

ENGINEERING

Award: Associate of Science Degree

Major: Engineering

Additional Program Information: <https://www.brcc.edu/explore-programs/engineering/>

The Associate of Science in Engineering prepares students with core knowledge and skills needed for entry into baccalaureate schools as an engineering major. This program supports the Transfer Virginia common curriculum in engineering, including pathways in general, civil, mechanical, and electrical engineering, among others. The list of recommended transfer majors that fall under this award is not exclusive, and students should carefully consider the requirements to their intended four-year institution to determine if the A.S. Engineering provides the most appropriate plan of study. Students are strongly encouraged to consult an academic advisor and review transfer options using the Transfer Virginia Portal at <https://www.transfervirginia.org/>. Many four-year institution specific guides are available that specify the appropriate elective choices for particular majors and pathways.

Nearly all four-year colleges and universities in Virginia, as well as some private institutions in the state, abide by the Virginia State Policy on Transfer. The policy states that students who complete the Blue Ridge Community College A.S. Engineering will have met all lower division general education requirements at participating institutions. The policy does not guarantee admission to these institutions nor does it imply that each individual community college course will transfer. A copy of the Virginia State Policy on Transfer and additional information on articulation agreements with Virginia four-year colleges and universities is available in the Transfer Advising Center (<https://www.brcc.edu/student-support-services/advising/transfer-advising/>).

The degree sequencing shown below assumes an initial placement for MTH 263 (Calculus I). Students who do not have credit for MTH 161/MTH 162 or MTH 167 should work with an advisor to determine the prerequisite coursework needed given their mathematics background.

Required Courses Curriculum

First Semester		Credit Hours
Select from the following: ¹		4
CHM 111	General Chemistry I	
Engineering/Technical Electives (p. 2)		
EGR 121	Foundations of Engineering	2
ENG 111	College Composition I	3
MTH 263	Calculus I	4
SDV (https://catalog.brcc.edu/programs-study/sdv/)	Student Development	1
Block VI - History (https://catalog.brcc.edu/programs-study/ucgselectives/#UCGS Block VI)		3
Credit Hours		17
Second Semester		
EGR 122	Engineering Design	3
ENG 112	College Composition II	3
MTH 264	Calculus II	4
Engineering/Technical Electives (p. 2)		3-4
Block III - Social and Behavioral Science (https://catalog.brcc.edu/programs-study/ucgselectives/#UCGS Block III)		3
Credit Hours		16-17
Third Semester		
MTH 265	Calculus III	4
PHY 241	University Physics I	4
Engineering/Technical Electives (p. 2)		3-4
Block II - Humanities/Art/Literature (https://catalog.brcc.edu/programs-study/ucgselectives/#UCGS Block II) ²		6
Credit Hours		17-18
Fourth Semester		
MTH 267	Differential Equations	3
Select from the following:		4
PHY 242	University Physics II	
Engineering/Technical Electives (p. 2)		

Select one of the following:	3
MTH 266	Linear Algebra
MTH 288	Discrete Mathematics
Engineering/Technical Electives (p. 2)	3-4
Engineering/Technical Electives (p. 2)	3-4
Credit Hours	16-18
Total Credit Hours	66-70

¹ The lab science requirement for this degree requires a minimum of one of CHM 111 or PHY 242 in addition to PHY 241. Transfer institutions may require one, the other, or both, and lab sciences should be selected in consultation with an engineering transfer guide or the advice of an academic advisor to meet requirements of the transfer institution. If your transfer institution does not require both CHM 111 and PHY 242, there will be an Engineering/Technical elective in place of that lab science.

² Each of the two courses must be from different categories.

Engineering/Technical Electives

General Engineering

Code	Title	Credit Hours
CHM 111	General Chemistry I	4
CHM 112	General Chemistry II	4
CSC 221	Introduction to Problem Solving and Programming	3
EGR 125	Introduction to Computer Programming for Engineers	4
EGR 206	Engineering Economics	3
EGR 240	Statics	3
EGR 245	Dynamics	3
EGR 246	Mechanics of Materials	3
PHY 242	University Physics II	4

Civil Engineering

Code	Title	Credit Hours
BIO 101	General Biology I	4
CSC 221	Introduction to Problem Solving and Programming	3
EGR 125	Introduction to Computer Programming for Engineers	4
EGR 206	Engineering Economics	3
EGR 240	Statics	3
EGR 245	Dynamics	3
EGR 246	Mechanics of Materials	3
GOL 105	Physical Geology	4

Mechanical Engineering

Code	Title	Credit Hours
CSC 221	Introduction to Problem Solving and Programming	3
EGR 125	Introduction to Computer Programming for Engineers	4
EGR 240	Statics	3
EGR 245	Dynamics	3
EGR 246	Mechanics of Materials	3
EGR 248	Thermodynamics for Engineering	3
EGR 271	Electric Circuits I	4

Computer or Electrical Engineering

Code	Title	Credit Hours
EGR 125	Introduction to Computer Programming for Engineers	4
EGR 270	Fundamentals of Computer Engineering	4
EGR 271	Electric Circuits I	4
EGR 272	Electric Circuits II	4
CSC 221	Introduction to Problem Solving and Programming	3
CSC 222	Object-Oriented Programming	4
CSC 223	Data Structures and Analysis of Algorithms	4

Biological or Chemical Engineering

Code	Title	Credit Hours
BIO 101	General Biology I	4
CSC 221	Introduction to Problem Solving and Programming	3
CHM 111	General Chemistry I	4
CHM 112	General Chemistry II	4
CHM 241	Organic Chemistry I	3
CHM 242	Organic Chemistry II	3
CHM 245	Organic Chemistry I Laboratory	2
CHM 246	Organic Chemistry II Laboratory	2

Additional Engineering Electives

Some engineering fields and/or institutions have additional technical electives or requirements in other areas. Some known ones are listed below and are pre-approved. If your intended transfer institution recommends or requires a course that is not on any of these lists, you may still work with an advisor to have it approved into your plan.

Code	Title	Credit Hours
ACC 211	Principles of Accounting I	3
ECO 201	Principles of Macroeconomics	3
ECO 202	Principles of Microeconomics	3
MTH 266	Linear Algebra	3
MTH 288	Discrete Mathematics	3