

The Sponsorship of a Capstone Design Project



**Department of
Mechanical Engineering
Michigan State University**

MECHANICAL ENGINEERING CAPSTONE DESIGN PROJECTS

The Concept

For over a decade, the Department of Mechanical Engineering at MSU has created partnerships with industrial enterprises that provide teams of students with hands-on industrial design experience. In the capstone design project, students use their technical expertise, communication skills, and teaming skills they have learned in their engineering program, in conjunction with their creativity, to solve a real world problem.

These partnerships permit students to experience industrially significant, multidisciplinary problems involving both design and manufacturing.

The Design Program at Michigan State University invites you to join us in challenging our senior class of mechanical engineers - the technical leaders of tomorrow.

This brochure highlights this unique program and provides compelling reasons for you to sponsor a project.



The Ideal Project

Types of Projects

Projects typically involve the creation of new products, the re-engineering of existing products, or the design of enhanced manufacturing facilities. Health, safety and environmental concerns are frequently addressed. As with any engineering project, cost is an important factor.

Innovation

Projects must require creativity. Students should be free to explore many ideas and should have access to company data on benchmarking, customer surveys, and previous generations of products.

Prototype Fabrication

Projects should permit students to design, build, and evaluate a prototype. Exceptional paper studies are also accepted. However, students welcome the hands-on engineering experience and are highly motivated by it.

Proprietary Information

Students deliver a public presentation at the end-of-semester College of Engineering Design Day. If the project involves proprietary information or issues of intellectual property rights, then agreements can be developed between the students and the project sponsor.

Conventional Methods

Projects should require the application of fundamental engineering skills rather than familiarity with specialized technologies or exotic software packages.

Benefits to Project Sponsors

- Sponsors benefit from faculty and student involvement with their industrial design problems. This focused attention is facilitated by access to the extensive resources of a major research university.
- Projects often yield cost-effective solutions through the infusion of fresh ideas.
- More than 600 hours of innovation by teams of enthusiastic and well-trained students are devoted to the project. Novel and nontraditional approaches provide new perspectives and creative solutions.
- Design teams prepare a comprehensive written final report. Furthermore, a prototype is usually built to validate ideas and support the report.
- Sponsors profit by interacting with bright students and by promoting their company to the Department of Mechanical Engineering's senior class.

Benefits to Students

- Real industrial problems provide students with an invigorating environment for active learning.
- Guidance from both professional and faculty advisors integrates the best of both worlds.
- Participating on product and process teams builds valuable skills and creates better educated engineers for the workforce.
- Communication skills are refined through teamwork, report writing, and oral presentations at the sponsor's facilities and at the College of Engineering Design Day.

Your Contribution

- Each project is supported by a sponsor through a combination of technical and financial assistance.
- The sponsor submits an information packet before the semester begins and subsequently hosts a design briefing at the sponsor's facility to introduce the project to the students.
- A staff engineer is selected by the sponsor to serve as the team's professional advisor. This individual interacts regularly with students throughout the semester, evaluates the final report and oral presentation, and makes recommendations on student grading.
- The sponsorship fee of \$5,000 provides the base. Project expenses over \$1000, such as those associated with the fabrication of a prototype or extensive travel, are charged to the sponsor.



How to Participate

- Prospective sponsors should submit a completed Capstone Design Project Proposal to the Design Coordinator. It is available for download at the program's website.
- The deadline for submitting proposals for the Fall Semester is the middle of August.
- The deadline for the Spring Semester is the middle of December.



Further Information

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