

Preparing Engineers for Responsible Innovation and Leadership

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Background

Along with strong technical skills, Penn Engineering graduates must be prepared for responsible innovation and leadership in both industry and academia. They must be able to recognize and address ethical considerations, communicate effectively with diverse stakeholders and design innovations that advance equity and public trust. Penn Engineering is uniquely positioned to provide this broad, interdisciplinary preparation, building on a foundation of curricular initiatives and enrichment offerings.

The Big Idea

Prepare graduates to be responsible leaders in innovation, ensuring they can advance technical expertise while fostering socially responsible outcomes.

Why does this matter? Developing responsible leaders will have a broad impact on the communities and industries they serve, strengthening confidence in technology and promoting ethical, inclusive and equitable innovation.

What will you do? The initiative proposes curricular and co-curricular opportunities for undergraduates, graduate trainees and faculty to engage at the intersection of technology and society. Students will gain skills to anticipate and mitigate risks, communicate with stakeholders such as regulators and end-users, and design for inclusion and accessibility. Faculty and graduate students will have resources to develop interdisciplinary curricula that enhance technical training with societal context.

How will you do it? The initiative would embed responsible innovation modules into core courses, expand curricular offerings with new courses or a minor/certificate in Responsible Innovation and Engineering Ethics, train graduate students through the Engineering Ethics Fellows program, recognize faculty via a Responsible Innovation Teaching Award, and provide workshops led by the Center for Excellence in Teaching, Learning and Innovation (CETLI) and cross-school collaborations to build a community of practice.

Impact

Since 2020, Penn Engineering has piloted an Engineering Ethics Initiative, embedding ethics modules in graduate Computer Science and undergraduate Bioengineering courses. Expanding this foundation through additional modules, new courses and a minor or certificate will enrich the student experience and prepare graduates to consider societal dimensions of their work. Training graduate students as Ethics Fellows and Teaching Assistants creates a pipeline of experts equipped to influence academia, industry and public policy. CETLI-led opportunities support faculty and graduate students in incorporating responsible innovation into their teaching, fostering a university-wide community of practitioners. Penn Engineering's track record positions it to extend its impact through dissemination and collaboration with peer institutions.

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