

**EGE 2123: Entrepreneurial Engineering Design Studio**

**Syllabus – Fall 2017**

**TIMES:**  M/W 1:00-3:30 pm OR T/Th 4:30-7:00 pm **LOCATION:** J230 & J232 (Eng Studios)

**INSTRUCTORS: CONTACT INFO:**  **OFFICE HOURS:** Drop by or by appt

Dr. Cristi Bell-Huff Huff: cbellhuff@ltu.edu, J231

Ms. Heidi Morano Morano: hmorano@ltu.edu, E151

**CREDIT HOURS:** 3

**COURSE DESCRIPTION:** The Entrepreneurial Engineering Design Studio emphasizes creating solutions through team based projects utilizing engineering tools and skills, along with opportunity identification, ideation, value analysis, and customer engagement.

**REQUIRED MATERIALS:**  3” 3-ring binder with clear insertable cover pocket (1 per team), 8 dividers, laptop computer

**LEARNING OBJECTIVES:** By the end of the semester, students will be able to:

1. Integrate information from a variety of sources to generate, screen, and select promising design opportunities that will create value for potential customers.
2. Assess and manage risk in design choices to organize, plan, and manage a long term engineering project within a team environment.
3. Explore prior and accepted solutions to identify and communicate the value of a unique design solution in terms of economic, personal, and societal value.
4. Describe the perspective of others in order to translate insight gained from customer feedback into design specifications at multiple stages in the design process.
5. Utilize and persist through a systematic design process in order to bring a unique design solution to fruition.
6. Identify and utilize technical tools and skills needed to test concepts quickly via customer engagement and develop a viable design solution.
7. Assess and manage cost, value, and market implications at all stages of development.
8. Communicate design status and results to all stakeholders in verbal, written, and public presentation formats at appropriate points in the development timeline.

**ENTREPRENEURIAL ENGINEERING DESIGN STUDIO STUDENT HANDBOOK:** For most, this will be your first real studio experience. As a means of providing students in the sophomore studio course with some guidelines and expectations for working in the studio environment, we’ve compiled the *EGE 2123 ENTREPRENEURIAL ENGINEERING DESIGN STUDIO STUDENT HANDBOOK*. It will serve as your source for information regarding grades, attendance, late or incomplete work submission, studio policies & code of conduct, and student resources, both on-campus and off. All students are required to read the handbook and complete a test on Blackboard that you must re-take until you receive a perfect score.

**GRADING:**

Course grading components will consist of:

1. Project Review Presentations
2. Team Project Binder
3. Final Expo Poster and Video
4. Final Project Report (individual grade)
5. Weekly Blog activities (individual grade)
6. Other assignments - TBD by the instructors

Team Project Binder

The team project binder will serve as a repository for reference materials gathered throughout the semester and all documentation created by the team during the design process. The binder should contain dividers with sections clearly labelled and in the order shown below. File all documentation related to each stage of development in the appropriate binder section. Store the binder in the team locker so that it is accessible to all members.

1. INSERTABLE FRONT COVER - Team Name, Mission Statement, and Logo
2. Design Team and Team Documents
3. Identification and Justification of the Problem
4. Presentation and Justification of Solution Design Requirements
5. Concept Generation, Analysis, and Selection
6. Development of the Design
7. Construction of a Testable Prototype
8. Prototype Testing and Analysis
9. Miscellaneous

Late or Incomplete Work

Late work will be accepted only at the discretion of the instructors and will be subject to grade reduction. If you have extenuating circumstances, speak with the instructors promptly. These types of circumstances will be considered on a case-by-case basis.

**ATTENDANCE AND PARTICIPATION:**

Attendance is required for all class sessions, site visits, and project reviews. More than two absences may be grounds for failure at the discretion of the instructors. Participation in work sessions, discussions, reviews, and meetings are essential to meeting the requirements for the design studio. If you have extenuating circumstances, speak with the instructors promptly.

**GENERAL PROJECT GUIDELINES:**

**(based in part on those of K.T. Ulrich and S.D. Eppinger. In *Product Design and Development*. 2012.)**

* The product should have demonstrable value based on customer needs.
* The product should be a material good not a service. You must produce and test a working prototype.
* The product should have a high likelihood of containing fewer than 10 components.
* You should be confident of being able to build the final prototype for less than $150.
* The product should require no basic technological breakthroughs. We do not have time to deal with large technological uncertainties.
* The components and materials for construction for your prototype should be readily available from a list of approved vendors or fabricated in one of the labs/shops/makerspaces on campus (see Studio Student Handbook).