

Program Goals and Student Learning Outcomes

Goal 1: Provide students with fundamental knowledge of mathematics, natural sciences and computer science to solve problems.

Students will be able to:

- 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.

Goal 2: Equip students with the engineering and analytical tools and applications to solve a wide range of real-life problems.

Students will be able to:

- 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.

Goal 3: Prepare students for careers and advanced studies in engineering and related fields.

Students will be able to:

- 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. .

Goal 4: Develop articulate, conscientious leaders and problem solvers who are committed to contributing to their fields and society.

Students will be able to:

- 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.

Goal 5: Provide students with a broad foundation of knowledge and skills and cultivate a commitment to life-long learning.

Students will be able to:

- 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.

Curriculum Map

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 1	3					A							A			
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				

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	
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
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																Fulfilled through program requirements

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- 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.