SENIOR DESIGN CLINIC OVERVIEW

Senior Design Clinic pairs student teams with industry sponsors to provide an outstanding real-world educational experience for our graduating engineers. Outlined below is some useful information regarding the program.

KEY BENEFITS FOR SPONSORS:

- Opportunity for quality design engineering, prototype development and testing of new products and processes by a team of senior electrical, computer, civil and mechanical engineering students.
- Over 1000 hours of engineering work on your challenging engineering problem.
- Access to University resources through the student teams:
  - Simulation and modeling resources: SolidWorks, ANSYS, MATLAB, circuit simulation, printed circuit board design, ARM and Xilinx FPGA based embedded systems design.
  - Research resources: expertise of a faculty advisor dedicated to each project, University Library.
  - Fabrication and laboratory resources: Machine shop, 3D printing, materials testing, electronics lab.
- Exposure to a team of engineering students with working knowledge of your business and products.
- Opportunity to “give back” by mentoring students on a real-world problem.
- Deepened relationship with students and faculty in an emerging engineering program in the Twin Cities region producing more than 130 electrical, computer, civil and mechanical engineers each year.

PROGRAM SUMMARY:

- During their senior year, undergraduate engineering students take a 2 semester Design Clinic.
- ~ 35 teams annually, 130 graduating seniors.
- 20% Civil, 20% Electrical & Computer and 60% Mechanical Engineering majors.
- Project sessions: Summer/Fall (Jun.-Dec.: ~20% of projects), Fall/Spring (Sept.-May: 80% of projects).
- Project teams of 3-5 students.
- Student majors based on needs of the project (Civil, Computer, Electrical, Mechanical).
- 1st semester, students will: define customer requirements, generate concepts, select a concept, and complete a preliminary design review for the selected concept or approach.
- 2nd semester, students will: further refine the design, complete a detailed final design review, build prototypes or models and conduct testing & analysis to demonstrate the design meets requirements.

EXPECTATIONS FOR SPONSORS:

- Sponsoring companies provide a knowledgeable coordinator from their organization and access to necessary staff. In a typical project, the coordinator can expect about 4 hours be dedicated to interfacing with the students per month. In addition to periodic e-mail, phone and web communication, the following in-person meetings can be expected:
    - Project kickoff meeting with the team, usually at sponsoring company's facility
    - Provide feedback at 3 design reviews at UST over the 2 semesters
    - Attend design show at end of second semester
- Covering Project Expenses: $4,000 will be provided by most sponsors as a fixed cost grant to the school. Lower rates or waived fees are available to projects sponsored by startups, non-profits, and infrastructure projects for which there is no prototyping needed. All project expenses will be drawn first from the grant funds supplied. With sponsor approval, project expenses above this initial amount will be reimbursed by the sponsor.

INTELLECTUAL PROPERTY AND CONFIDENTIALITY:

- The University does not expect or require any ownership or royalties of intellectual property developed during the course of this project, nor does it act as an engineer-of-record (PE). All inventions/patents resulting from the project are the sole property of the sponsor.
- Confidential and Sensitive Information: **Projects reliant on protected and highly confidential information are not suggested** as teams must be able to meet the course assignments of reporting and presenting.
- The Senior Design Clinic Sponsor Agreement details the provisions of both Intellectual Property and Confidentiality.

PROJECT SUBMISSION AND ASSIGNMENT:

- Interested sponsors should submit a 1-2 page proposal using the provided template.
- Sponsors should select projects that are not on "the critical path" for their businesses, and that fit the timeline of completing proof of concept by December or May of the following year.
- The lead instructor will provide feedback on scope, etc. to help refine the proposals as necessary.

TENTATIVE TIMELINE:

Key Milestones	Summer-Fall Projects	Fall-Spring Projects
Project proposals submitted by companies	April 1	June 15
Projects assigned to student teams	Early June	Early Sept.
Invoices for fixed cost grant sent to sponsors (excluding civil & non-profit projects)	July	October
Design Reviews (1, 2, 3)	July, Aug., Oct.	Oct., Nov., Feb.
Design Show	Mid December	Early May

Contact: If you have interest in sponsoring a project or have questions, please contact:

Tiffany Ling
Engineering Capstone Director
tiffany.ling@stthomas.edu
651-962-5479

Don Weinkauf
Dean of Engineering
dhweinkauf@stthomas.edu
651-962-5760