

# IOWA STATE UNIVERSITY

OF SCIENCE AND TECHNOLOGY

## College of Engineering

- ▶ **Enrollment** One of the nation's largest undergraduate engineering programs.  
Our size enables us to recruit top-notch faculty and conduct cutting-edge research.  
Fall 2008: 4,676 Undergraduates+  
996 Graduates  
**5,672 Total Engineering Students**  
Average Class Size: **31 students**
  
- ▶ **Engineering Career Services**  
Average Starting Salary—**\$57,000**  
98% job placement/military/graduate school (six months after graduation)  
One of the nation's largest career fairs—293 companies were represented at the fall 2008 career fair  
Assist students in obtaining **internships and co-ops**  
Average earnings of interns—**\$2,850/month**  
84% of students graduate with engineering work experience
  
- ▶ **Virtual Reality — at the World's Highest Resolution**  
In 2000, C6 opened as the country's first six-sided virtual reality room designed to immerse users in images and sound. In spring 2007, nearly \$5 million of upgrades to equipment and the technology that operates it were made. Iowa State's C6 now projects more than twice the resolution produced by any other virtual reality room in the world. Researchers are using the C6 to visualize data from as many as 22,000 genes, train soldiers for urban combat, show students how plant photosynthesis works, display data from an atom probe microscope, and help engineers visualize new products.
  
- ▶ **ABET Accredited** programs (Accreditation Board for Engineering and Technology, Inc.)  
Graduates from ABET-accredited programs have a higher degree of job mobility due to the wide recognition of the accreditation system in the engineering professions. [www.abet.org](http://www.abet.org)

### Engineering Programs Offered

#### Aerospace Engineering

When you study aerospace engineering, you work with *anything* that moves through the air (golf-balls, cars, weather balloons) or anything that air is forced to move around (traffic lights, skyscrapers, suspension bridges). Of course, you'll also learn how to design and improve airplanes and spacecraft—after all, this *is* rocket science.

#### Agricultural & Biosystems Engineering

This field addresses some of the world's most compelling problems—world hunger, biosecurity, protecting the environment, and using natural resources wisely. Study engineering from a global perspective of the entire food production system. Design equipment for more efficient farming. Learn how to improve the quality and safety of food and increase production. Design systems that improve water and soil quality. Making a difference in the world starts here.

#### Biological Systems Engineering

Biological systems engineers have high-impact careers. Maintaining air quality, a secure food supply, and clean water is important to everyone. In today's global marketplace, grains, produce, and livestock are transported from country to country, and food security is increasingly of concern. We help safe guard our air, water, and food supply by developing sensors to detect problem compounds and by developing management plans to track materials and to minimize the chances of contamination.

#### Chemical & Biological Engineering

In the biotech age, you can be part of shaping the future. Develop new methods of delivering drugs to patients by choosing courses in the areas of biomedical engineering and bioengineering. Our food engineering coursework might lead you to design cereals with more *crunch*. You will learn how to supervise the start-up, construction, and operation of facilities that produce items we use daily—everything from chocolate to petroleum.

## **Civil & Environmental Engineering**

Civil engineering is all about creating systems and structures for keeping us safe and making our lives easier. Civil engineers design a variety of structures, transportation systems, and water supply systems. Safety, aesthetics, environmental and economic impacts are evaluated by these engineers.

## **Construction Engineering**

You're an organizer. You thrive on creating order from chaos. Use these skills to plan, design, and build anything from skyscrapers to mega-malls, from theme parks to housing developments. There's much more to construction than plywood and window glass. Learn all about the bidding process, scheduling, material acquisition, quality control, equipment selection, project management, labor practices, and construction safety.

## **Mechanical Engineering**

Get moving! When you major in mechanical engineering, one of the broadest engineering fields, you'll learn how to design and improve anything that moves. How does the roller coaster stay on the tracks when it loops upside down? Why do artificial heart valves work for some people but not others? How do you design a bicycle for a child with special needs? These engineers also play a key role in the production of energy and its distribution.

## **Computer Engineering**

This is the information age, and computer engineers lead the way! These engineers make computer hardware faster, cheaper, smarter, and better. Some computer engineers develop new software or improve existing software. More and more network security experts are needed all the time.

## **Electrical Engineering**

Have you ever been frustrated by how your cell phone works—or doesn't?! Electrical engineers are constantly improving all communication devices. They design the internal circuit boards you see on the inside of cell phones, computers, and other electrical devices. Beyond small electronics is the larger world of power systems, providing the energy to light up cities.

## **Materials Engineering**

Think of all the different materials in biomedical devices, computer chips, space shuttle tiles, automobile parts, and, yes, even the kitchen sink. These engineers develop and improve those materials. First, they make the materials. Then they heat, freeze, stretch, and crush them to find out how strong they are. Finally, they develop ways to make them tougher, or better conductors, or lighter, or easier to recycle—whatever will improve the product and the process of manufacturing it.

## **Industrial and Manufacturing Systems Engineering**

If you're a big vision person and like to work with people and the business side of engineering, you'll enjoy the options this major offers. It focuses on applying technical engineering solutions in day-to-day operations. You'll gain broad training in manufacturing, operations research, human factors and engineering management. This will prepare you for any aspect of engineering including operating your own business—if that's your dream.

## **Software Engineering**

Software has become a critical part of the medical, energy, transportation, and financial infrastructure. It is key to the operation of myriad devices—from microwaves to pacemakers—and systems as diverse as air traffic control and power grids. Software engineers use teamwork, communication skills, and leadership to plan, develop, and maintain complex software. Learn how to manage intricate projects and assess risk management in this emerging area of engineering.

**Contact the Engineering Enrollment Services and Precollegiate Programs Office if you or your students have questions:**

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