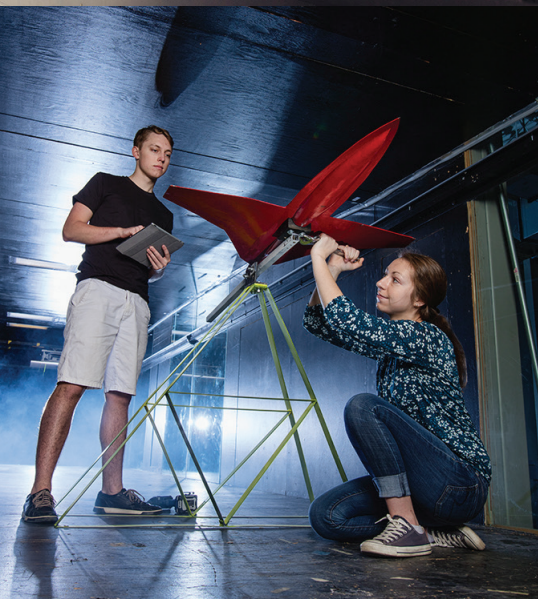




# ENGINEERING @ IOWA STATE UNIVERSITY

Overview of Degree Programs, Research and Partnership Opportunities





# Developing strong engineering talent and future leaders

**A prestigious engineering program is nothing without passion – inspiring future engineering leaders, pursuing groundbreaking research, transforming technology to make a difference, celebrating diversity of thought and culture, and creating solutions to make Iowa and the world a better place. We do all of this and more!**

A key component of our success is the strong partnerships built with businesses and industry. We invite your organization to build a partnership with our college that will open doors to strong engineering talent, groundbreaking research and transforming technologies.

## About Iowa State University

- A public, land-grant university located in Ames, Iowa
- 36,000+ students
- 8 colleges
- 100+ undergraduate majors
- 100+ master's and 80+ Ph.D. degree programs
- 850+ student clubs and organizations
- Known for excellence in science, technology and engineering with dedication to hands-on learning
- National Department of Energy laboratory located on campus

## About the College of Engineering

- Almost 10,000 engineering students
- 8th largest undergraduate engineering program in the country
- Largest college at Iowa State
- 13 engineering majors and 6 minors
- 17 doctoral and 21 master's degree programs
- 300+ faculty dedicated to teaching, research and student achievement
- 80+ engineering organizations and competition teams





# Connecting with Iowa State engineers

There are many ways to become involved and help your organization build name recognition on campus, engage with students and faculty, and contribute to the development of future engineering leaders:

- Provide employment opportunities for graduates
- Provide co-op and internship opportunities for current students
- Make technical and professional development presentations to classes and student organizations
- Support the activities of student organizations
- Work with a capstone/senior design class to address a real-world need
- Collaborate on world-class research
- Serve on an advisory board
- Provide private support for scholarships, facilities, curriculum and program development
- Help with STEM outreach events

Connect with us at:  
[engineering.iastate.edu/partner](http://engineering.iastate.edu/partner)





# Departments and Programs

**Our college's departments and programs are globally recognized as destinations for excellence and value in engineering education, research and engagement**

## **Aerospace Engineering**

Faculty and students conduct cutting-edge research in nondestructive evaluation; complex systems; computational and experimental aerodynamics; astrodynamics; guidance, navigation, and control; aircraft icing; composite structures; and micro/nano mechanics of materials. The curriculum prepares students for many types of engineering careers – many graduates work in fields beyond airplanes and rockets. The department has educated some of the most accomplished and distinguished aerospace leaders in government, industry and academia.

## **Agricultural and Biosystems Engineering**

The ABE undergraduate and graduate programs are consistently ranked first or second by U.S. News and World Report. The department is a leader in providing engineering and technical solutions for agriculture, government and industry. The nation's first agricultural engineering program has evolved to encompass a global and interdisciplinary view of environmental stewardship, plant and animal production, biorenewable energy, biobased materials, farm safety, occupational safety, manufacturing and advance innovation of off-road equipment design.

## **Chemical and Biological Engineering**

Faculty, students and graduates impact the world in countless ways working with consumer products, fuels, biorenewable energy, medical and health care advancements and much more – incorporating the disciplines of engineering, math and chemistry. The undergraduate curriculum can also be used as a springboard to medical school or law school. An internationally recognized program, CBE continues to grow and uphold a strong tradition in the College of Engineering.

## **Civil, Construction and Environmental Engineering**

For nearly 150 years, CCEE students and faculty have immersed themselves in nationally-acclaimed civil, construction and environmental engineering research, education and service. Graduates include civil engineers designing modern infrastructures; environmental engineers developing solutions to human-made and natural environmental issues; and construction engineers building big-vision projects. CCEE engineers are wherever people live, work and play.

## **Electrical and Computer Engineering**

Electrical engineers are at the core of a rapidly changing smart world. They are the visionaries and bright minds who imagine and invent technologies that connect the world, from power and communications to healthcare, finance and avionics. ECpE offers programs in four engineering disciplines: electrical, computer, software and cyber security. Students and faculty conduct high-impact interdisciplinary research to create a better world for all. Graduates have cutting-edge careers in energy, information, bioengineering and electronics.

## **Industrial and Manufacturing Systems Engineering**

Industrial engineers design, develop, implement and improve integrated systems that include people, materials, information, equipment and energy. IMSE students learn overall fundamentals and develop specific expertise in various areas including systems engineering and engineering management, manufacturing, human factors (ergonomics), enterprise computing and operations research and analytics. Laboratory experience and industry projects provide real-world research opportunities.

