

Engineering

Faculty: Charles A. Dana Professor Michael Puddicombe; Professors Jacques Beneat, Thomas Descoteaux, Stephen Fitzhugh, R. Danner Friend, Ronald Lessard and Edwin Schmeckpeper; Associate Professors Michael Kelley, Tara Kulkarni, Jack Patterson, Michael Prairie, Adam Sevi, Karen Supan and Moses Tefe; Assistant Professors Nadia Al-Aubaidy, Brian Bradke, David Feinauer, Carolina Payares-Asprino and Charles White; Lecturers Michael Cross and Matt Rolland; Visiting Assistant Professor Suraj Joshi.

Engineering major students engage in an innovative approach to interdisciplinary engineering education that is guided by current challenges of broad human concern that address societal needs. Students attain proficiency in skills necessary to contribute to solving complex and multi-disciplinary problems. The curriculum includes innovative problem-based seminar studio courses that employ modules to develop competencies in engineering fundamentals.

Mission:

Prepare students to excel in engineering and related fields. Make clear to students that above all else, the engineering profession is committed to bettering the world. Provide fundamental, laboratory-oriented, hands-on education in engineering and related fields. Foster creativity, critical thinking, and problem solving abilities and motivate students to consider the societal and environmental consequences of their work. Enable students to be leaders in their profession, community, nation, and the world.

Upon completion of the program, students are awarded the BS in Engineering, are prepared to sit for Fundamentals of Engineering Exam (F.E. exam), and have a foundational understanding of engineering and science fundamentals.

Goals:

The educational objectives of the interdisciplinary Engineering major prepare graduates who, during their first few years of professional practice will:

- Be employed by industry or government in the fields, such as, design, research and development, experimentation and testing, manufacturing, and technical sales
- Assume an increasing level of responsibility and leadership within their respective organizations
- Communicate effectively and work collaboratively in multidisciplinary and multicultural work environments
- Recognize and understand global, environmental, social, and ethical contexts of their work

Outcomes:

Students in the Engineering major demonstrate an ability to:

- Apply knowledge of mathematics, science, and engineering
- Design and conduct experiments, as well as to analyze and interpret data
- Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- Function on multidisciplinary teams
- Identify, formulate, and solve engineering problems
- Demonstrate an understanding of professional and ethical responsibility
- Communicate effectively
- Demonstrate the understanding of the impact of engineering solutions in a global, economic, environmental, and societal context
- Recognize the need for, and an ability to engage in life-long learning
- Demonstrate knowledge of contemporary issues
- Use the techniques, skills, and modern engineering tools necessary for engineering practice.
- With the knowledge that engineering changes society, engineers must understand that they are leaders.

Careers for this Major:

The Engineering major allows graduates the option of beginning a career in either the military or civilian life immediately upon graduation, or furthering their education in graduate school. Studies are designed to give both a broad engineering background and a focus in a specific topic area necessary to apply engineering principles and methods to solve multi-disciplinary problems in an ever increasing range of applications.

- Clean water
- Sustainability
- Renewable Energy
- Cyber Security
- Bio-mechanical / biomedical / assistive technologies

The B.S. in Engineering major is designed to be accredited by the Engineering Accreditation Commission (EAC) of ABET. 415 N. Charles Street, Baltimore, MD, 21201, 1.410.347.7700.

Note: The application for accreditation of the Engineering major is planned to be submitted to ABET as soon as the first students in the program complete their graduation requirements.

Major

B.S. in Engineering - Curriculum Map 2018-2019 Catalog

Print PDF Curriculum Map (http://catalog.norwich.edu/residentialprogramscatalog/collegeofprofessionalschools/thedavidcrawfordschoolofengineering/eng/engr_1532374424275.pdf)

Course	Cr.Comp	Course	Cr.Comp.
FRESHMAN			
Fall		Spring	
EG 109 Introduction to Engineering I	3	EG 110 Introduction to Engineering II	3
CH 103 General Chemistry I	4	EN 102 Composition and Literature II	3
EN 101 Composition and Literature I	3	General Education History/Literature/ Arts & Humanities/Social Science (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	3
General Education Leadership (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	1-3	General Education Lab Science (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	4
MA 107 Precalculus Mathematics	4	MA 121 Calculus I (General Education Math)	4
Fall Semester Total Cr.:		Spring Semester Total Cr.:	
15-17		17	
SOPHOMORE			
Fall		Spring	
EE 204 Electrical Circuits I	3	EE 200 Engineering Programming	3
EG 201 Engineering Mechanics (Statics, Dynamics)	3	EG 202 Engineering Mechanics (Statics, Dynamics)	3
Engineering Elective (CE, EE, EM, ME) ^{1, 4}	3	EG 206 Thermodynamics I	3
MA 122 Calculus II (General Education Math)	4	Math Elective ²	3
PS 211 University Physics I	4	Math or Science Elective ^{2, 3}	4
Fall Semester Total Cr.:		Spring Semester Total Cr.:	
17		16	
JUNIOR			
Fall		Spring	
EG 301 Mechanics of Materials	3	EN 204 Professional and Technical Writing	3
EG 303 Fluid Mechanics	3	Engineering Elective (CE, EE, EM, ME) ^{1, 4}	3
EG 350 Engineering Economics and Decision Analysis	3	Engineering Elective (CE, EE, EM, ME) ^{1, 4}	3
EM 461 Project Management	3	Engineering Elective (CE, EE, EM, ME), Math Elective or Science Elective ^{1, 2, 3, 4}	3
Concentration/Focus Area Elective	3	General Education History/Literature/ Arts & Humanities/Social Science (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	3
Math Elective ²	3	Concentration/Focus Area Elective	3
Fall Semester Total Cr.:		Spring Semester Total Cr.:	
18		18	
SENIOR			
Fall		Spring	
Concentration/Focus Area Elective	3	Concentration/Focus Area Elective	3
Concentration/Focus Area Elective	3	Concentration/Focus Area Elective	3
EG 450 Professional Issues	3	Engineering Elective (CE, EE, EM, ME) ^{1, 4}	3
Engineering Elective (CE, EE, EM, ME) ^{1, 4}	3	General Education History/Literature/ Arts & Humanities/Social Science (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	3
General Education History/Literature/ Arts & Humanities/Social Science (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	3		

Fall Semester Total Cr.:	15		Spring Semester Total Cr.:	12
TOTAL CREDITS FOR THIS MAJOR: 128-130				

- 1 CE 211, CE 214, CE 328, CE 332, CE 348, CE 421, CE 422, CE 444, CE 460, EE 204, EE 215, EE 303, EE 321, EE 325, EE 350, EE 356, EE 357, EE 359, EE 366, EE 373, EE 411, EE 459, EE 463, EE 478, EE 486, EG 203, EG 447, EM 220, EM 401, ME 211, ME 307, ME 311, ME 356, ME 363, ME 370, ME 435, ME 465, ME 490
- 2 Math courses 200 level or higher that may NOT be counted as both a Math Elective and a Concentration/Focus Area Elective.
- 3 BI 101, BI 102, BI 220, CH 104, CH 204, CH 205, CH 327, ES 270, GL 110, GL 156, GL 253, GL 255, GL 257, GL 262, GL 265, ID 110
- 4 Science or Engineering courses may NOT be counted as both an Engineering Elective and a Concentration/Focus Area Elective.