



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Multidisciplinary Engineering Capstone Design Project 1 - Honors IBE

ENGR 5901.02H

Credit Hours:

3.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Lab

Course Description:

This course is an honors version of ENGR 5901.01 and is required for the Integrated Business and Engineering (IBE) program. Students in multidisciplinary teams work on realistic and open-ended product development projects in conjunction with an industry sponsor. Teams practice modern development principles applying the concept of design thinking, user-focused design, and minimally viable product.

Prerequisites and Co-requisites:

Prereq: Honors standing, and Sr standing in Engineering or Business, and enrollment in Integrated Business and Engineering (IBE) program; or permission of instructor.

Course Goals / Objectives:

- Standard Outcomes - Identify and understand elements of the design process - Demonstrate technical communication skills - Create and participate in multidisciplinary design teams - Explain and demonstrate professional practice
- Honors outcomes for all students: - Significant exposure to theories and tools from a different discipline. - Significant exposure to critical thinking skills in business and engineering.
- Honors outcomes for all students: - Through an experiential project, learn how to work in multidisciplinary teams and apply tools of market analysis, competitive analysis and project valuation, and the product development process.
- Honors outcomes for all students: - Gain insight into business plan development and the societal, global, and environmental impact of engineering problem solving.
- Honors outcomes for engineering students: - Know the impact of technical decisions on business and competitive revenue and cost models. - Experience the value of correctly interpreting buyer inputs in specifying new products or services.
- Honors outcomes for engineering students: - Understand how allocation and organization of financial, human, & physical resources affect product development process. - Develop strategic approach to thinking based on economic constraints & goals.
- Honors outcomes for business students: - Ability to apply an engineering mindset to business decisions. - Understand the impact of technical constraints on business decisions.
- Honors outcomes for business students: - Become better prepared to match customer needs with technical and manufacturing feasibility. - Understand the fundamentals of and become conversant in the elements of selected engineering technologies.
- GE Reflectn Bookend LO: Engaged Citizenship & Intercultural Competency: Students consider public health, safety, welfare, global, cultural, social, environmental, & econ factors in applying eng design to produce solutions meeting specified needs.
- GE Reflectn Bookend LO: Personal & Professional Development: Students individually assess and pursue personal professional growth in concert with project requirements and personal career goals.
- GE Reflectn Bookend LO: Cultivate Engineering Mindset: Students develop an engineering mindset that demonstrates constant curiosity, makes connections between disparate bodies of information, and seeks opportunities to create value.

Course Topics:

- This is an honors version of multidisciplinary capstone which combines business and engineering students on teams to create new products and markets for client sponsors.
- The course is focused on the modern product development process incorporating design thinking and all aspects of an organization. This course attempts to mimic professional environments.

Designation:

Elective