

Engineering (EGR)

In addition to developing a deep conceptual understanding of fundamental principles and putting this understanding into practice through exciting real world applications, Smith engineering students understand the social, political, economic and environmental impact of their work. An integrated curriculum of liberal arts, science and engineering courses provides the breadth and depth needed to think critically, act reflectively and make informed choices. In the best Smith tradition, we believe that engineers should think deeply and broadly about the effect that their professional actions will have on the well being of those whose trust they hold.

Smith's engineering program offers students two options to study engineering: a Bachelor of Science (S.B.) in Engineering Science [EGR], and a minor in Engineering Science. The Bachelor of Science in Engineering Science is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, and is designed for those students who intend to practice professionally as engineers or pursue graduate study in engineering or a related field. Engineering science combines the foundation that underlies all engineering disciplines with technical depth, design, and practice. Our students go on to pursue graduate degrees and careers in a range of engineering disciplines that include electrical, civil and environmental, materials, mechanical, bioengineering, aerospace, and industrial design. Because of their ability to think critically, act ethically, and communicate effectively as they frame and solve complex problems, Smith engineers are also widely sought after for opportunities in industry and nonprofit organizations.

The minor in Engineering Science enables students to study engineering in a meaningful and flexible way. It comprises EGR 100, EGR 110, and three additional engineering courses, at least one of which must be at the 300-level or higher, approved by an engineering academic advisor. The minor requires prerequisite courses in math and science that depend on the set of engineering courses chosen by the student. The flexibility allows multiple pathways through engineering with different areas of focus.

No matter which option appeals to you, first-year students considering engineering should take the engineering design course, *EGR 100 Engineering for Everyone*, in the fall. Additionally, students who think they wish to pursue the engineering major are advised to take MTH 111 and CHM 111 in the fall if they have not had Calculus. If the Registrar has awarded the first-year student AP, IB, or Cambridge A-level credit for Calculus then they should take CHM 111 and one of (MTH 112 or PHY 117/119 or CSC 111) in the fall. Student who wish to pursue an Engineering major are advised to declare their major in the spring of their first year. Declared EGR majors have priority in registration for 200, 300, and 400-level engineering courses. Visit the Picker Engineering Program website for detailed program information, <https://www.smith.edu/academics/engineering>. The Engineering Office is located in Ford Hall 155.

Engineering – EGR

EGR designates a Bachelor of Science (S.B.) in Engineering Science major

Courses appropriate for entering first-year students	EGR 100 <i>Engineering for Everyone</i> : Engineering majors and minors are required to take this course, which provides an introduction to engineering practice through design projects (offered in the fall and spring semesters)		
	EGR 110 <i>Fundamental Engineering Principles</i> : Engineering majors and minors are required to take this course focused on quantitative problem solving and analysis. Coupled with EGR 100, these courses form an introduction to the field of engineering (only offered in the spring semester)		
	CHM 111 <i>General Chemistry</i> (only offered in the fall semester)		
	MTH 111 & 112 or more advanced math as appropriate		
Courses for non-majors	EGR 100 <i>Engineering for Everyone</i> is open to all first-year students and is offered in both the fall and spring of each year.		
Additional Information	<p>Students who think they wish to pursue the Engineering major are advised to:</p> <ul style="list-style-type: none"> • Consult the Picker Engineering Program website for more information • Take MTH 111, CHM 111, and EGR 100 in the fall if they have not had Calculus • Take CHM 111, EGR 100 and one of (PHY 117/119 or CSC 111 or MTH 112) in the fall if the Registrar has awarded AP, IB, or Cambridge A-level credit for Calculus • Take EGR 100 and EGR 110 and the required math and science courses [MTH111, CHM111 (fall), MTH112, and PHY117/119] in their first year • Declare the EGR major before spring break of their first year. (Majors have priority for 200, 300, and 400-level EGR courses) 		
Pre-Matriculation Credit	Students who wish to apply pre-matriculation credit toward their degree are required to follow the college guidelines found on the Registrar's Office website. These guidelines include, but are not limited to, the following:		
	<ul style="list-style-type: none"> • only 16 pre-matriculation credits may be applied toward a Smith degree; and • no more than 32 credits of combined summer, interterm, Advanced Placement or other pre-matriculation credits may be used. It is the student's responsibility to ensure through the Registrar's Office that all approved credits appear on their transcript. 		
	Advanced Placement Exam (Score of 4 or 5)	Engineering Requirement Satisfied	Recommended Fall Course
	Calculus AB	MTH 111	Consider one of (MTH 112 or PHY 117/119 or CSC 111)
	Calculus BC	MTH 111 & 112	Consider one of (MTH 212 or PHY 117/119 or CSC 111)
	Chemistry	CHM 111	Consider PHY 117/119 or CSC 111 or CHM 118 /222/224 that can count as a lab-based science course toward EGR degree
	Physics C: Mechanics	PHY 117	Recommend PHY 118. PHY 118 will count as the major's additional lab-based science requirement. If PHY 119 is taken, it will count in lieu of AP Mechanics, and student would still need an additional lab science.
	Physics C: E&M	Can count as PHY 118 and will satisfy the major's lab-based science course requirement depending on the introductory physics course the student chooses.	Take PHY 117 or PHY 119. Taking PHY 117 will satisfy the introductory physics requirement. If PHY119 is taken, it will fulfill the program's Introductory Physics requirement and the engineering program will waive the additional lab-based science requirement.
	Physics C: Mechanics + Physics C: E&M	PHY 117 & Additional Lab Science Requirement	Consider PHY 119. PHY 119 will fulfill the program's Introductory requirement and the engineering program will waive the additional lab-based science requirement.
	Statistics	None	
	Biology	Can count as a lab-based science course toward EGR major	
	International Baccalaureate Higher Level Exam (Score of 5, 6 or 7)	Engineering Requirement Satisfied	Recommended Fall Course
	Chemistry	CHM 111	Consider PHY 117/119 or CSC 111 or CHM 118 /222/224 that can count as a lab-based science course toward EGR degree
	Mathematics	MTH 111 & 112	Consider one of (MTH 212 or PHY 117/119 or CSC 111)
	Physics	None	Consider PHY 117/119
	Biology	Can count as a lab-based science course toward EGR degree	
	International Cambridge A Level Exam (Score of A or B)	Engineering Requirement Satisfied	Recommended Fall Course
	Chemistry	CHM 111	Consider PHY 117/119 or CSC 111 or CHM 118 /222/224 that can count as a lab-based science course toward EGR degree
	Mathematics	MTH 111 & 112	Consider one of (MTH 212 or PHY 117/119 or CSC 111)
	Physics	None	Consider PHY 117/119
Biology	Can count as a lab-based science course toward EGR degree		
Department /Program Advising Liaison	Martin J. Green Assistant Director of Engineering Ford Hall, Room 155 mjgreen@smith.edu		