Apply classroom theory through hands-on learning

» Members of our award-winning, extracurricular student design teams get valuable hands-on experience in designing, building, budgeting and developing teamwork skills. And they win lots of awards and trophies!

» Our undergraduate students often have the opportunity to participate in exciting faculty research projects.

» Before graduation, you’ll apply the engineering principles you’ve acquired to conduct a senior capstone design project.

Gain real world experience and a paycheck before you graduate

» Our co-op program provides students with the opportunity for paid employment experiences while working toward a bachelor’s degree.

» Students who participate in the co-op program graduate with 12 or more months of work experience in their major field of study.

Graduate with a Job in Your Field

» More than 96% of graduates from UA’s College of Engineering have a job or enter graduate school within six months of walking across the stage at graduation.

» More than 70% of students who co-op receive job offers from their co-op employer.

» Our engineering graduates get great jobs with major companies and government agencies:

- Goodyear
- Timken
- Diebold
- RPM
- Lubrizol
- Babcock & Wilcox
- Cleveland Clinic
- Swagelok
- FirstEnergy
- GPD Group
- General Motors
- Honda
- GE
- NASA
- Central Intelligence Agency
- Pepperl & Fuchs

...and hundreds more.

CONTENTS

2 Aerospace Systems
3 Biomedical
4 Chemical
5 Civil
6 Computer
7 Corrosion
8 Electrical
9 Mechanical
10 Cooperative Education
11 Student Design Teams
11 Senior Capstone Design Projects
12 Women in Engineering
13 IDEAs
14 Research
15 Student Organizations
B.S. Aerospace Systems Engineering

Are you fascinated by aircraft or spacecraft? Are you someone who sees the big picture? If so, a degree in aerospace systems engineering may be the right fit for you.

Why The University of Akron?

- Outside the U.S. Air Force, UA is the only institution in the United States that offers a bachelor’s degree in aerospace systems engineering.
- Our curriculum applies the principles of systems engineering that are deployed by the aerospace industry for product development. Ohio is one of the nation’s leading states in aerospace industries.
- Your education will be enhanced as you apply classroom theory in a real-world setting during the required co-op periods.
- You can also gain hands-on experience as part of our Aero Design team by helping to build radio-controlled aircraft for competition.
- Graduates of our program will be fully trained aerospace engineers with all the fundamental knowledge needed to assume project leader duties upon graduation.

About Aerospace Systems Engineering

Aerospace systems engineers study the sciences that guide the design and performance of aircraft and spacecraft, as well as master the art of balancing conflicting requirements in guiding the design of complex systems.

What do aerospace systems engineering graduates do?

» Conceive, design and analyze air and space vehicles for operations within a set of specified parameters
» Build and test prototypes balancing components of the overall system, such as control systems, propulsion systems and structures
» Evaluate the performance, safety and reliability of aircraft and spacecraft

“There’s no other program in the United States like UA’s Aerospace Systems Engineering program. You are educated in the fundamentals of mechanical and aerospace engineering, then you go a step further by learning systems engineering for a degree that truly prepares you as a well-rounded engineer.”

DEVIN CROSS
B.S. aerospace systems engineering and mechanical engineering ’14

aerospace.uakron.edu
B.S. Biomedical Engineering

Are you interested in finding better solutions to medical problems? A degree in biomedical engineering is your first step to discovering new, innovative solutions to the healthcare industry’s most pressing issues.

Why The University of Akron?

- You’ll graduate with all the tools necessary to make new discoveries, advance scientific knowledge and create technologies to revolutionize the healthcare system.
- UA offers a versatile biomedical engineering program that allows you to specialize in the areas of biomechanics, biomaterials and tissue engineering, or instrumentation, signals and imaging.
- Our outstanding faculty, comprehensive curriculum and co-op opportunities contribute to our students being highly recruited by both the academic and industrial sectors.
- Your hands-on experience begins in the first year through our Introduction to BME Design course.
- Career counseling starts early to help direct your education toward a job after graduation, or to prepare you for graduate or medical school.
- UA is the only public university in Northeast Ohio where you can earn a bachelor’s degree in biomedical engineering.

