PROJECTS

Project Objectives

In MSE 320 design project, students work in teams to develop and complete the design of a product or a system. Projects will include specification of function, analysis, verification, selection of materials, strength calculations, preparation of working/engineering drawings, preparation of final presentation and report of final design.

The projects may originate from, students, or the provided list on Canvas. They may have a diverse nature (theoretical investigations, practical designs, measurements, etc.) and serve diverse needs (research, laboratory experiments, open house demonstrations, feasibility studies of interest to local companies, hobby, etc.).

Learning Outcomes

The projects will be selected to apply design solutions for complex, engineering problems and to design systems, prototypes, components or processes that meet specified needs with appropriate attention to health and safety risks, applicable standards, and possible economic, environmental, cultural and societal considerations.
The specific learning outcomes include:

1) The ability to assemble a team.
2) The ability to develop a formal proposal and secure topic. The project should:
    a) Be selected based on team skills and the potential for a value-added outcome,
    b) Include relevant engineering, or business and sustainability aspects,
    c) Be of a degree of difficulty to challenge the team (this will be identified by the instructional team once the proposals are submitted)
3) The ability to work productively as a team to deliver a project outcome.
4) The ability to work on a project that may be in an unfamiliar field.
5) The ability to cope effectively with changing circumstances, issues and difficulties that may arise before, during and after the project.
6) Demonstration of professional skills in all aspects of the course. In addition to writing skills, speaking and presentation skills, the team should demonstrate initiative, time management, and analytical ability.

Weekly Group Meetings

Regular weekly group meetings will be held during a time that will be set between the TA's and the teams.

Team Formation

Each team will comprise of five members. Teams are/will be formed on Canvas.

A list of sample projects is provided on Canvas. Students are required to pick a preferred topic and complete and submit the "Project statement" template (due announced via email.) The submitted forms will be reviewed by the instructor and upon topic approval, each group will be assigned to a TA to get support and mentorship throughout the semester. Further details about the requirements of the project (such as the details of SolidWorks drawing, assembly, validation, analysis, etc) will be discuss during the meetings with the instructional team. These requirements will be dependent on the difficulty level of the project. The remainder of the deadline/deliverable will be announced via email (as can be found on the course outline).