## **Materials Science and Engineering**

Materials engineers understand the relationship between the properties of a material and its internal structure – from the macro level down to the atomic level. They create new materials and improve existing ones. The MSE program offers three areas of specialization: ceramics, metals and polymers. Faculty and students conduct research in many areas including biomedical engineering, soft materials, additive manufacturing and developing solutions to complex societal problems.

## **Mechanical Engineering**

By applying the properties of forces, materials, energy and motion, mechanical engineers are involved in nearly every product produced. The ME department is one of the largest in the country and provides interdisciplinary research opportunities, experiential learning and program flexibility. Graduates not only work in careers traditionally associated with the profession – but also are employed in many other fields that help improve people's lives.



### Engineering minors

- Biomedical Engineering
- Cyber Security
- Energy Systems
- Engineering Sales
- Nondestructive Evaluation
- Nuclear Engineering

### Interdisciplinary minors

- Entrepreneurial Studies
- Leadership Studies
- Sustainability Studies
- Wind Energy

### Additional graduate-level majors

- Agricultural and Biosystems Engineering
- Bioinformatics and Computational Biology
- Biorenewable Resources and Technology
- Energy Systems
- Engineering Management
- Environmental Science
- Human-Computer Interaction
- Industrial and Manufacturing Systems Engineering
- Information Assurance
- Neuroscience
- Sustainable Agriculture
- Systems Engineering
- Toxicology
- Transportation
- Wind Energy Science, Engineering and Policy





# Groundbreaking research and transformational technology

**Our college emphasizes a collaborative, interdisciplinary approach that brings together the exceptional capabilities and expertise of talented faculty, staff and students.**

## **Engineering signature research areas:**

- Advanced Materials & Manufacturing
- Energy Systems
- Engineered Medicine
- Engineering Education
- Resilient Infrastructures
- Secure Cyberspace and Autonomy

## **Affiliated university research organizations:**

- BioCentury Research Farm
- Bioeconomy Institute
- Bridge Engineering Center
- Center for Statistics and Applications in Forensic Evidence
- Institute for Transportation
- Nanovaccine Institute
- Office of Biotechnology
- Plant Sciences Institute
- U.S. Department of Energy's Ames Laboratory
- Virtual Reality Applications Center

## **Engineering centers and institutes:**

- Center for Industrial Research and Service (CIRAS)
- Center for Multiphase Flow Research and Education
- Center for Nondestructive Evaluation
- Electric Power Research Center
- Information Assurance Center
- Microelectronics Research Center
- NSF Engineering Research Center for Biorenewable Chemicals

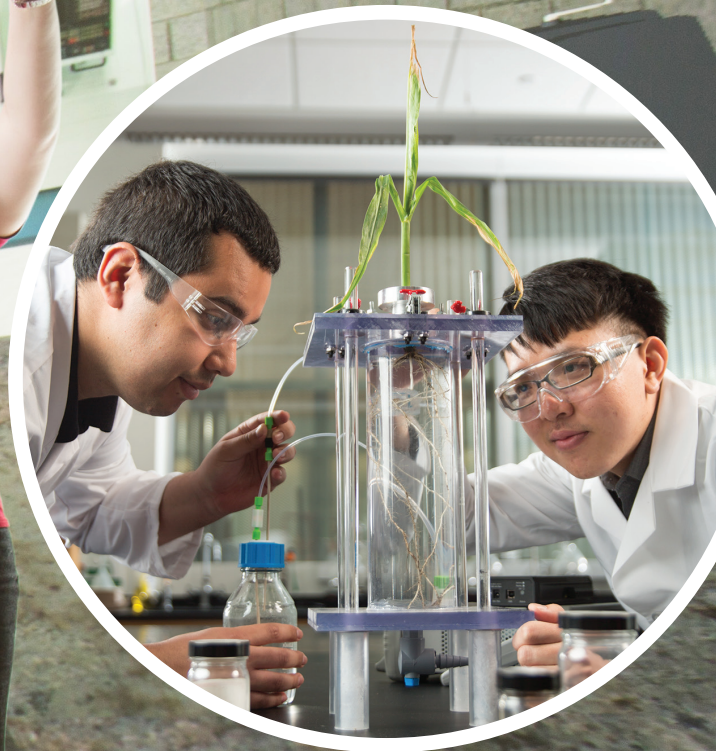
## **Industry/university cooperative research programs:**

- Center for Advanced Non-Ferrous Structural Alloys
- Center for e-Design
- NSF IUCRC Center for Bioplastics and Biocomposites
- Partnership to Enhance General Aviation Safety, Accessibility and Sustainability

To learn more about our signature research areas visit:

**[engineering.iastate.edu/research](http://engineering.iastate.edu/research)**









## Connect with Cyclone Engineering

To explore a relationship with the College of Engineering visit our website for more information.

**Engineering corporate relations:** .....[engineering.iastate.edu/partner](http://engineering.iastate.edu/partner)

**Engineering career services:** .....[engineering.iastate.edu/ecs](http://engineering.iastate.edu/ecs)

**Engineering research:** .....[engineering.iastate.edu/research](http://engineering.iastate.edu/research)

**Engineering college:** .....[engineering.iastate.edu](http://engineering.iastate.edu)

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# IOWA STATE UNIVERSITY

## College of Engineering

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