About Biomedical Engineering

Biomedical engineers create devices and procedures that solve medical and health-related problems. Examples include novel drug delivery systems, orthopedic implants, biomedical imaging and tissue-engineered skin used for grafting.

What do biomedical engineering graduates do?

» Solve medical problems through research and clinical testing
» Design next-generation implants, prosthetics and software
» Evaluate novel technology for effectiveness
» Advance today’s healthcare technologies
» Educate the next generation of healthcare professionals

“I love The University of Akron because you receive individual attention from the engineering professors. Plus, I’ve had the opportunity to gain hands-on experience at GE Healthcare.”

LINDSEY MONTANARI
B.S. biomedical engineering and mechanical engineering ’14

bme.uakron.edu
B.S. Chemical Engineering

Do you have an interest in learning how chemistry can help people, save the environment and impact the world in positive ways? Consider a degree in chemical engineering and open the door to unlimited career possibilities.

Why The University of Akron?

- Your career-oriented education will begin in your first week as a freshman when you and your peers join a team of upperclassmen to solve a modern design problem.
- Your academic adviser and all of your chemical engineering professors will be full-time faculty active in research.
- Faculty are involved in cutting-edge research projects, so you can participate in a variety of areas in the fields of chemical and bio-molecular engineering.
- You can gain valuable design and project team experience by joining our award-winning ChemE Car team. You can even travel the country with the team and compete against other schools.
- As an undergraduate student, you can earn a highly sought-after certificate of specialization in biotechnology or polymer engineering.
- Our chemical engineering degree options include a five-year Bachelor of Science/Master of Science program that includes graduate education.

About Chemical Engineering

Chemical engineering involves converting raw materials (chemicals, petroleum, etc.) into marketable products like pharmaceuticals, plastics, soft drinks and even cosmetics through chemical reactions, biological processes and molecular transformations.

What do chemical engineering graduates do?

» Design, evaluate, build and operate systems capable of converting raw materials into useful products
» Creatively solve chemical, materials and biotechnology problems
» Collect, analyze and interpret data to determine how chemical processing affects people and the environment

“ The College of Engineering at UA has challenged me to reach levels I never knew I could. My experience has opened so many doors. My newfound productivity and technical experience has given me a competitive edge that I now put to use in the United States Air Force. ”

KEVIN KNAPP
B.S. chemical engineering student ’13

chemical.uakron.edu
B.S. Civil Engineering

Do you enjoy seeing large-scale projects come to life? Interested in solving societal and environmental challenges like providing clean water to remote places? With a degree in civil engineering, you’ll be prepared to do this and more.

Why The University of Akron?

- You can tailor your education toward civil engineering specialties like structural, water resources and hydraulic, geotechnical, environmental and transportation.
- Many of our students receive scholarships directly from local consulting firms. These same companies hire students for co-op and permanent employment after graduation.
- You can gain valuable design and project team experience by joining our award-winning concrete canoe or steel-bridge-building teams.
- Our civil engineering degree options include a five-year Bachelor of Science/Master of Science program that includes graduate education.

About Civil Engineering

Civil engineering is the science of planning, designing, building, operating and improving the infrastructure of modern life – large buildings, highways, bridges, power plants, tunnels, seaports, airports, offshore structures and even space stations.

What do civil engineering graduates do?

- Plan and design buildings, bridges, power plants and more
- Design and build earth and rock dams, tunnels, retaining walls and more
- Study the effects of earthquakes on man-made structures
- Design and supervise systems that provide safe drinking water, collect and treat waste water, prevent and control air and water pollution, and manage solid wastes
- Plan, design and maintain highways, streets and mass transit systems

“ The civil engineering program provided me with the opportunity to be part of an unparalleled co-op program and to work on nationally ranked design teams. I know I can always reach out to my professors because they knew me by my name. I wasn’t just a number.”

