

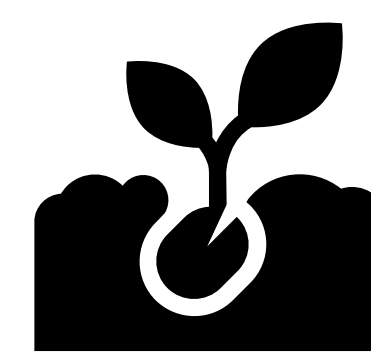
Creating a Common Sustainability Education Experience for First-Year Engineering Students

Introduction



A preliminary survey of our first-year students found that many had not received a formal education in climate and sustainability but that they sought to learn about the impact of both on their careers as engineers.

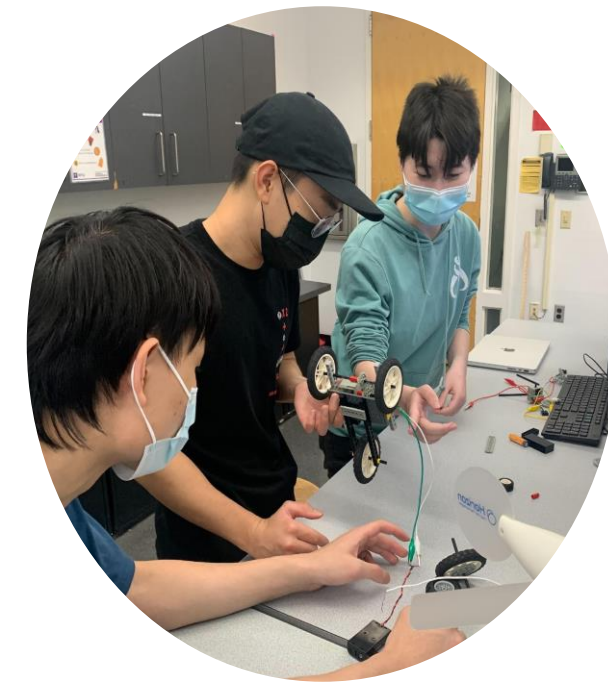
The Sustainable Engineering Initiative at NYU Tandon convened a team of first-year educators to collaborate and support each other in curriculum development.



From our core curriculum, we hope to scale these efforts to integrate climate and sustainability concepts into every course that Tandon students take as they pursue their undergraduate degrees.

Methods

Introduce sustainable engineering and climate education from year 1 of Tandon students' curriculum



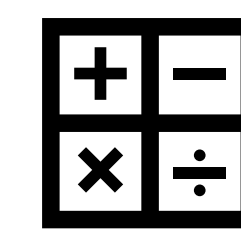
Integrate sustainable engineering and climate education into each discipline's courses



Connect students to career opportunities in sustainable engineering

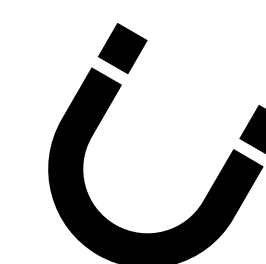


Progress and Plan for Scaling Up



Mathematics

- Created worksheets and projects related to sustainability for Calculus I and Calculus II students
- Created a database of online resources related to math and sustainability education



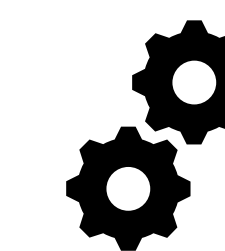
Applied Physics

- Facilitated guest lectures highlighting sustainability research at Tandon
- Creation of assignments that introduce sustainability and climate, such as modeling weather patterns and behavior, for Physics III



Expository Writing

- Created an introductory module on solar geoengineering and the ethical implications of climate technology for Expository Writing II students



