ENGINEERING AND COMMUNITY ENGAGEMENT, CERTIFICATE

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

A certificate in Engineering and Community Engagement is proposed for students in the College of Engineering. This certificate is intended to acknowledge students who have gained proficiency in design, research and application of appropriate technologies for use in serving communities in the U.S. and abroad while stressing an awareness of the cultural context of such engineering activities. Collaborations with communities are strongly encouraged along with emphasis on the importance of ethical considerations in collaborating/working in community settings. All students in good academic standing are eligible for admission to the program.

What is Engineering and Community Engagement?

Engineering and Community Engagement is the certificate for the Humanitarian Engineering and Social Entrepreneurship program. It focuses on combining social entrepreneurship, innovation, and reciprocal community co-design to address significant needs of communities around the world, all while stressing cultural appropriateness, sustainability, equitable collaboration, and teamwork. Students will have the opportunity to practice design and innovation, community engagement, business model development, research, and communication skills. Students completing the program will have defined complex problems, innovated solutions, designed impactful business models, and published a peer-reviewed research paper.

You Might Like This Program If...

- You want to use your education to impact the world around you.
- You want a real, live, hands-on entrepreneurship experience.
- You want to partner with communities to solve complex problems.
- You want to work on an early-stage startup.
- You want to go work in an international community.
- You want to build skills in cross-cultural collaboration.
- You want to significantly improve your communication skills.
- You want to work towards publishing a research paper.

Program Requirements

To earn an undergraduate certificate in Engineering and Community Engagement, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
EDSGN 352		
EDSGN 452	Projects in Humanitarian Engineering	2
ENGR 496	Independent Studies	1-18
YFE 211		3
Select one of the following:		1-18
EDSGN 395	Internship	
ENGR 408	Leadership Principles	
ENGR 411	Entrepreneurship Business Fundamentals	
ENGR 425	New Venture Creation	
ENGR 493	Individual Leadership Experience	

Core requirements for the certificate program include courses in both:

1. Community Engagement, and
2. U.S. and International Cultures.

These courses may be scheduled to satisfy general education requirements (GS/GH/US/IL) depending on the courses selected. Beyond that, students have various course options available to them to complete the 12-credit requirement for the certificate including project-based courses in:

1. design,
2. entrepreneurship, and
3. leadership.

Students will be strongly encouraged to meet with the program director to discuss and formulate their program of study in the certificate program.

Prerequisites Required.

Certificate Learning Objectives

- **Appropriate Technologies:** Students will identify, understand and employ appropriate technologies commonly of use in marginalized communities when designing solutions.
- **Engineering Cultures:** Students will identify and utilize a variety of stakeholders and resources to provide pertinent cultural, political, economic and historical perspectives on community-based engineering design projects.
- **Engineering Design:** Students will demonstrate competency in use of the design process to provide technical solution(s) to problem(s) experienced by marginalized communities.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (https://senate.psu.edu/students/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

University Park

John Gershenson, Ph.D.
Director of Humanitarian Engineering and Social Entrepreneurship

Barron Innovation Hub
123 Burrowes St.
University Park, PA 16802
814-865-2952
gersh@psu.edu

Career Paths

Students with a certificate in Engineering and Community Engagement have been successful in establishing careers in a wide variety of innovation, service delivery, research, and education fields. Most eventually make community impact part of their lives. Some go in to work in international development, some become entrepreneurs, some go on to work for government agencies, some drive innovation in large companies, some become impactful leaders of non-profits, some become consultants, some become outstanding service providers, some volunteer in community impact organizations.

Careers

Engineers, consultants, doctors, lawyers, foreign service officers, marketers, Peace Corps volunteers, health care providers, analysts, and managers are just some of the career paths for graduates.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ENGINEERING AND COMMUNITY ENGAGEMENT (https://career.engr.psu.edu)

Opportunities for Graduate Studies

Since students come from a wide variety of majors, the opportunities for graduate studies are similarly varied. However, all will have research experience, including working towards a published paper, experience turning research into application, and comfort working with all kinds of customers and collaborators. There is almost no type of professional or graduate study that students have not pursued at the highest level.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (https://www.sedi.psu.edu/academics/graduate/)

Professional Resources

- Devex (https://www.devex.com)
- IEEE Global Humanitarian Engineering Conference (https://ieeeghtc.org)
- Peace Corps (https://www.peacecorps.gov)
- Net Impact (https://www.netimpact.org)
- Center for Global Development (https://www.cgdev.org)
- USAID (https://www.usaid.gov)

Contact

University Park

SCHOOL OF ENGINEERING DESIGN AND INNOVATION
304 Engineering Design and Innovation Building
University Park, PA 16802
814-865-2952
sedtappcourses@psu.edu

https://www.sedi.psu.edu