

MECHANICAL 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 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 Requirements¹³

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
MATH 160	Calculus I (taken at CCBC)	4
COMM 201	Public Speaking (taken at CCBC)	3
	Subtotal	16

Integrated Inquiry

Creative and Aesthetic Inquiry

Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)	3
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Humanities Inquiry

Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)	3
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Social Science Inquiry

AVIP 260 Human Factors Theory (taken at CCBC)	3
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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
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Subtotal	17
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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/Concentration 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
<i>Required Major Courses</i>		
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 230	Mechanics of Materials ¹	3
ENGR 231	Mechanics of Materials Lab ¹	1
ENGR 240	Dynamics ¹	3
ENGR 250	Circuit Analysis I ¹	3
ENGR 251	Circuit Analysis Lab ¹	1
ENGR 301	Fluid Mechanics ¹	3
ENGR 320	Thermodynamics ¹	3
ENGR 340	Engineering Economics ¹	3
MECH 310	Machines and Mechanisms ¹	3
MECH 320	Manufacturing Processes ¹	3
MECH 330	Introduction to Mechatronics ¹	4
MECH 340	Heat Transfer ¹	4
MECH 410	Machine Design ¹	4
MECH 411	Automatic Control Systems ¹	3
MECH 430	Mechatronics ¹	3
MECH 460	Capstone Design I ¹	3
MECH 461	Capstone Design II ¹	3
PHYS 216	University Physics 1 with Lab	4
Subtotal		66

Major Electives

Select three of the following:

MECH 401	Gas Dynamics	3
MECH 412	Finite Element Analysis ¹	3
MECH 420	Design and Manufacturing ¹	3
MECH 421	Mechanical Vibrations ¹	3
MECH 422	Thermal System Design ¹	3
MECH 423	Additive Manufacturing ¹	3
MECH 431	Introduction to Robotics ¹	3
MECH 440	HVAC Systems ¹	3
MECH 441	Sustainable Energy ¹	3
MECH 498	Selected Topics	3

Required Math and Science Courses		
MATH 231	Calculus III ¹	4
MATH 232	Linear Algebra	3
MATH 301	Differential Equations I	3
STAT 350	Applied Statistics ¹	3
Subtotal		22
Total Hours		88

PASSHE - Pennsylvania State System of Higher Education Institutions

MECHANICAL ENGINEERING - BS (6184) ADVANCED PILOTING WITH CCBC (ADVP) /CIM 585 This program is effective as of Spring 2026
Revised 01.05.2026 MOU date: 09.18.2025

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

* 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	Commerical 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.*