THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Multidisciplinary Engineering Capstone Design Project I

ENGR 5901.01

Credit Hours:
3.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate

Course Components:
Lecture

Course Description:
A multidisciplinary introduction to modern engineering design principles, process, professional skills and project management tools used for design. This first course of a two-course sequence is designed to prepare students with the engineering and professional skills in completing a real-world sponsored project. Teams consist of multiple engineering and non-engineering disciplines.

Prerequisites and Co-requisites:
Prereq: GenEd 1201 or GenEd 2601 and Sr standing in the College of Engineering and permission of instructor; or Grad standing in the College of Engineering and permission of instructor.

Course Goals / Objectives:
- Apply elements of the design process.
- Demonstrate technical communication skills
- Participate in multidisciplinary design teams
- Demonstrate professional practices
- GE Reflctn Booknd LO: Engaged Citiznshp & Intercultural Competency: Studnts consider public health, safety, welfare, global, cultural, social, environmental, & econ factors in applying eng design to produce solutions meeting specified needs.
- GE Reflctn Booknd LO: Personal & Professional Development: Students individually assess and pursue personal professional growth in concert with project requirements and personal career goals.
- GE Reflctn Booknd 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:
- Course Introductions and Overview; Setting Expectations; Intro to Entrepreneurial Minded Learning Technical/Professional Communications & Common Professional Genres
- Capstone Project Overviews Team Dynamics and Team Charter Overview
- Problem Identification; Understanding User Needs; Status Quo & Research; Capstone Agreement & Intellectual Property Professional/Technical Writing; Writing for Audiences; Overview Agendas, Minutes, and Status Memo Assignments
- Problem Statements; Overview Problem Identification Reviews (and peer response requirement); Chapter 1 Overview Problem Statements; Team Work Session
- Problem Identification Review (PIR) Presentation
- Design Requirements and Scoring Creative Concept Design
- Project Communication; Spotlight: Executive Summaries; Work Planning, and Effective Graphics: Gantt Charts and Best Practices for MS Word and Excel Team Project Work & Meetings w/ Instructional Team
- System Design (PDR); Chapter 2 Overview
- Effective Presentations Team Project Work & Meetings w/ Instructional Team
- Preliminary Design Review Presentations
- Project Management and Risk Mitigation
- Detailed Design and Purchasing Overview
- Research and Prototype Planning; Risks and Benefits Team Project Work & Meetings w/ Instructional Team
- Semester Wrap-Up and Planning for SP 25 Critical Design Review (CDR) Presentations

Designation:
Elective