MEGAN HUEBNER
B.S. civil engineering ’14

civil.uakron.edu
B.S. Computer Engineering

Have you always had an interest in the way computers and electronics work? Consider a degree in computer engineering and help shape the future of technology.

Why The University of Akron?

- Our comprehensive curriculum will prepare you to identify, formulate and execute solutions to real-world problems and gives you the opportunity to experience computer engineering firsthand through educational and research laboratories.
- Your education will focus on design and teamwork and will culminate in a capstone senior design project that integrates the material learned in earlier courses.
- Qualifying students have the opportunity to earn academic credit while participating in undergraduate research alongside faculty and graduate students in a research laboratory. Through this program, you’ll have the opportunity to present your research work in technical publications and at conferences.
- Gain experience in managing large projects, dealing with budgets and interacting with students from other disciplines by joining one of our robotics competition teams.

About Computer Engineering

Computer engineering applies computer technology along with traditional engineering science to address systems in which computing is an essential function. Computer engineers design and develop hardware and software for a variety of systems, from software applications to communication networks to small, embedded sensors.

What do computer engineering graduates do?

- Design and develop hardware and software for traditional large computer applications and devices containing some form of embedded computing systems
- Design and develop hardware and software that incorporate operating systems, embedded systems design, digital circuits, algorithms, software design and computer architecture
- Analyze and evaluate computer systems for applications that include wired and wireless networks, simulation, automation, digital control, sensing, robotics, “apps,” data management and many others

"The combination of UA’s diverse engineering curriculum and the ability to co-op and network with real engineers has given me skills that companies desire. Because of this, I’ve been able to secure a full-time engineering position before graduation."

DANIEL PRAMIK
B.S. computer engineering ‘13

ece.uakron.edu
B.S. Corrosion Engineering

Want to be a leader in a cutting-edge field of engineering? Interested in preserving industrial, infrastructure, defense and environmental structures around the world? A degree in corrosion engineering will put you on the right path, and UA is the first university in the U.S. to offer a bachelor’s degree in this growing field.

Why The University of Akron

- The University of Akron is the first university in the United States to offer a bachelor’s degree in corrosion engineering, a field that is already in high demand.
- Built on a traditional science-and-engineering base, our program offers a strong corrosion-specific core that includes project management courses and practical experience in the field.
- The National Center for Education and Research on Corrosion and Materials Performance is located at UA and provides opportunities for students to interact frequently with industry leaders and participate on research projects.

About Corrosion Engineering

The annual estimated cost associated with the impacts of corrosion on infrastructure in the U.S. is over $400 billion. Corrosion engineering plays an integral part in the research and development of innovative ideas that improve reliability and reduce the maintenance cost of essential infrastructure.

What do corrosion engineering graduates do?

- Develop methods to lower the environmental impact on roadways, bridges, power plants, defense assets, wind turbines, manufacturing plants and pipelines
- Design new materials and structures that will address emerging needs in a variety of industries including energy, chemical processing, biomedical implants, electronics and pharmaceuticals

“Corrosion is a formidable enemy of our infrastructure. Understanding how to control corrosion economically is a critical engineering skill that is sorely needed. The Corrosion Engineering Program at The University of Akron will play a valuable role in providing the educational resources to address this need.”

DOUGLAS P. MOORE
Vice President Global Marketing, Carboline Company

“ Akron provides the vast resources of a large university, but its engineering disciplines are still intimate enough that every student receives individualized attention. With co-op work, research opportunities and an outstanding curriculum, students are given every advantage for success in their field. Corrosion engineering offers all of this, as well as the chance to become a leader in a one-of-a-kind program that tackles real-world problems. I don’t think I could be more satisfied.”

NATHANIEL SUTTON
Corrosion engineering student

corrosion.uakron.edu
If you’ve ever taken something apart just to see what’s inside making it operate, you may have a future in electrical engineering.

Why The University of Akron?

