

Engineering Pre-Major - Computer Engineering Subplan

Associate in Engineering Science Degree (AES1)

swic.edu/engineering

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Computer Engineering is an interdisciplinary field that combines electrical engineering and computer science to design, develop, and maintain computer hardware and software systems.

Computer engineers build the future by creating mobile applications, programs, routers, and circuit boards that keep modern civilization running. Hardware engineers develop the blueprints for processors, networks, and memory devices, while software engineers write the code that builds programs for end users. Graduates are prepared with foundational knowledge in mathematics and physics necessary to continue their education in a bachelor's degree program in computer engineering or a related field.

Articulation Agreements

- SIU-Carbondale – B.S. Computer Engineering
- SIU-Edwardsville – B.S. Computer 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 Computer 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
Total Semester Credits		16

First Year

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

Second Year

Fall Semester		Semester Credits
MATH 205	Analytic Geometry & Calculus III*	4
PHYS 205	Physics - Heat, Elec. & Magnetism*	4
MATH 171	Computer Science I-JAVA* OR	
MATH 210	Computer Programming for Engineers* OR	
ENGR 263	Analytical Mechanics-Statics*	3-4
ECON 201	Principles of Macroeconomics OR	
ECON 202	Principles of Microeconomics OR	
POLS 150	Introduction to American Government	3
Total Semester Credits		14-15

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Second Year

Spring Semester		Semester Credits
MATH 290	Differential Equations* OR	3
ENGR 264	Analytical Mechanics-Dynamics* OR	
MATH 271	Computer Science II - JAVA OR	
PHYS 206	Physics-Light & Modern Physics*	3-4
ENGR 271	Electrical Circuits OR	
PHYS 206	Physics-Light & Modern Physics	3-4
General Education Selection		3
BIOL 100	Introduction to Biology OR	
BIOL 101	Principles of Biology I OR	
BIOL 107	Human Genetics OR	3-4
Total Semester Credits		15-18
Total Credits		60-64

Career Opportunities

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

- Computer Technician
- IT Support Specialist
- Database/Network/Systems Administrator
- Information Security Analyst

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

- Software Developer/Engineer
- Computer Programmer
- Computer Systems Analyst
- Embedded Systems Engineer
- Cloud Computing Engineer
- Computer Hardware Engineer
- Network Engineer
- Platform Engineer
- Data Engineer
- Machine Learning Engineer
- Cybersecurity Analyst/Specialist