

**South Central College  
Program Design**

# **DIP 3485 Intermediate Mechatronics Engineering Technology**

## **Program Information**

**Instructional Level** Technical Diploma

**Career Cluster** Engineering, Manufacturing & Technology

## **Description**

Mechatronics is a relatively 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 Work individually or in small teams to troubleshoot and repair mechatronics systems.
- 2 Successfully complete a nationally recognized Mechatronics assessment such as those available from SkillsUSA, NOCTI or AMTEC.
- 3 Build some portion of a Mechatronics system to the print specifications.
- 4 Demonstrate knowledge and professional skills necessary to retain employment in related program field.

## **Program Configurations**

### **Fall Start**

### **Credits**

Technical Course	32
Liberal Arts & Sciences	7

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

### First Year Spring

Course #	Course Title	Credits	Function
MECA 1222	Electricity - Devices and Circuits II	3	Technical Course
MECA 2130	Fluid Power II	3	Technical Course
MECA 1250	Mechatronics Systems Operations I	3	Technical Course
MECA 1223	Mechanical Systems 1	3	Technical Course
MATH 120	College Algebra	4	Liberal Arts & Sciences

### Second Year Fall

Course #	Course Title	Credits	Function
MECA 2123	Mechanical Systems 2	3	Technical Course
MECA 2150	Mechatronics Systems Operations II	3	Technical Course
PHYS 101	Introductory Physics	3	Liberal Arts & Sciences

### Program Course List

Number	Title	Credits	Pre/Corequisites
<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>MATH 120</b>	<b>College Algebra</b>	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
<b>MECA 1122</b>	<b>Electricity - Devices and Circuits I</b>	3	None
<b>MECA 1222</b>	<b>Electricity - Devices and Circuits II</b>	3	MECA 1122: Electricity - Devices and Circuits I

<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 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>PHYS 101</b>	<b>Introductory Physics</b>	3	MATH 0075 with a C or higher, or a score of 56 or higher on the Arithmetic portion of the Accuplacer test.