



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Technology Innovation for Sustainability

## ENVENG 3600

**Credit Hours:**

4.00

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**Course Levels:**

Undergraduate (1000-5000 level)

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**Course Components:**

Lecture

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**Course Description:**

Society faces many challenges in terms of improving its environmental challenges. This course is designed to expose you to many of these challenges and the different technical and non-technical perspectives that will be necessary to understand and create solutions and a more sustainable future.

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**Prerequisites and Co-requisites:**

None

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**Course Goals / Objectives:**

- Students will understand theories of sustainability that are commonly used in the engineering profession.
  - Students will understand lean launchpad approaches to characterizing and describing business models and value propositions of technologies.
  - Students will know how to calculate and evaluate sustainability metrics to evaluate interventions to improve the sustainability of engineered systems.
  - Students will be able to perform, document, and interpret customer discovery interviews.
  - Students will know how to use customer discovery tools to create and test business models and value propositions.
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**Course Topics:**

- Humans, Technology, and the Environment
  - Grand Challenges in Sustainability
  - The Triple-Bottom Line & Life-Cycle Thinking
  - Class Project Sustainability Challenge
  - The Business Model Canvas (BMC) and the Value Proposition Diagram (VPD)
  - Completing the VPD; Developing Hypotheses
  - Developing Interview Protocols; Understanding the Business Ecosystem
  - Customer Discovery Interviews (CDIs)
  - Sustainability Metrics
  - Carbon Footprinting; Uncertainty Assessment
  - Analyzing CDIs
  - From Idea-to-Market
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**Designation:**

General Education Course