- You’ll learn how to use modern engineering tools in well-equipped laboratories, with activities that reinforce the concepts learned in the classroom.
- Our curriculum emphasizes design and teamwork and culminates in a capstone senior design project that integrates the material learned in earlier courses.
- Qualifying students have the opportunity to earn academic credit while participating in undergraduate research alongside faculty and graduate students in a research laboratory. Through this program, you’ll be able to present your research work in technical publications and conferences.
- You’ll gain broad, interdisciplinary experience from our faculty who have diverse industrial, research and educational backgrounds.
- Gain experience in managing large projects, dealing with budgets and interacting with students from other disciplines by joining one of our competition teams that work on various projects like fire-fighting robots and hybrid electric vehicles.
- Upon graduation, you’ll be prepared for a position in any setting where advanced electronics or computer technology is integral to the operation.

About Electrical Engineering

Electrical engineering uses electrical power and technologies to develop and use a vast array of technologies – from massive power grids and global communications networks to the smallest integrated circuit chips inside computers and personal electronics. Electrical engineering is an integral part of nearly everything we do, from cell phones and video games systems, to biomedical instrumentation like the pacemaker, to power generation and distribution, to sustainable energy systems, manufacturing automation, aerospace systems, robotics, sensors and instrumentation, imaging systems, among others.

What do electrical engineering graduates do?

- Research and development
- Design, develop and analyze electronic devices
- Test systems and supervise the manufacturing process

“UA’s College of Engineering has been vital to my growth as a student. The personal attention I received from the faculty and staff helped me pursue undergraduate research and co-ops that I’ve both learned a great deal from and enjoyed.”

PIERRE HALL
B.S. electrical engineering ’13
B.S. Mechanical Engineering

Are you curious about the way things work? Do you like the challenge of making things work better? Consider a degree in mechanical engineering and discover a future with countless career possibilities.

Why The University of Akron?

- A degree in mechanical engineering from UA provides practical, hands-on training and work experience that will help you land your first job.
- The Bachelor of Science in mechanical engineering curriculum balances theory and practice to give you a solid foundation before specializing in a variety of areas, from manufacturing systems to research.
- Our student chapter of the Society of Automotive Engineers (SAE) has won more national student design competitions than any other university in Ohio, and our record over the past 10 years is among the best in North America. Major student-led design teams include Formula Car (both electric and gas), Baja Car, Aero Design, Human Powered Vehicle, and Rocket Design Team.
- Graduates from the program consistently achieve high passing grades on the Fundamentals of Engineering Exam and are well prepared to begin their careers or to pursue graduate studies.

About Mechanical Engineering

Mechanical engineers solve problems and improve safety by designing or improving physical systems. They play important roles in many industries, including automotive, petroleum, energy generation, tire, chemical, transportation equipment and fabricated metal products.

What do mechanical engineering graduates do?

- Conceive, design, and analyze new or improved systems
- Design and develop new products
- Create production systems for manufacturing products

“My classes and co-op experience gave me the knowledge and hands-on experience I needed to feel confident in my skills as a project manager at The Goodyear Tire & Rubber Company.”

ANA NIÑO
B.S. mechanical engineering ’06

mechanical.uakron.edu
The Co-op Program

Gain real experience, critical career skills and a paycheck before you graduate.

“The co-op program really helped me put classroom theory into practice.”

JOHN BALUCH
B.S. electrical engineering ’13

Established in 1914, our co-op program is one of the oldest and best in the U.S. The program offers alternating semesters of full-time employment and coursework to help you master the real-world application of classroom theory.

The program provides students with the opportunity to leave the classroom and gain real-world, relevant learning while working toward a bachelor’s degree. Students who participate in the co-op program graduate with 12 or more months of career-related experience in their major field of study, and more than half of our co-op students receive job offers from their co-op employer. These students also gain a broader understanding of the field and often a higher starting salary after graduation.

