precision measurement tools.
4. Install and test components in a basic hydraulic circuit.
5. Troubleshoot industrial hydraulic circuits.
6. Interpret fluid power schematics.
7. Troubleshoot industrial pneumatic circuits.
8. Install and test components on industrial pneumatic circuits.
9. Perform machine maintenance procedures.
10. Perform preventative maintenance.
11. Perform predictive maintenance.
12. Perform systems troubleshooting methodologies.
13. Install and test AC and DC electrical motors.
14. Interpret electrical control power schematics.
15. Install and test electro-fluid power components and circuits.
16. Perform power transmission troubleshooting.
17. Perform troubleshooting and maintenance on PLC's.
18. Create a basic PLC ladder style program.
19. Install and test basic PLC components.
20. Perform SMAW, GTAW, and GMAW welding procedures.
21. Perform oxy-acetylene cutting procedures.
22. Perform mechanical drive system repair procedures.
23. Perform equipment installation and alignment.
24. Interpret industrial blueprints.
25. Perform maintenance on seals and pumps.
26. Perform maintenance on bearings and packings.
27. Adhere and perform safe rigging practices.

- 28. Perform advanced electrical motor control troubleshooting procedures.
- 29. 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 Ways of Knowing; Social and Behavioral Ways of Knowing; and an additional program-designated or selected course from any of the GEM requirements.