



The George W. Woodruff School of Mechanical Engineering

Capstone Design Course, ME 4182

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Overview: In the final class for Georgia Tech's undergraduate mechanical engineering degree, student teams design, build, and test machines to solve real world problems and compete against each other at an end-of-semester "Capstone Design Expo" for cash prizes. Lectures topics include precision machine design, manufacturing and business/entrepreneurial topics.

Tackle Real World Problems: Students are given real-world, open-ended, interdisciplinary challenges proposed by industrial and research project sponsors. They learn and apply the engineering design process: defining functional requirements, conceptualization, analysis, identifying risks and countermeasures, selection, and physical prototyping.

Build a Machine: Student teams buy and fabricate hardware to create working, physical prototypes to see their ideas and calculations in action.

Work in a Team: Students work in teams encountering leadership needs and group dynamics; scheduling with conflicts, weekly deliverables and deadlines; and communication with team members, project sponsors, and course instructors.

Lectures: Topics include precision machine design, patenting, industrial design, manufacturing, market research and marketing, business funding, structure, governances, and ethics.

"Capstone Design Expo": At the end of the semester, student teams display and pitch their inventions and marketability to a panel of judges, competing for cash prizes.

Benefits to sponsor

- Enhancing the Georgia Tech undergraduate mechanical engineering education to create engineering leaders who can take a problem from concept to analysis to embodiment while considering business aspects such as marketability and entrepreneurship
- Judges at the end-of-semester Capstone Design Expo (recruiting opportunity)
- Recruiting of your design team throughout the semester
- A "best effort" solution to your challenge is designed, built, and tested in 1 semester by 5 students and a faculty consultant
- Physical and electronic advertisements at Capstone Design Expo and websites

Requested of sponsor:

1. Project description and point-of-contact
2. \$8,000 for semester participation that includes:
 - \$7,200 subvention fee, supports the course infrastructure, team presentations and reports, cash prizes, and hosting of the Capstone Design Expo (advertising, refreshments, and audio/visual rental)
 - \$800 for materials and services costs for prototype fabrication