INDUSTRIAL AND SYSTEMS ENGINEERING, BACHELOR OF SCIENCE (BS)/ADVANCED PILOTING (CCBC)

Curriculum Guide

GPA Requirement

Major GPA: 2.00 or higher
Overall GPA: 2.00 or higher

Summary*

Code	Title	Hours
Rock Studies 2 Requirements (taken at CCBC)		20
Rock Studies 2 Requirements (taken at SRU)		24
Advanced Piloting Requirements (taken at CCBC)		42
Major/Concentration Requirements (taken at SRU)		88
Natural Science and Math College-Wide Requirements (Included in Rock Studies 2)		12

* All undergraduate degree programs require a minimum of 120 credits. Some courses meet multiple requirements, but are only counted once toward the 120 credit total required to graduate.

Rock Studies 2 Requirements

Code	Title	Hours
The Rock		
SUBJ 139	Foundations of Academic Discovery [1]	3
WRIT 101	English Composition (taken at CCBC)	3
LITR 210	Concepts of Literature (taken at CCBC)	3
COMM 201	Public Speaking (taken at CCBC)	3
MATH 125	Calculus I (taken at CCBC)	4
Subtotal		16
Integrated Inquiry		
Creative and Aesthetic Inquiry		
Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Humanities Inquiry		
Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Social Science Inquiry		
AVIP 260	Human Factors Theory (taken at CCBC)	3
Natural Sciences Inquiry		
CHEM 107	General Chemistry I	3
CHEM 111	General Chemistry I Lab	1
Physical Sciences Inquiry		
METR 140	Foundations in Meteorology (taken at CCBC)	4
Subtotal		17
Additional Rock Studies 2 Requirements		
Required Thematic Thread Coursework:		
MATH 230	Calculus II	4
PHYS 217	University Physics 2 with Lab	4
ENGL 205	Introduction to Professional Writing	3
Subtotal		11
Total Hours		**44**

[1] Course offered in multiple subjects; cannot take course in first major subject.

DIVERSITY, EQUITY, AND INCLUSION REQUIREMENT

Students must take and pass a course with the Diversity, Equity, and Inclusion (DEI) designation prior to graduation. Students can meet this requirement by taking any DEI - designated course in any program at any time during their undergraduate career.

Major Requirements

- 44 major credits must be taken at SRU or PASSHE
- 44 major credits must be taken at the 300 level or above

Code	Title	Hours
Required Major Courses		
ENGR 110	Introduction to Engineering [1]	2
ENGR 120	Engineering Design Tools [1]	2
ENGR 130	Engineering Computing Tools [1]	2
ENGR 210	Statics [1]	3
ENGR 220	Engineering Materials [1]	3
ENGR 250	Circuit Analysis I [1]	3
ENGR 340	Engineering Economics [1]	3
ISE 311	Introduction to Operations Research [1]	3
ISE 370	Design of Industrial Systems and Processes [1]	3
ISE 372	Manufacturing Systems Design and Analysis [1]	3
ISE 373	Quality Engineering [1]	3
ISE 402	Work Design [1]	3
ISE 410	Engineering Project Management [1]	3
ISE 420	Simulation of Industrial Systems [1]	4
ISE 421	Supply Chain & Logistics Engineering [1]	3
ISE 430	Production Planning & Control [1]	3
ISE 440	Health Care Systems Engineering [1]	3
ISE 442	Human Factors Engineering [1]	3
ISE 460	Engineering Risk Analysis [1]	3
ISE 462	Lean Systems [1]	3
ISE 487	Industrial and Systems Engineering Senior Project I [1]	1
ISE 488	Senior Project II [1]	3
MECH 330	Introduction to Mechatronics [1]	4
PHYS 216	University Physics 1 with Lab	4
Subtotal		70
Major Electives		
Select three of the following, minimum of 8 credits:		8
ISE 330	Six Sigma Methodology [1]	
ISE 382	Sustainable Processes [1]	
ISE 432	Productivity Analysis [1]	

ISE 480	Industrial and Systems Engineering Undergraduate Research [1]	
ISE 498	Selected Topics [1]	
MATH 312	Stochastic Models of Operations Research [1]	
Subtotal		8
Required Math and Science Courses		
MATH 231	Calculus III [1]	4
MATH 232	Linear Algebra [1]	3
STAT 350	Applied Statistics [1]	3
Subtotal		10
Total Hours		**88**

[1] Course counts for 50% of Major requirements and Major GPA

[2] Course can be counted as a Rock Studies 2 Requirement, but earns credit only once toward your 120-credits total.

* Some courses may require pre-requisites. Please see course descriptions to determine if there are any pre-requisites for that specific course.

Natural Science and Math College-Wide Requirements

Code	Title	Hours
CHEM 107	General Chemistry I [1]	3
CHEM 111	General Chemistry I Lab [1]	1
MATH 225	Calculus I [1]	4
PHYS 216	University Physics 1 with Lab	4
Total Hours		**12**

[1] Course can be counted as a Rock Studies 2 Requirement, but earns credit only once toward your 120-credits total.

Code	Title	Hours
Advanced Piloting Required Coursework Completed at CCBC:		
AVIP 120	Foundations and Development of Aviation	3
AVIP 180	Instrument Flight Theory	7
AVIP 190	Instrument Flight Rating	2
AVIP 202	Aircraft Engines Theory	3
AVIP 204	Aircraft Systems Theory	3
AVIP 215	Commercial Flight Theory	5
AVIP 220	Commercial Flight Certification I	3
AVIP 225	Commercial Flight Certification II	3
AVIP 250	Multi-Engine Flight Rating	1
AVIP 270	Aerodynamics of Flight	3
AVIP 275	Certified Flight Instructor Theory	2
CIST 100	Introduction to Information Technology	3
Select two of the following:		4
AVIP 280	Certified Flight Instructor - Airplane	
AVIP 285	Certified Flight Instructor - Instruments	
AVIP 288	Certified Flight Instructor - Multi-Engine	
Total Hours		**42**

Important Curriculum Guide Notes

This Curriculum Guide is provided to help SRU students and prospective students better understand their intended major curriculum. Enrolled SRU students should note that the My Rock Audit may place already-earned and/or in progress courses in different, yet valid, curriculum categories. Enrolled SRU students should use the My Rock Audit Report and materials and information provided by their faculty advisers to ensure accurate progress towards degree completion. *The information on this guide is current as of the date listed. Students are responsible for curriculum requirements at the time of enrollment at the University*.

PASSHE - Pennsylvania State System of Higher Education Institutions

INDUSTRIAL AND SYSTEMS ENGINEERING - BS (6182)
ADVANCED PILOTING (CCBC) / CIM 586
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