



**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
<b>Total Credits</b>	<b>60</b>

### 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

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

