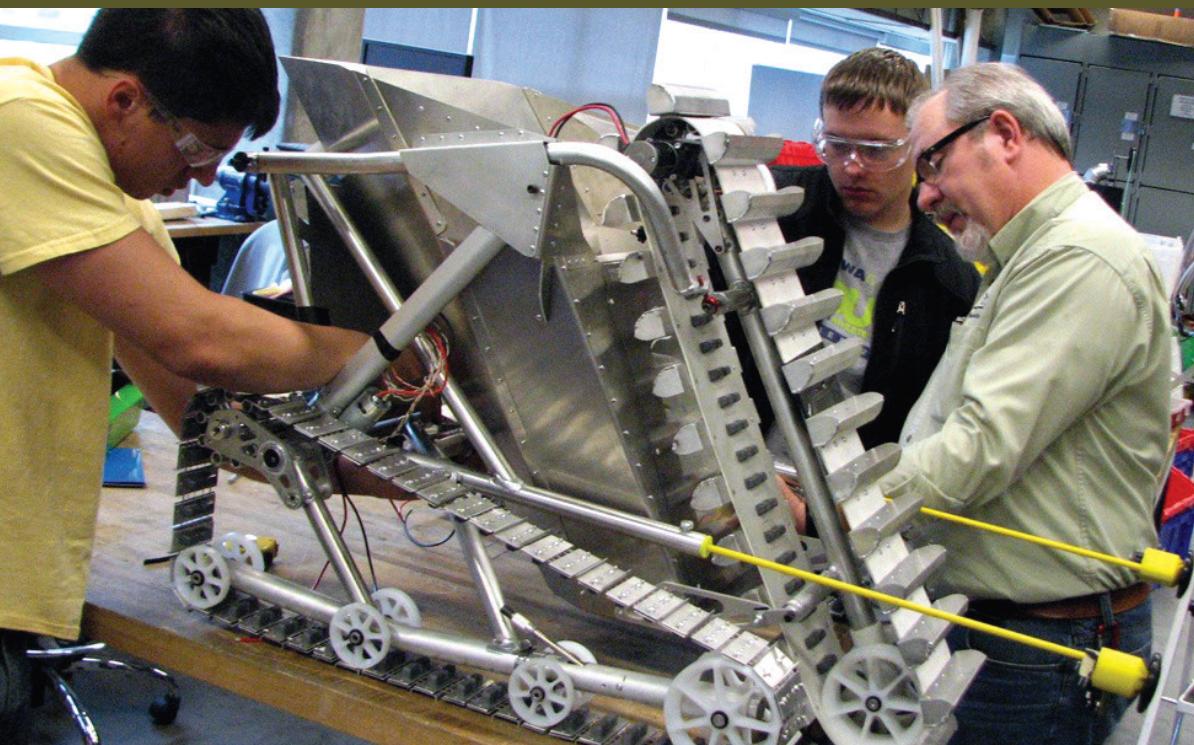


College of Engineering Capstone Program



Skilled engineers are essential at innovative companies when it comes to applying new technologies to solve complex problems, develop new product concepts, and create new manufacturing processes. The College of Engineering at Iowa State University offers companies the opportunity to do these things via capstone projects.

Within the College of Engineering, each student is required to take a formal capstone course during their senior year in which they apply their education experience to a real-world project. Students form teams and work with companies or other sponsors on a project.

Capstone projects are intended to be an essential learning experience for students as they end their formal undergraduate education and transition into the workforce.

Companies submit project ideas and work with instructors and students in finalizing a project scope and deliverables.

Project selection is determined by the number and types of projects submitted to the respective capstone programs. Companies engage the student teams during the semester(s), and each project concludes with a final report and/or presentation.

