

PRIDE. CHALLENGE. ACHIEVEMENT.

CREDENTIAL YEAR 2017-18

MECHATRONICS

Credentials

Mechatronics skills certificate	18 cr.
Mechatronics certificate	39 cr.
Mechatronics AAS degree	63-67cr.

Major Description

The Mechatronics program focuses on the integration of mechanical, electrical (electronics), fluid power (hydraulics or pneumatics) and computer technologies to control machine movements. The students' studies begin with courses in mechanics, sensors, basic electronics, pneumatics, control logic and robot programming and control.

The program is not directly aimed at specific products. With the multiplicity of equipment presently in use, and the rapid advance and change in technology, the department stresses the development of a broad background that will enable students to find employment and be able to further their skills in a diversified number of industries.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

National Media Salaries for Mechatronics-related positions (source: US BLS)

Electrical and Electronics Installers and Repairers (Postsecondary Training): \$53,900

Electro-Mechanical Technician (Associate's Degree): \$53,070

Mechanical Engineering Technician (Associate's Degree): \$53,530

Mechatronics Skills Certificate

Schoolcraft program code # CRT.00326

The mechatronics skills certificate introduces learners to the basic skills needed for employment in today's complex manufacturing environments. These classes all apply to the mechatronics certificate and associate degree.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

First Year—Winter Semester

ELECT 131	Basic Measurement and Reporting Skills	3	ELECT 137	DC Circuits and Mathematical Modeling	5
MATH 113	Intermediate Algebra for College Students	4	MFG 110	Geometric Dimensioning and Tolerance, with Inspection	3
MFG 102	Basic Machining Processes	3		Total Credits	8
	Total Credits	10			

PROGRAM TOTAL 18 CREDITS



It is the policy of Schoolcraft College that no person shall, on the basis of race, religion, color, gender, age, marital status, disability, sexual orientation, and/or national origin, be subjected to discrimination during or be excluded from participating in or be denied the benefits of any program or activity or in employment.



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Mechatronics Certificate

Schoolcraft program code # 1YC.00225

The mechatronics certificate is designed to address basic competency in skills needed for employment in today's complex manufacturing environments. These classes all apply to the mechatronics associate degree.

The program is not directly aimed at specific products. With the multiplicity of equipment presently in use, and the rapid advance and change in technology, the department stresses the development of a broad background that will enable students to find employment and be able to further their skills in a diversified number of industries.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

First Year—Winter Semester

ELECT 131	Basic Measurement & Reporting Skills	3	<i>ELECT 137</i>	<i>DC Circuits and Mathematical Modeling</i>	5
ELECT 145	Fluid Power	4	ELECT 251	Programmable Logic & Industrial Controls	4
MATH 113	Intermediate Algebra for College Students	4	MFG 110	Geometric Dimensioning and Tolerance, with Inspection	3
MFG 102	Basic Machining Processes	3	OSH	<i>Select one</i>	2
	Total Credits	14	OSH 111	Occupational Safety and Health for General Industry	
			OSH 112	Occupational Safety and Health for Construction	
				Total Credits	14

First Year— Spring Session

ELECT 138	AC Circuits and Mathematical Modeling	5
ELECT 139	Diodes and Transistors	3
ELECT 218	AC/DC Motors	3
	Total Credits	11

PROGRAM TOTAL 39 CREDITS

Mechatronics AAS Degree

Schoolcraft program code # AAS.00226

The mechatronics program focuses on the integration of mechanical, electrical (electronics), fluid power (hydraulics or pneumatics) and computer technologies to control machine movements. The students' studies begin with courses in mechanics, sensors, basic electronics, pneumatics, control logic and robot programming and control.

The program is not directly aimed at specific products. With the multiplicity of equipment presently in use, and the rapid advance and change in technology, the department stresses the development of a broad background that will enable students to find employment and be able to further their skills in a diversified number of industries.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

First Year—Winter Semester

ELECT 131	Basic Measurement & Reporting Skills	3	ELECT 137	DC Circuits and Mathematical Modeling	5
English	<i>Select one</i>	3	ELECT 145	Fluid Power	4
ENG 100	Communication Skills		ELECT 251	Programmable Logic & Industrial Controls	4
ENG 101	English Composition I		MFG 110	Geometric Dimensioning and Tolerance, with Inspection	3
MATH 113	Intermediate Algebra for College Students	4		Total Credits	16
MFG 102	Basic Machining Processes	3			
OSH	<i>Select one</i>	2			
OSH 111	Occupational Safety and Health for General Industry				
OSH 112	Occupational Safety and Health for Construction				
	Total Credits	15			

Mechatronics AAS Degree *(continued)*

First Year—Spring Session

ELECT 138	AC Circuits and Mathematical Modeling	5
English	Select one	3
ENG 102	English Composition 2	
ENG 116	Technical Writing	
	Total Credits	8

Second Year—Fall Semester

Second Year—Winter Semester

ELECT 139	Diodes and Transistors	3	ELECT 144	Introduction to Microcontrollers	3
ELECT 218	AC/DC Motors	3	Elective	Select from list	3
ENGR 100	Introduction to Engineering and Technology	3	Humanities	General Education Humanities course	1-4
Social Science	General Education Social Science course	3-4	COMA 103	Fundamentals of Speech (recommended)	
	Total Credits	12-13	PHYS 123	Applied Physics	5
				Total Credits	12-15

PROGRAM TOTAL 63-67 CREDITS

Electives

CAD 103	Engineering Graphics	3
CIS 129	Introduction to Programming Logic	3
MET 103	Introduction to Materials Science	3
MFG 103	Basic Computer Numerical Control (CNC)	3
QM 107	Quality Planning and Team Building	3
WELD 113	Shielded Metal Arc Welding (S M A W)	3

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.