

The Department of Engineering

Engineering Entrepreneurship Minor

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About:

Villanova University offers a unique 16-credit Engineering Entrepreneurship minor that aims to provide students across all majors and colleges with an entrepreneurial mindset and the skills needed for business success. The minor was started with funding from the Kern Family Foundation to teach the fundamentals of the entrepreneurial mindset, including curiosity, making connections and value creation.

Open to students from all colleges, the interdisciplinary minor covers a diverse set of topics including:

- creativity and ideation frameworks
- emerging disruptive technology assessment
- design thinking for new product innovation
- market research
- customer discovery
- persona development
- intellectual property management
- agile prototyping
- value proposition development
- innovative business model design
- product development planning
- social engineering
- entrepreneurial finance
- marketing for startups

The experiential minor is structured so that students work on interdisciplinary teams to develop products/services while learning educational content.

Entrepreneurial Activities:

Students work in intercollegiate teams under the guidance of faculty members and experienced entrepreneurs to develop marketable products and services. Many extracurricular opportunities exist for Engineering Entrepreneurship students.

Current and past Engineering Entrepreneurship students are eligible to apply to [The Launchpad](#), a pre-seed venture fund that provides targeted funding and resources for company formation and launch into the Philadelphia entrepreneurial ecosystem.

Students also benefit from the [Engineering Entrepreneurship Mentor Network](#), a student-run organization comprised of program alumni that provide mentor support for current student teams, conduct networking events, manage The Launchpad and serve as a touchpoint for graduates.

This experiential minor is aligned with INNOVATE. Students who participate in INNOVATE can continue to work on their innovation within the Technology Opportunity Assessment Track. When ready, Engineering Entrepreneurship students from INNOVATE can apply to The Launchpad, a stage gated early seed fund with a CEO Mentor network for students to launch their business ventures.

Lastly, Engineering Entrepreneurship students can apply for the opportunity to serve in [The Ambassador Program](#), an initiative aiming to raise awareness of Engineering Entrepreneurship throughout the Villanova community.

Requirements:

The minor requires the successful completion of six courses (16 credits), five of which are required and one of which is an elective course.

Required Fundamental Courses:

Course	Title	Credits
EGEN 2100	Engineering a Creative Mindset	1
EGEN 3100	Design Thnkng and Cust Discvry	3
EGEN 4100	Enginrng Innovativ Bus Models	3

Technology Opportunity Assessment

Course	Title	Credits
EGEN 2200	Emerging Tech for Bus Innov	3
EGEN 2400	Int Prop Mngmnt for Eng & Sci	3

Engineering Social Entrepreneurship

EGEN 2500 is the required course and an approved elective. The approved elective are: EGR 2002 or SUSE 2100

Course	Title	Credits
EGR 2002	Intro to Humanitarian Engr	3
SUSE 2110	Sus Eng: Risk & Opportunities	3

Elective Courses:

Electives are subject to change. Electives may be added to this list at the discretion of the College of Engineering. Please contact the Minor Director with any questions.

Choose one elective course from the list below, or permission from Minor Director. Students may also earn 3 elective credits for participation in the European Innovation Academy.

Select one courses from the list:

Course	Title	Credits
CEE 3705	Engineering Economics	3
CEE 4606	CEE Capstone Design 2	3
CHE 2900	Global Pharmaceutical Industry	3
CHE 5715	Alternative Energy	3
COM 1100	Public Speaking	3
COM 1101	Business & Prof Communication	3
CSC 4800	Web Application Development	3
CSC 4810	Mobile App Development	3
ECE 4970	Design Project - EE	3
ECE 4971	Design Project - CPE	3
ECE 5480	Android Mobile Dev Programming	3
ECE 5850	Renewable Energy Systems	3
ME 5005	Capstone Design I	2
ME 5006	Capstone Design II	2
ME 5130	Intro to Sustainable Energy	3
ME 5600	Engineering Economics	3
ME 7150	Sustainable Energy	3
MIS 3070	Emerging Business Technologies	3
MKT 2240	Marketing Analytics	3
PHI 2130	Business Ethics	3
PHI 2550	Technology & Society	3
VSB 3500	Special Topics in Business	3
VSB 2007	Corp Respon & Regulation	3

Additional courses not on this list require prior approval from the Minor Director.

Academic Framework and Program Timeline

Generally, a student declares the Engineering minor the spring of their first-year or fall of their second year. A student may choose to limit their involvement in the program and only complete one of the two tracks.

Focus on a career in **technology and innovation**: The recommended path of study to complete the track in Technology Opportunity Assessment is as follows:

Sophomore Year

Fall: [EGEN 2100](#) Creative Thinking for Scientists and Engineers

Spring: [EGEN 2200](#) Emerging Technologies and Innovation

Junior Year

Fall: [EGEN 3100](#) Design Thinking & Customer Discovery

Spring: [EGEN 4100](#) Engineering Innovative Business Models

Senior Year

Fall: [EGEN 2400](#) Intellectual Property for Scientists and Engineers

Fall or Spring: Program Elective

Focus on a career in **social impact**: The recommended path of study to complete the track in Engineering Social Entrepreneurship is as follows:

Sophomore Year

Fall: EGEN 2100 Creative Thinking for Scientists and Engineers

Spring: [EGEN 2500](#) Social Entrepreneurship

Junior Year

Fall: EGEN 3100 Design Thinking & Customer Discovery

Spring: EGEN 4100 Engineering Innovative Business Models

Senior Year

Fall or Spring: Humanitarian Engineering or Sustainable Engineering Course

Fall or Spring: Program Elective