THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

PROJECT TEAM

Cherish C. Vance, Patrick J. Sours

with special acknowledgement to Scott Shearer, Ann Christy, David Delaine, and Kristen Conroy

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Engineering for Sustainable Development Specialization

Emphasizing socio-cultural learning in the application of contemporary engineering, training students to address complex global sustainability challenges.

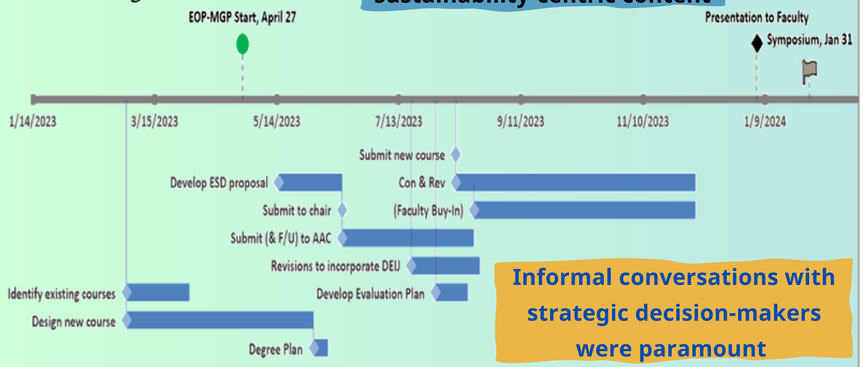
ASEE | Engineering for One Planet

The Vision

- catalyze **curricular transformation** and thus the training and practice of engineering
- develop and propose an **Engineering for Sustainable Development** (ESD) specialization within the Department of Food, Agricultural and Biological Engineering - building upon existing elements within the Humanitarian Engineering (HE) Minor
- create formal pathways for students to engage with sustainability-related, **socially responsible, community-engaged** content
- deliver programmatic elements that balance student learning with community impacts, while **weaving Sustainability, Intercultural Competence, and Cultural Awareness into a core tenet** of engineering instead of siloed concepts

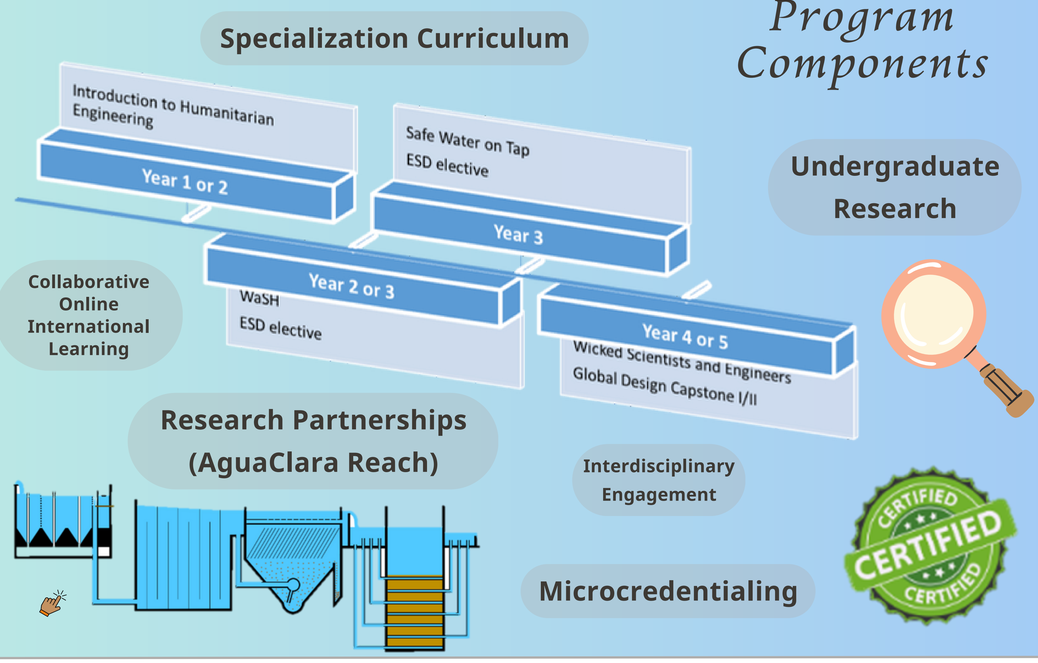
Path to Transformation

Leveraging the success of the HE program and demand for sustainability-centric content



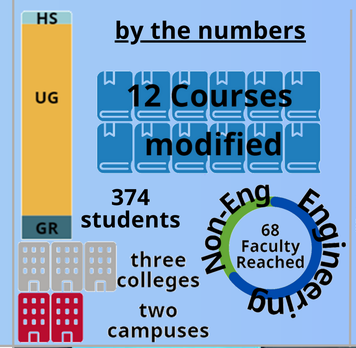
Informal conversations with strategic decision-makers were paramount

Program Components



Lasting Impact

- increase cultural awareness (measured by the IDI) as a crucial professional skill, which is critical to address structural injustice & environmental racism
- broaden participation for STEM students of color, which tend to gravitate to vocations & professions with strong empathy and equity foci
- expand faculty contributions, for those deterred by the perceived restraints of the current curriculum structure



"I have also learned a significant amount about the fundamentals of human-centered design and engineering for one planet. The core tenets of these frameworks are ideas that I wish to carry with me into my future career, specifically the idea of sustainability being a core tenet in project design. Sustainability in engineering is an idea that has grown to be incredibly important to me throughout the semester, so in the future when I am looking for a company to work for I hope to find one that embraces the notion of sustainability."

EOP Framework Integration

- develop **General Education courses** aligning within the current OSU Sustainability Theme, as well as engineering electives that promote social responsibility
- incorporate **learning outcomes** across several categories and topics articulated by the EOP framework into new and proposed courses
- map EOP framework to OSU framework for **sustainability education** to find gaps and opportunities to further imbue sustainability into HE/ESD curriculum
- develop a **certificate program** for professional and industry partners

Six Dimension framework for communicating sustainability education at Ohio State

Acknowledgements

The project team is grateful for the financial support of the EOP Mini-Grant Program, ASEE, and Lemelson. We also thank our program mentors, Irene Mena and Shannon Parks, for their insight and encouragement. Finally, we recognize Mark Moritz, Nick Kawa, AguaCLara Reach, our students and countless others for inspiring us to envision a world that can be.