

# Participation and Sponsorship Opportunities

## College of Engineering

### Design Program

#### Michigan State University

June, 2007

The Departments of Mechanical Engineering (ME) and Electrical & Computer Engineering (ECE) at Michigan State University are pleased to present several ways in which companies, organizations and individuals may assist in the education of engineering students. The items listed below serve as guidelines for participation in and sponsorship of Engineering Design Program activities.

### ME481 Mechanical Engineering Design / ECE 480 Electrical & Computer Engineering Design Projects Activities

In addition to the "standard" ME 481/ECE 480 industrially-sponsored capstone design projects, there are three other categories of projects that feature additional types of experiential learning and project teaming: Multi-disciplinary projects, multi-college projects and humanitarian projects. All of the capstone projects have unique learning opportunities associated with them, as detailed below.

ME Capstone Design Project Sponsorship \$4,500 per project

Mechanical Engineering Design Projects (ME481) is a senior-level, capstone design experience in which a team of 4 students, along with a faculty advisor serving as a project monitor, work on industrially-sponsored projects over a 15-week semester. Typical projects involve the design and fabrication of a prototype of a new or improved product or process.

ECE Capstone Design Project Sponsorship \$3,000 per project

Electrical & Computer Engineering Design Projects (ECE 480) is a senior-level, capstone design experience in which a team of 4-5 students, along with a faculty facilitator serving as a project monitor, work on industrially-sponsored projects over a 15-week semester. Ordinarily, the cost of any components/supplies, etc., used for the project, any student travel to/from sponsor site, and presentation materials, etc., is included in this amount. Typical projects involve both hardware and software skills, and, to the extent practical, both analog and digital electronics.

Multi-Disciplinary Capstone Design Project Sponsorship \$5,000 per project

Multi-disciplinary projects give students the opportunity to work on an industrially-sponsored project in a team of engineers representing multiple departments within the College of Engineering. This may include mechanical engineering students forming a team with electrical and/or computer engineering students, and sometimes also involves computer science majors.

Multi-College Capstone Design Project Sponsorship \$5,000 per project

Multi-college projects enable students to work in an enterprise-type situation with students from other MSU colleges and schools. For example, these projects may also include business, communication arts, and/or packaging students. Though the projects have engineering design components, the teams will also be involved in the business, marketing, and communications aspects of the projects.

Humanitarian Capstone Design Project Sponsorship \$5,000 per project

The ME481 and ECE 480 courses have a long and storied history in performing projects that significantly improve the lives of individuals or groups with disabilities. These projects provide the teams the opportunity to demonstrate that engineering is about helping people. In ME 481, special responsibilities for these teams include manufacturing a final product, not just a prototype. This requires significant effort and time in the engineering shops, developing a personal relationship with the client, soliciting in-kind donations from local suppliers, and interacting with the news media. In ECE 480, these projects often include planning for the ultimate manufacturing of the product, often in a manufacturing facility staffed by persons with disabilities, solicitation of hardware donations, and live demonstrations of the effectiveness of the teams' products.

International Capstone Design Project Sponsorship \$7,500 per project

Since 1996, MSU has participated in over 150 capstone design projects in which MSU engineering students have been teamed with engineering students at other universities around the world to work on industrially-sponsored projects. The students not only work on a product or process design, but also learn to bridge the barriers imposed by distance, time zone, discipline, language, and culture.

### **College of Engineering Design Day**

At the conclusion of each academic semester, our students showcase their accomplishments in a day-long program held on the MSU campus. The College of Engineering Design Day enables students in many of our courses, including the capstone courses mentioned above, to present their work to a diverse group of students, faculty, administrators, industrial sponsors, and parents. Several additional undergraduate engineering courses stage competitions among the various student designs. Sponsorship opportunities for Design Day include financial assistance for the overall program, its brochure, competition awards, and other activities as detailed below.

### **Design Day Program**

The College of Engineering prints a program for its participants and guests for each Design Day. The 60-80-page program serves as the guide to the day's activities and includes descriptions of the courses and their associated competitions, listings of teams and their projects, presentation and competition schedules, listings of project and program sponsors, and other program information.

Design Day Program Advertising \$2,000 per page

We allow individual companies and organizations to purchase full-page advertising space in the program. Each semester, thousands of programs are printed and distributed to students, faculty, administrators, politicians, company executives, project sponsors and parents. Sponsorship of an advertisement assists in offsetting overall publication costs.

Design Day Program General Support \$1,000 minimum

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Organizations wishing to provide general support to the Design Day activities may do so by making a non-targeted contribution. All supporting companies will have their corporate logo/name printed on the Design Day program cover and on other advertising.

