

**Bachelor of Science in Engineering Sciences
Curriculum Map**

B=Beginner; I=Intermediate; A=Advanced

Course Title	Credits	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3
Core Courses																
Calculus: Single Variable	4	B										B				
Calculus: Multi Variable	4	I										I				
Linear Algebra and Ordinary Differential Equations	4	A										A				
Probability and Statistics	3	A			A											
Chemistry	3	B			B										B	
Chemistry Lab	1	B			B		B						B			
Mechanics	3	B			B										B	
Mechanics Lab	1	B			B		B						B			
Electricity and Magnetism	3	B			B										B	
Electricity and Magnetism Lab	1	B			B		B						B			
Discrete Math	3	B	B													
Introduction to Programming	4		B											B		
Computer Organization	3		B	I										B		
Data Structures and Algorithms	3		A			B								A		
Engineering Statics	3	I		B												
Engineering Dynamics	3	A		A												
Circuits	3	I		I	I											
Circuits Lab	1	I		I	I									A		
Embedded Systems	3	A		A		B										
Signals and Systems	3			A		I								A		
Numerical Methods	3			A			I							A		
Computer Aided Design	3		I	B		I			I		B		I			
Control Systems I	3					A							A			

Course Title	Credits	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3
Control Systems 1 Lab	1				A		A			I				A		
Control Systems 2	3					A		A	I				A			
Control Systems 2 Lab	1				A		A	A		I				A		
Mechatronics Design	3				A	A		A	A		I					
Capstone	3					A		A	A	A	A				A	A
Distribution 1 (Choose one)																
Introduction to Materials Science	3			B						B		B				
Introduction to Chemical Engineering	3			B						B		B				
Thermodynamics	3			I						B		B				
Introduction to Fluid Mechanics	3			I						B		B				
Data Science with R	3			I			A			B		B				
Heat Transfer	3			I						B		B				
Machine Learning	3			I			A			B		B				
Distribution 2 (Choose one)																
Biotechnology	3			I					B	B		B				
Alternative Energy	3			B					B	B		B				
Biology	3			B					B	B		B				
Bioinformatics	3			I			A		B	B		B				
Environmental Engineering	3			B					B	B		B	B			
Resource Management	3			I					B		B	B	B			
Project Management	3								B		B	B	B			
General Education																
Freshman English 1	3										B	B	B	B	B	B
Freshman English 2	3										B	B	B	B	B	B
Armenian Language /Literature 1	3										B	B	B	B	I	I
Armenian Language /Literature 2	3										I	I	B	B	I	I
Armenian History 1	3										A	A	A	A	A	A

Course Title	Credits	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3
Armenian History 2	3										A	A	A	A	A	A
GE-AH 1	3										Fulfilled through cluster of elective courses					
GE-AH 2	3															
GE-AH 3	3															
GE-SS 1	3															
GE-SS 2	3															
GE-SS 3	3															
GE-QS 1, 2, 3	9															

Student Learning Outcomes

- 1.1. Identify fundamental mathematical and scientific concepts to define and model a wide-variety of engineering problems.
- 1.2. Identify and explain the theoretical and practical significance of computer science and its application to engineering problems.
- 2.1. Utilize appropriate software and suitable engineering tools for problem solving
- 2.2. Conduct properly posed scientific and engineering experiments.
- 2.3. Develop a multidisciplinary system, product, or process to meet design requirements.
- 2.4. Collect and interpret relevant data.
- 3.1. Pursue graduate studies or gain employment suited to their expertise and interests.
- 3.2. Demonstrate professional and ethical responsibility and/or contextual understanding of environmental and societal consequences of technological solutions.
- 3.3. Formulate research questions, critically assess sources, and apply appropriate investigative techniques.
- 4.1. Produce and deliver written and oral presentations, and communicate with specialists and non-specialists using appropriate media and technology.
- 4.2. Think critically and creatively, conceptualizing real-world problems from different perspectives.
- 4.3. Work productively in diverse teams, and solve problems collaboratively.
- 5.1. Use common software and information technology to pursue inquiry relevant to their academic and professional fields, and personal interests.
- 5.2. Weigh evidence and arguments, and appreciate and engage in diverse modes of inquiry characteristic of historical, cultural, political, economic, and quantitative disciplines.
- 5.3. Properly document and synthesize existing scholarship and data, keep current with developments, conduct independent research, and discover and learn new material on their own.