South Central College
Program Design

AAS 3470 Mechatronics Engineering Technology

Program Information

Instructional Level Associate Degree

Career Cluster Engineering, Manufacturing & Technology

Description

Mechatronics is a new and rapidly growing field that integrates electronics, mechanics, pneumatics, hydraulics, and computer control systems to create new and improved automated manufacturing production systems. This program is designed for people who are interested in plant maintenance, set up, installation, and assembly. These jobs are found in medical, electronics, agriculture, biotechnology, and automotive industries.

Program Admission Dates (Fall and/or Spring)

Fall and Spring

Program Location (North Mankato and/or Faribault)

North Mankato and Faribault

Program Student Learning Outcomes

1 Demonstrate effective participation on a team.

2 Perform assembly, repair, operation and adjustment of manufacturing equipment.

3 Conduct trouble shooting of manufacturing equipment.

4 Diagnose and repair electromechanical systems.

5 Perform parts department operations including assembly, inventory, quality assurance, and testing.

6 Use test equipment.

Program Configurations

Fall Start

Credits

Technical Course	45
Liberal Arts & Sciences	15
Total Credits	**60**

First Year Fall

Course #	Course Title	Credits	Function
CMAE 1514	**Safety Awareness**	2	Technical Course
CMAE 1518	**Manufacturing Process and Production**	2	Technical Course
CMAE 1522	**Quality Practices**	2	Technical Course
CMAE 1526	**Maintenance Awareness**	2	Technical Course
MECA 1122	**Electricity - Devices and Circuits I**	3	Technical Course
MECA 2120	**Fluid Power 1**	3	Technical Course
MATH 120	**College Algebra**	4	Liberal Arts & Sciences

First Year Spring

Course #	Course Title	Credits	Function
PHYS 101	**Introductory Physics**	3	Liberal Arts & Sciences
MECA 2130	**Fluid Power II**	3	Technical Course
MECA 1250	**Mechatronics Systems Operations I**	3	Technical Course
MECA 1222	**Electricity - Devices and Circuits II**	3	Technical Course
MECA 1223	**Mechanical Systems 1**	3	Technical Course

Second Year Fall

Course #	Course Title	Credits	Function
ENGL 100	**Composition**	4	Liberal Arts & Sciences
MECA 2150	**Mechatronics Systems Operations II**	3	Technical Course
MECA 2110	**Sensors and Control**	3	Technical Course
MECA 2123	**Mechanical Systems 2**	3	Technical Course

Second Year Spring

Course #	Course Title	Credits	Function
ENGL 240	**Technical Communication**	4	Liberal Arts & Sciences
MECA 2235	**Robotics**	3	Technical Course
MECA 2250	**Mechatronics Systems Operations III**	3	Technical Course
MECA 2240	**Senior Project (Variable Credit)**	4	Technical Course

Program Course List

Number	Title	Credits	Pre/Corequisites
MECA 1122	**Electricity - Devices and Circuits I**	3	None

MECA 1223	**Mechanical Systems 1**	3	
MECA 1250	**Mechatronics Systems Operations I**	3	MECA 1122 ELECTRICITY - DEVICES AND CIRCUITS I MECA 1125 ELECTRICITY - DEVICES AND CIRCUITS II or MECA 1120 ELECTRICITY - DEVICES AND CIRCUITS
MECA 2110	**Sensors and Control**	3	MECA 1120 or MECA 1122 and MECA 1125 MECA 1130
MECA 2120	**Fluid Power 1**	3	None
MECA 2123	**Mechanical Systems 2**	3	MECA 1223 PHYS 101 or equivalent.
MECA 2130	**Fluid Power II**	3	MECA 2120
MECA 2150	**Mechatronics Systems Operations II**	3	MECA 1122 ELECTRICITY - DEVICES AND CIRCUITS I MECA 1125 ELECTRICITY - DEVICES AND CIRCUITS II MECA 1250 MECHATRONICS SYSTEM OPERATION I
MECA 2235	**Robotics**	3	MECA 2110 Sensors and Controls MECA 2150 Mechatronic System Operation II
MECA 2240	**Senior Project**	5	MECA 2150 - Mechatronics Systems Operations I or consent of Instructor
MECA 2241	**Senior Internship**	5	MECA 2150 - Mechatronics Systems Operations I or consent of Instructor
MECA 2250	**Mechatronics Systems Operations III**	3	MECA 2150 Mechatronics Systems Operations II
CMAE 1514	**Safety Awareness**	2	None
CMAE 1518	**Manufacturing Process and Production**	2	None
CMAE 1522	**Quality Practices**	2	None
CMAE 1526	**Maintenance Awareness**	2	None
ENGL 100	**Composition**	4	Next-Generation Accuplacer Reading minimum score of 250 (Classic Accuplacer, minimum of 75) or completion of READ 0090 or EAP 0095 with a C (2.0) or higher.
ENGL 240	**Technical Communication**	4	ENGL 100 or a score of 104 or higher on the sentence skills portion of the Accuplacer test.
MATH 120	**College Algebra**	4	Completion of MATH 0085 with a grade of C or higher, or an

			Accuplacer test score of 56 in Elementary Algebra and a score of 50 in College Level Mathematics. MNTC 4: Mathematical/Logical Reasoning
PHYS 101	**Introductory Physics**	3	MATH 0075 with a C or higher, or a score of 56 or higher on the Arithmetic portion of the Accuplacer test.