Design Day Awards Sponsorship \$5,000 per award

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Each of the courses participating in Design Day competitions recognizes first, second, and third place finishing teams with certificates, medallions, and/or financial awards. Sponsors have the opportunity to have particular awards share their corporate name. The awards and their descriptions are listed below.

Outstanding Poster Award

The Outstanding Poster Award recognizes the best poster presented by any capstone design project team as judged by a team of individuals from industry and academia. Judging is based on both technical content and aesthetic layout.

Thomas Alva Edison Undergraduate Design Award

The Edison Scholars recognizes the ME 481 Mechanical Engineering Design Projects design team that has produced the most outstanding project. A jury of experts from industry and academia evaluates the final reports, posters, and final oral presentations in determining the award winners. Second and third prizes are also awarded.

Prism VentureWorks Prize

The Prism VentureWorks Award recognizes the ECE 480 Electrical & Computer Engineering Design Projects team that has produced the most outstanding project. A team of judges from industry evaluates the final reports, posters, and final oral presentations in determining winners. Second and third prizes are also awarded.

Leonardo DaVinci Scholars

The student team members winning the ME 471 Mechanical Design II competition at Design Day are recognized as Leonardo DaVinci Scholars. The award winners are determined by the course instructors based on team scoring in the competition.

ME 412 Heat Transfer Design Award

The student team members winning the ME 412 Heat Transfer Laboratory competition at Design Day are recognized by the Heat Transfer Design Award. Instructors of the course determine team scoring based on the rules of the competition.

ME 371 Kids' Choice Award

The pre-college students participating in Design Day vote for the most outstanding ME 371 Mechanical Design I project. The winning team is recognized with a plaque designed and manufactured by a local junior high school student.

#### ME 371 Mechanical Contraption Award

The best ME 371 project as determined by the faculty and students of the course receives the Mechanical Contraption Award. Judging is based on the engineering solution to the problem proposed by the student team.

#### ME 481 Oral Presentation Award

The best ME 481 oral presentation as determined by the ME 481 students is recognized with this award.

#### EGR 291 ECE Freshman/Sophomore Seminar Award

Each semester, student teams of electrical and computer engineering freshman and sophomores compete in programming robots to perform a specified task in minimal time at Design Day. The winning team receives certificates and is recognized on a permanent plaque.

### **Design Day Engineering Innovation & Creativity for 7-12<sup>th</sup> Grade Students**

In addition to the College of Engineering students and faculty participating in Design Day presentations and competitions, we also host a concurrent program for approximately 300 middle and high school students to engage them in the world of engineering.

Grade 7-12 Program Engineering Project Sponsorship \$2,500 per project

The middle and high school students attending Design Day participate in two "hands-on" engineering projects intended to excite and engage these potential engineers of the future. Project sponsorship is used for purchasing required materials, leasing facilities, assisting with transportation costs, hiring supervisory personnel, and providing awards.

Design Day Lunches \$500 minimum

We provide lunch, usually pizza and sandwiches, for our middle and high school visitors, college student participants, industrial sponsors, faculty, parents, and other invited guests. Typically, 750 lunches are needed for each Design Day.

ME Design Program General Sponsorship \$1,500 minimum

Our non-capstone courses (ME371, ME412 and ME471) typically engage students with the construction of prototypes for their competitions. Such development requires materials, equipment, tools, facilities, and supervisory personnel. General support of the ME design program is used to offset these costs.

### **Non-Financial Support**

There are several areas in which industry assistance is needed and appreciated that do not require direct financial contribution to the Design Program. Some of them are listed below.

#### Guest Speakers

In many of our courses, we invite leaders from industry to speak to our students on particular topics related to course content. ME481 and ECE 480 typically invite several speakers each semester to address the class on aspects of the design process as practiced in the “real world.”

### Engineering Student Society Guest Speakers

Our student organizations, such as ASME, IEEE, SAE, SWE, SHPE, NSBE, etc., hold monthly student meetings featuring guest speakers.

### Design Day Judges

Several of the Design Day competitions require judges from industry for evaluating designs and prototypes, as well as critiquing formal reports, oral presentations and posters.

### Design Day Timeframes and Deadlines:

Sponsorship for Design Day (and its activities) is solicited all year long. Both full-year and fall/spring ONLY sponsorship is available. Design Days are scheduled for the last day of class each semester (Fall 2007 – Dec. 7<sup>th</sup>; Spring 2008 – April 25<sup>th</sup>).

Deadlines for Sponsorship:

Fall 2007 –

Project Deadline: Aug. 1<sup>st</sup>, 2007;

General Event/Program/Award Sponsorship: Sept. 15<sup>th</sup>, 2007

Spring 2008 –

Project Sponsorship Deadline: Dec. 1<sup>st</sup>, 2007

General Event/Program/Award Sponsorship: Jan. 15<sup>th</sup>, 2008

Deadlines are subject to the number of projects and sponsorships available.