

# Engineering Pre-Major - Mechatronics & Robotics Engineering Subplan

## Associate in Engineering Science Degree (AES1)

swic.edu/engineering

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Mechatronics and Robotics Engineering is an interdisciplinary field combining mechanical, electrical, computer, and control systems engineering to design intelligent and automated technologies. Mechatronics focuses on hardware and software integration in complete systems, while Robotics centers on autonomous machines capable of sensing, reasoning, and acting. This program subplan provides a strong foundation in fundamental areas such as mathematics, physics, mechanics, dynamics, materials, and electrical systems. Graduates who plan to go on to a Bachelor's degree in Mechatronics and Robotics Engineering will be well prepared to learn to build smart machines that integrate mechanical components with electronics, sensors, actuators, and computer control.

### Articulation Agreements

- SIU-Edwardsville – B.S. Mechatronics & Robotics Engineering

## Important Information

The following semester sequence is designed as a guide for students enrolled full time and is not intended as a required schedule. Students should take courses in progression following the appropriate requisites. For information on requisites, please refer to the *Course Description Guide* (yellow section) in this catalog.

### Associate in Applied Science Degree Mechatronics & Robotics Engineering Subplan

#### First Year

Fall Semester		Semester Credits
MATH	203 Analytic Geometry & Calculus I*	5
CHEM	105 General Chemistry I*	5
ENG	101 Rhetoric & Composition I*	3
	Human Relations Selection	3
<b>Total Semester Credits</b>		<b>16</b>

#### First Year

Spring Semester		Semester Credits
MATH	204 Analytic Geometry & Calculus II *	5
PHYS	204 Physics - Mechanics*	4
ENG	102 Rhetoric & Composition II	3
COMM	151 Introduction to Public Speaking OR	
COMM	155 Interpersonal Communications	3
<b>Total Semester Credits</b>		<b>15</b>

#### Second Year

Fall Semester		Semester Credits
MATH	205 Analytic Geometry & Calculus III*	4
MATH	210 Computer Programming for Engineers*	3
PHYS	205 Physics - Heat, Elec. & Magnetism*	4
ENGR	263 Analytical Mechanics-Statics*	3
ECON	201 Principles of Macroeconomics OR	
ECON	202 Principles of Microeconomics OR	
POLS	150 Introduction to American Government	3
<b>Total Semester Credits</b>		<b>17</b>

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#### Second Year

Spring Semester		Semester Credits
MATH	290 Differential Equations*	3
MATH	292 Linear Algebra*	3
ENGR	264 Analytical Mechanics-Dynamics*	3
ENGR	271 Electrical Circuits*	3
ENGR	275 Mechanics of Solids*	3
<b>Total Semester Credits</b>		<b>15</b>
<b>Total Credits</b>		<b>63</b>

### Career Opportunities

A graduate of Associate of Engineering Science-Mechatronics & Robotics Engineering Subplan can find employment as:

- Development engineer
- Mechanical design associate
- Mechatronics and Robotics technician

A student who transfers to earn a Bachelor of Science in Mechatronics & Robotics Engineering can find employment as:

- AI developer
- Automation engineer
- Control systems designer
- Mechatronics engineer
- Robotics engineer
- Robot programmer