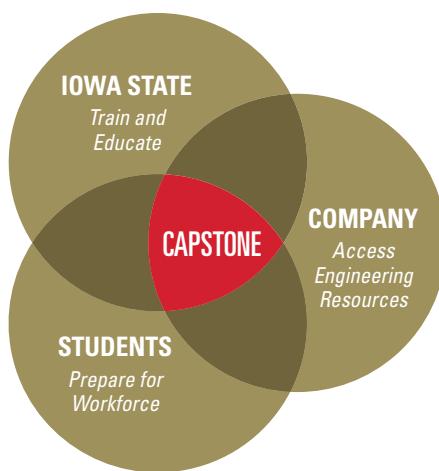
Project Topics

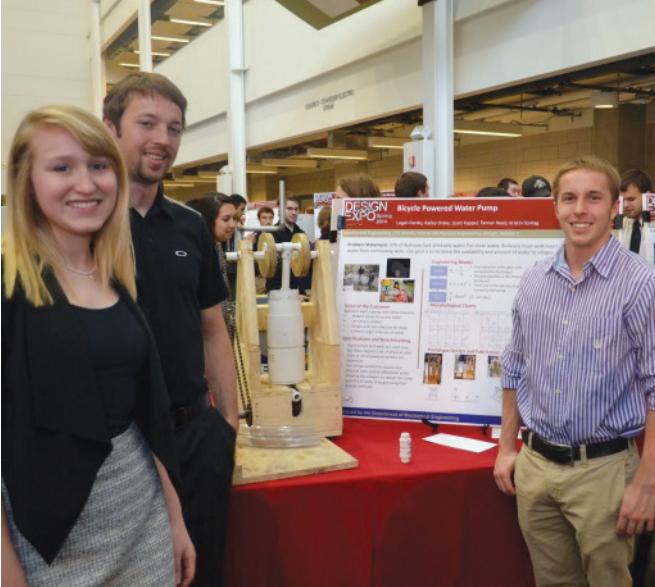
Each of the eight departments manages a capstone program, and collectively these represent the types of engineering topics that can be addressed in a project:

- Aerospace Engineering
- Agricultural and Biosystems Engineering
- Chemical and Biological Engineering
- Civil, Construction, and Environmental Engineering
- Electrical and Computer Engineering
- Industrial and Manufacturing Systems Engineering
- Materials Science and Engineering
- Mechanical Engineering

There are also opportunities for interdisciplinary projects between the departments, as well as with other nonengineering departments (e.g., industrial design, business).

Capstone Projects Provide Multiple Benefits





Capstone projects help companies access people and technology.

Attributes of Capstone Projects

- Each project is designed to be mutually beneficial to the company and the students.
- The focus should not be mission critical but should represent a problem or need of high interest to the company. For example, students could investigate an engineering problem, redesign an existing product or process, or explore a new technology.
- The project needs to challenge students in the areas of engineering analysis and design solutions.
- Projects can be one or two semesters, depending upon the respective department and scope of work.
- Student teams and companies determine levels of engagement and project management.
- Deliverables usually include a final report, data and analyses, and design solutions. In some cases, physical concepts are included.

Company's Role

- Submit an appropriate project idea and work with the instructor on scope and deliverables.
- Use standard Iowa State University project agreements and, if necessary, the intellectual property (IP) and nondisclosure agreements. Note: In almost all cases, the IP rights are assigned to the company.
- Allocate staff time for student engagement and project management as necessary.
- Depending upon department and project scope, each company pays for expenses incurred by Iowa State or pays a standard project fee. These costs can range from a few hundred to a few thousand dollars.

Benefits to Companies

- Apply a high level of engineering resources to a topic of interest, such as investigating an engineering problem, redesigning an existing product or process, or exploring a new product concept or technology platform.
- Engage students as potential future employees.
- Use capstone projects to "seed" innovation projects within the company.

"Capstone projects are quickly becoming a valuable tool for Vermeer as we strive to grow the business globally by making a real impact on our customers' productivity and profit. We continue to be amazed by the talent and energy of the students as well as the dedication of the faculty to make a project successful."

The "out of box" thought process that comes from a capstone team is truthfully hard to replicate within our culture at times. I also see our capstone project managers from Vermeer being motivated by working with these outstanding young students at Iowa State."

*—Mark Core, Vice President, Chief Marketing Officer
Vermeer Corporation
Pella, Iowa*

"The student teams at Iowa State University created real solutions to a challenging problem for our business. Their work was creative, and they focused on solutions that were beneficial to the customer and cost effective."

*—David Bywater, President
Tru Art
Iowa City, Iowa*

FOR MORE INFORMATION

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