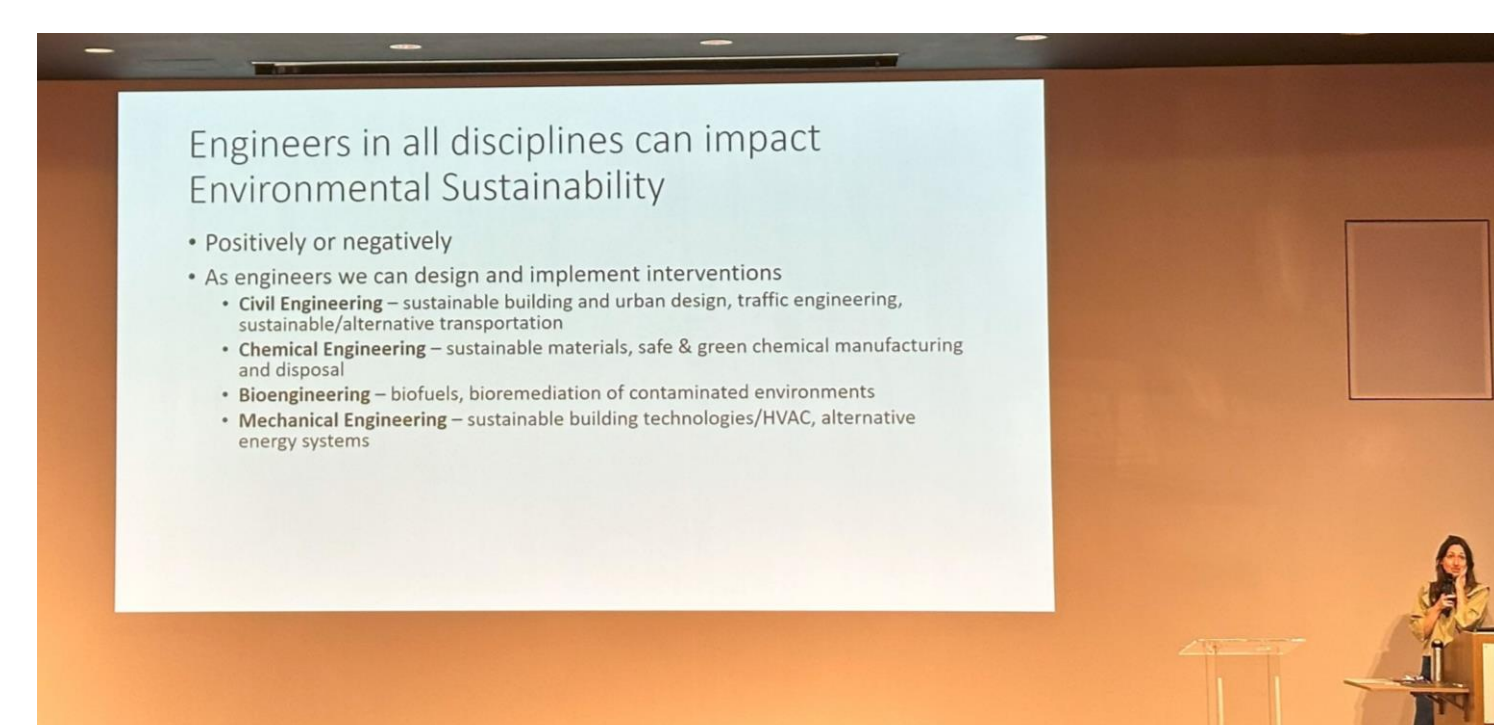
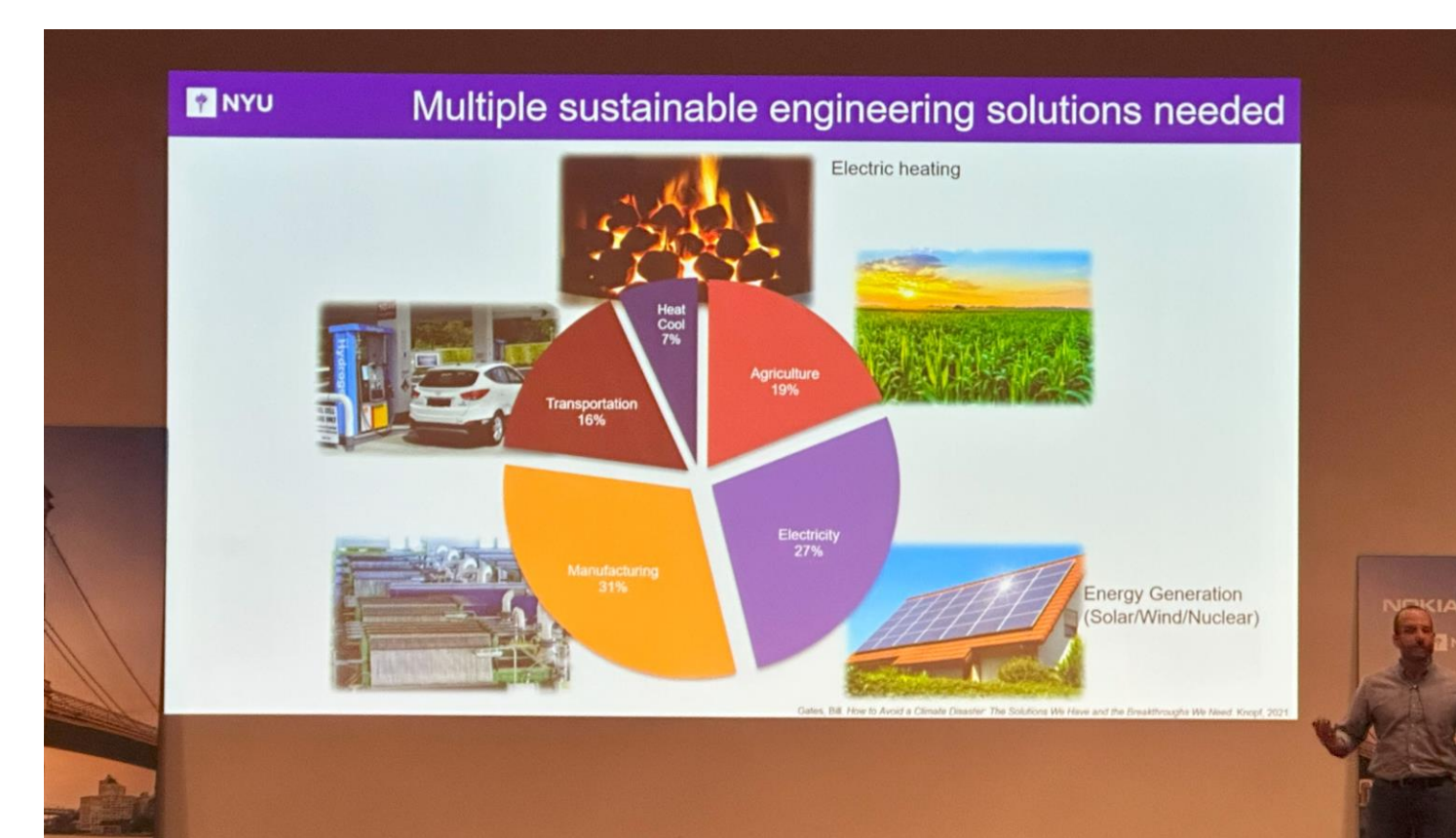
Engineering Design

- Piloted lectures on sustainable engineering featuring environmental and chemical engineers
- Developed modules on environmental justice and engineering ethics for introductory design students

Next steps:

- Train other faculty in our departments to use the assignments created
- Connect with faculty in other core classes, such as Chemistry, to support their curriculum development
- Share work at professional society meetings in our fields

Evaluation and Impact



Write a climate story that has stayed with you. It could be a climate event that you've experienced or a story you've read about or seen, a story that's personal to you, or a story that got you to join us tonight.

Get into groups of 2-3:

Names, where from, majors and goals, climate stories



Together, our team has:

- Reached >300 first-year students through in-class and extracurricular engagement in collaboration with academic departments and student organizations
- Presented our work at professional conferences in our respective fields, such as the Joint Mathematics Meeting
- Drafted and piloted a survey tool that will be submitted for IRB approval to launch a formal study into sustainability education

References

- BM Reynante. The Engineering for One Planet Literature Review Report. 2022.

Acknowledgements

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