The co-op office will work with you to ensure your co-op experience is both personal and consistent with your career goals. Our network of more than 2,000 employers offers a broad choice of co-op experiences and the option to travel out of state for the program or remain close to home in Ohio.

Advantages of Cooperative Education

» Clarify your short- and long-term career goals
» Explore jobs in engineering
» Connect academic study to real-world challenges
» Gain a competitive advantage in finding a full-time position
» Enhance your technical aptitude, technology proficiency and vital soft skills
» Earn money to help fund your education

“The University of Akron does a fantastic job preparing their students. They’re very ready to tackle the world.”

BLAKE MERCER
Human Resources Manager, Fenner Dunlop

engineering.uakron.edu/coop
Student Design Teams

UA’s highly regarded student design teams allow students at all levels to apply classroom theory to a major design project. Our design teams consistently rank highly in national and international competitions.

The Margaret F. Donovan Student Design Center provides nearly 10,000 square feet of work space to allow you to roll up your sleeves and put engineering concepts to work. You have the opportunity to join any of several interdisciplinary student groups that engineer and compete in design competitions against other schools. **Design teams include:**

- Formula-style race cars
- Radio-controlled aircraft
- Baja-style, off-road race cars
- Human-powered vehicles
- Rocket design
- Biomedical engineering design
- Concrete canoes
- Steel bridges
- Innovative energy systems
- Robotics
- Chemical reaction-powered cars
- Student service projects

“**Being part of** Zips Racing **gave me the hands-on skills I needed to go out into the workplace and perform as an engineer – and as a leader.**”

DAN LOUGH  
B.S. mechanical engineering ‘12

Senior Capstone Design Projects

As you near graduation, you’ll team up with a group of your peers to tackle a major design project from conception to completion. First you will spend time defining your project and preparing design concepts for faculty review. Then you’ll get to work and, with guidance from faculty advisers, bring the concepts to life. This yearlong process culminates with a daylong showcase for you and your peers to demonstrate your project before members of the college faculty and the campus community.
Women in Engineering Program (WIEP)

If you’re a woman preparing for a career in engineering, you’ll find great support and encouragement from the Women in Engineering Program.

About WIEP

WIEP provides an environment for female students to prepare for leadership roles in response to global challenges in engineering and technology.

- The Women in Engineering Seminar and Peer Group course is offered each fall for female students and provides a unique opportunity to meet other new female engineering students. You’ll explore various engineering disciplines and meet professional engineers while investigating relevant engineering topics such as project management, ethics, resume and interview skills, global engineering and engineering standards.

- The Women in Engineering Living Community provides a common living area for women engineering students so that they can assemble and study. The community encourages student engagement and academic success.

- The professional mentoring program provides both group and one-on-one mentoring activities between professional engineers and female students, which allows them to capitalize on the vast network of industry partners in the College of Engineering. The professionals provide insights into leveraging the students’ talents, building collaborations and developing diverse experiences so students can successfully respond to the engineering challenges that await them.

“The WIEP provides a great environment for students to learn and grow, as well as a one-of-a-kind support system that extends beyond one’s undergraduate career. The program helped to instill confidence in me that led me to become a confident professional, even when I’m the only woman in the room!”

MOLINE PRAK PANDIYAN
B.S. biomedical engineering, ’08

wiep.uakron.edu
Increasing Diversity in Engineering Academics (IDEAs) Program

The IDEAs Program reflects our openness as an inviting engineering community and creates a welcoming environment to celebrate the culture of diversity in engineering.

About the IDEAs Program

Established in 1990, the IDEAs program is committed to enhancing diversity and inclusive excellence in the fields of engineering, as well as increasing the enrollment, retention and graduation rate of underrepresented students (African-American, Hispanic and American-Indian). The program resources are open to all engineering students.

