Engineering Pre-Major - Industrial Engineering Subplan

Associate in Engineering Science Degree (AES1)

swic.edu/engineering

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Industrial Engineering is a multidisciplinary field focused on optimizing processes, boosting productivity, and enhancing quality and safety. Using analytical modeling, data-driven decisions, and problem-solving techniques, industrial engineers improve performance across manufacturing, healthcare, logistics, transportation, and service industries. This program subplan provides a strong foundation in fundamental areas such as mathematics, physics, mechanics, materials, and electrical systems. Graduates who plan to go on to a Bachelor's degree in Industrial Engineering will be well prepared to study manufacturing and production systems, facility planning, quality control, and operations research.

Articulation Agreements

- SIU-Edwardsville – B.S. Industrial 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 Industrial Engineering Subplan Map

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
ENGR	103	Engineering Graphics	4
Total Semester Credits			**17**

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	3
COMM	155	Interpersonal Communications	
Total Semester Credits			**15**

Second Year

Fall Semester			**Semester Credits**
MATH	205	Analytic Geometry & Calculus III*	4
MATH	171	Computer Science I-JAVA* OR	
MATH	210	Computer Programming for Engineers*	3-4
PHYS	205	Physics - Heat, Elec. & Magnetism*	4
ENGR	263	Analytical Mechanics-Statics*	3
Human Relations Selection			3
Total Semester Credits			**17-18**

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Second Year

Spring Semester			**Semester Credits**
MATH	290	Differential Equations*	3
ENGR	264	Analytical Mechanics-Dynamics* OR	
PHYS	206	Physics-Light & Modern Physics*	3-4
ENGR	271	Electrical Circuits* OR	
PHYS	206	Physics-Light & Modern Physics* OR	
General Education Selection			3-4
ENGR	275	Mechanics of Solids* OR	
General Education Selection			3
ECON	201	Principles of Macroeconomics OR	
ECON	202	Principles of Microeconomics OR	
POLS	150	Introduction to American Government	3
Total Semester Credits			**15-17**
Total Credits			**64-67**

Career Opportunities

A graduate of Associate of Engineering Science-Industrial Engineering Subplan can find employment as:

- Engineering Technician
- Industrial engineering technician
- Maintenance technician
- Quality control technician

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

- Human factors engineer
- Ergonomics engineer
- Facility planner
- Manufacturing engineer
- Quality engineer
- Supply chain engineer
- Systems engineer
- Validation engineer