MECHATRONICS, Associate in Applied Science Degree - 4711

Engineering & Technology Department

The Mechatronics AAS degree program educates students through an integrated-systems approach that includes automation, process controls, and industrial robotics used throughout industry. Designed as a multidisciplinary program that incorporates theory and hands-on experience with a focus on advanced control systems and industrial robotics, Students gain the broad skill-set necessary to maintain, repair, and manage mechanical, electrical, electronic, fluid power, and automation control systems. Emphasis is placed on the integration of these systems and working successfully as part of a team. Graduates are prepared to for positions in which maintenance, troubleshooting, repairing, and modifying the designs of automated systems and equipment is required. The complete program is available at the Harrisburg Campus's Midtown location. Students may also complete this program at the Gettysburg Campus by taking some courses through Virtual Learning.

Career Opportunities

Graduates find employment as multi-skilled technicians in a wide variety of industrial, manufacturing, and commercial settings. Although this program is designed to lead directly to employment, opportunities exist for students to transfer their coursework to four-year institutions and complete a bachelor's degree.

Competency Profile

This curriculum is designed to prepare students to:

- Perform maintenance on electronic, electrical, pneumatic, hydraulic and mechanical systems
- Interpret and apply OSHA Safety Standards
- Use mechanic and measurement tools, power tools, and test equipment
- Read electrical, mechanical, and hydraulic / pneumatic prints
- Demonstrate practical knowledge of electrical and electronic fundamentals and motor controls
- Demonstrate practical knowledge in mechanical systems
- Demonstrate practical knowledge in fluid power systems
- Demonstrate practical knowledge in process control systems
- Troubleshoot and repair electronic, electrical, pneumatic, hydraulic, and mechanical systems
- Troubleshoot and repair electromechanical equipment and systems
- Troubleshoot AC and DC systems
- Program, wire, and troubleshoot contemporary programmable logic control (PLC) systems
- Design, program, wire, and troubleshoot IEC61131-3 programmable logic control (PLC) control systems including Human Machine Interface (HMIs)
- Effectively operate and develop basic programs for maintaining and troubleshooting industrial robots

PROGRAM REQUIREMENTS (TOTAL CREDITS = 61)

General Education		**Major Requirements**		**Other Required Courses**	
ENGL 110 Foundations in Professional Writing	3	ELOC 153 Fundamentals of Electricity	4	CIS 105 Intro to Software for Business	3
COMM 101 Effective Speaking **(or)**	3	GTEC 101 Safety: OHSA-30 & NFPA 70E	3		
COMM 203 Interpersonal Communication	(3)	IA 101 Introduction to Automation	2		
Humanities & Arts Elective	3	IA 107 Shop Measurement and Calculations*	1		
Mathematics **or** Science Elective	3	IA 201 Motors and Controls I	4		
Social & Behavioral Science Elective	3	IA 202 Motors & Controls II	4		
First-Year Seminar Elective	1	IA 208 PLC's and Automation	3		
Wellness	1	IA 210 Industrial Robotics I	3		
	17	IA 211 Industrial Robotics II **(or)**	3		
		IA 213 PLCs and Automation II	(3)		
		IA 221 Sensor Technology	3		
		IMT 108 Power Transmission	4		
		IMT 110 Fluid Power	4		
		ELEC 144 Electronics for Technicians **(or)**	3		
		WELD 111 Welding Applications **(or)**	(3)		
		CAD 154 Computer Aided-Drafting & Design	(3)		
			41		

** May be replaced with a higher-level MATH*

RECOMMENDED SEQUENCE FOR FULL-TIME STUDENTS

Part time students can complete this program by taking one or more courses each semester.

Fall Semester I		**Spring Semester I**		**Fall Semester II**		**Spring Semester II**	
ELOC 153	4	CIS 105	3	COMM 101 **or** 203	3	ELEC 144 **or** WELD 111 **or** CAD 154	3
FYS Elective	1	IA 201	4	IA 202	4	ENGL 110	3
GTEC 101	3	IA 208	2	IA 210	3	IA 211 **or** 213	3
IA 101	2	IA 221	3	Mathematic/Science Elective	3	Humanities/Arts Elective	3
IA 107*	1	IMT 110	4	Wellness	1	Social/Behavior Science Elective	
IMT 108	4						