Your involvement in the IDEAs Program will add richness to your educational experience. IDEAs offers resources to help you achieve academic success and receive support for professional and personal development, including access to:

- A permanent study center
- IDEAs Engineering Seminar
- Freshman competition
- Peer tutoring
- Mentoring
- Structured workshops
- Scholarship assistance when you fulfill the program requirements
- Undergraduate research
- Community services
- Freshman competition
- Undergraduate research
- Community services
- Peer tutoring
- Mentoring
- Structured workshops
- Scholarship assistance when you fulfill the program requirements
- Undergraduate research
- Community services
- Freshman competition
- Undergraduate research
- Community services
- Peer tutoring
- Mentoring
- Structured workshops
- Scholarship assistance when you fulfill the program requirements
- Undergraduate research
- Community services

Equally important are the friendships developed throughout your academic career. Today, more than 90% of underrepresented students in the College of Engineering participate in the IDEAs Program. Most participants remain in the program through graduation, and, in doing so, develop friendships and contacts that serve them professionally and socially for years to come.

“The IDEAs program was essential to my growth and success at UA. It provided me access to many resources that aided my studies and led me to undergraduate research and scholarships. It also gave me the opportunity to connect and network with many different groups and give back to the community. The care that IDEAs provides to students is extraordinary!”

PIERRE HALL
B.S. electrical engineering ‘13

uakron.edu/engineering/ideas
Imagine working alongside your professor to solve society’s most pressing issues.

Our undergraduate students often have the opportunity to get involved in exciting research projects. The experience you gain in participating in research will help you connect academic studies to real-world challenges and help you determine areas of interest.

“A lot of engineering students approach class and research in an academic sense, but at UA I was encouraged to think of it in a different light – to take my research to the next level and think as an entrepreneur.”

COURTNEY GRAS
Co-Founder, President & COO, Flux Design Technologies; B.S. electrical engineering ’13

About UA College of Engineering Research

Our cutting-edge, advanced research projects are supported by agencies such as the National Science Foundation (NSF), National Institutes of Health (NIH), NASA, Department of Energy, Department of Defense, the State of Ohio, private foundations and many industrial partners such as FirstEnergy, Lockheed Martin, The Boeing Company, BP, GE, The Timken Company, Parker Hannifin Corporation, The Goodyear Tire & Rubber Company, Bridgestone/Firestone, and many others.

And we continue to accelerate research and innovation. Over the last decade we have...

- Added 80,000 square feet of new research space
- Established four new research centers
- Launched five more companies
- Experienced a ninefold increase in research activity

“As an undergraduate research assistant, I’ve really benefited from the sense of community and support in the College of Engineering, especially from the faculty. It’s clear that everyone wants students here to succeed.”

LAURA VONDEAK
B.S. biomedical engineering ’13
Engineering doctoral student
Student Organizations

Each of our engineering disciplines hosts a student chapter of a professional society, as well as other organizations. Within these groups you’ll find a variety of professional development programs, hear from guest speakers and meet with UA alumni who are now professional engineers.

Examples of student chapters and organizations

» Tau Beta Pi, The Engineering Honor Society
» American Institute of Chemical Engineers
» American Society of Civil Engineers
» American Society of Mechanical Engineers
» Biomedical Engineering Society
» Corrosion Squad

» Eureka (Association for Honors Engineers)
» Institute of Electrical and Electronics Engineers
» National Society of Black Engineers
» Society of Automotive Engineers
» Society of Women Engineers
» Society of Hispanic Professional Engineers

The UA Campus

The University of Akron is a vibrant community within metropolitan Akron with more than 80 buildings on 218 acres, including an award-winning student union, state-of-the-art recreation and wellness center and beautiful on-campus football stadium. With a population nearing 200,000, Akron is the fifth largest city in Ohio. Located within 500 miles of 42 major cities, yet surrounded by over 40,000 acres of parkland, Greater Akron provides access to entertainment, as well as airports and major highways – putting you at the hub of a world of experiences and opportunities.

» Scan the QR code to see a tour of campus!
How will you use your engineering degree?

» Scan the QR code to hear our students talk about their Akron Engineering Experience.

engineering.uakron.edu/meet-our-students