

PROBLEM SOLVING AND COMMUNITY ENGAGEMENT

LE/MECH 2112 3.00
Mechanical Engineering:
Professionalism and Society with Dr. Jeffery Harris

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INTRODUCTION

In this course, engineering students explore the profession of engineering and its relationship with society. Students engage with community partners and throughout the process, empathize and communicate with technical and non-technical stakeholders. Throughout the term, students meet with community partners and relevant stakeholders to further refine their problem and solution.



CHALLENGES OF COMMUNITY ENGAGEMENT

- Learning to define a solvable problem within the context of the broader challenge and needs of the community and local stakeholders
- Learning the importance of economic, political, and societal aspects of the community, to create effective solutions
- Being able to interact and communicate effectively with a range of stakeholders with various backgrounds and education

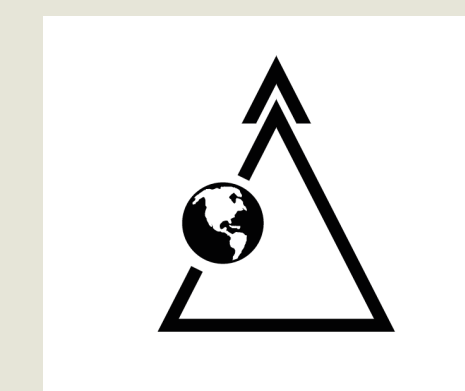
COMMUNITY PARTNER PROJECTS

How might York University reduce the environmental footprint associated with transportation?



How might we leverage technology in our cities' laneways to create more accessible and inclusive spaces?

What are the options for addressing the risk of permafrost degradation of airport infrastructure in the Inuvialuit Settlement Region?



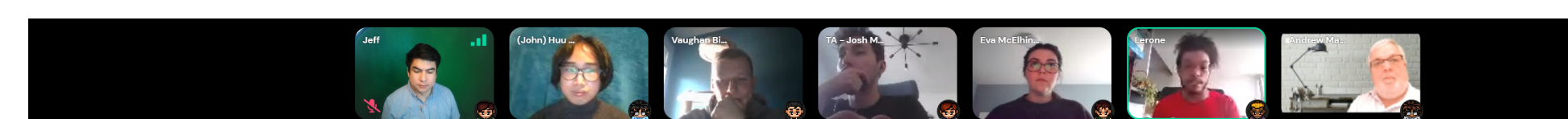
How can the Peel Community Climate Council, a youth-led not-for-profit, work to divert food waste in the Region of Peel?

REFLECTIONS

- The pandemic offered more opportunities for virtual collaborations with stakeholders and communities across Canada
- Letting teams define their own problem areas allowed for more creative and diverse solutions
- By having interviews with project partners and engaging with real stakeholders, students were more invested in the design process
- The course presented real opportunities to interact with non-technical stakeholders that challenged how students asked questions and the outcome of their solution

"I am so glad that I got to work on such as an important problem of climate change that is currently affecting so many communities in northern Canada."

Student Comment



REDUCING THE CARBON FOOTPRINT OF YORK UNIVERSITY

PRIMARY GOALS	FINAL SOLUTION	COMMUNITY INVOLVEMENT
<p>York University's goal is to reduce their environmental footprint</p> <p>Help students and faculty get from one campus to the other, while providing a greener option</p>	<p>Implementation of electric shuttle buses with charging stations that accommodate these buses, as well as personal vehicles used by students and staff</p> <p>Construction of an accessible and convenient infrastructure of charging stations and substitution of old diesel engine buses with new and improved electric buses.</p> <p>Large upfront capital investment, but with a properly planned integration and monitoring system, we believe this design can play a major role in reducing the carbon emissions that come with the flow of buses and personal vehicles in and around our campus each and every day.</p> <p>Reach a positive financial return on investment in</p>	<p>Stakeholders Presenting the project to York University and asking them to fund the project. Consulting with the Campaigns and Advocacy Coordinator from York Federation of Students and Program Director from Sustainability @YorkU assist with the project progression. Contracting with GreenPower Motor Company Inc. to manufacture and maintain electric buses</p> <p>Raising Awareness and Involvement Actively involving the public on the project's status, showing the progress of the project on monitors around campus, to capture students' and staff's attention. Asking student influencers to participate in the testing process, promoting the project to their colleagues.</p>