

College of Engineering

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The University of Akron
College of Engineering

Today's Presentation

- Background about the College of Engineering
- Programs offered in the College of Engineering
- Applying to College – Things to Remember
- Why Akron?

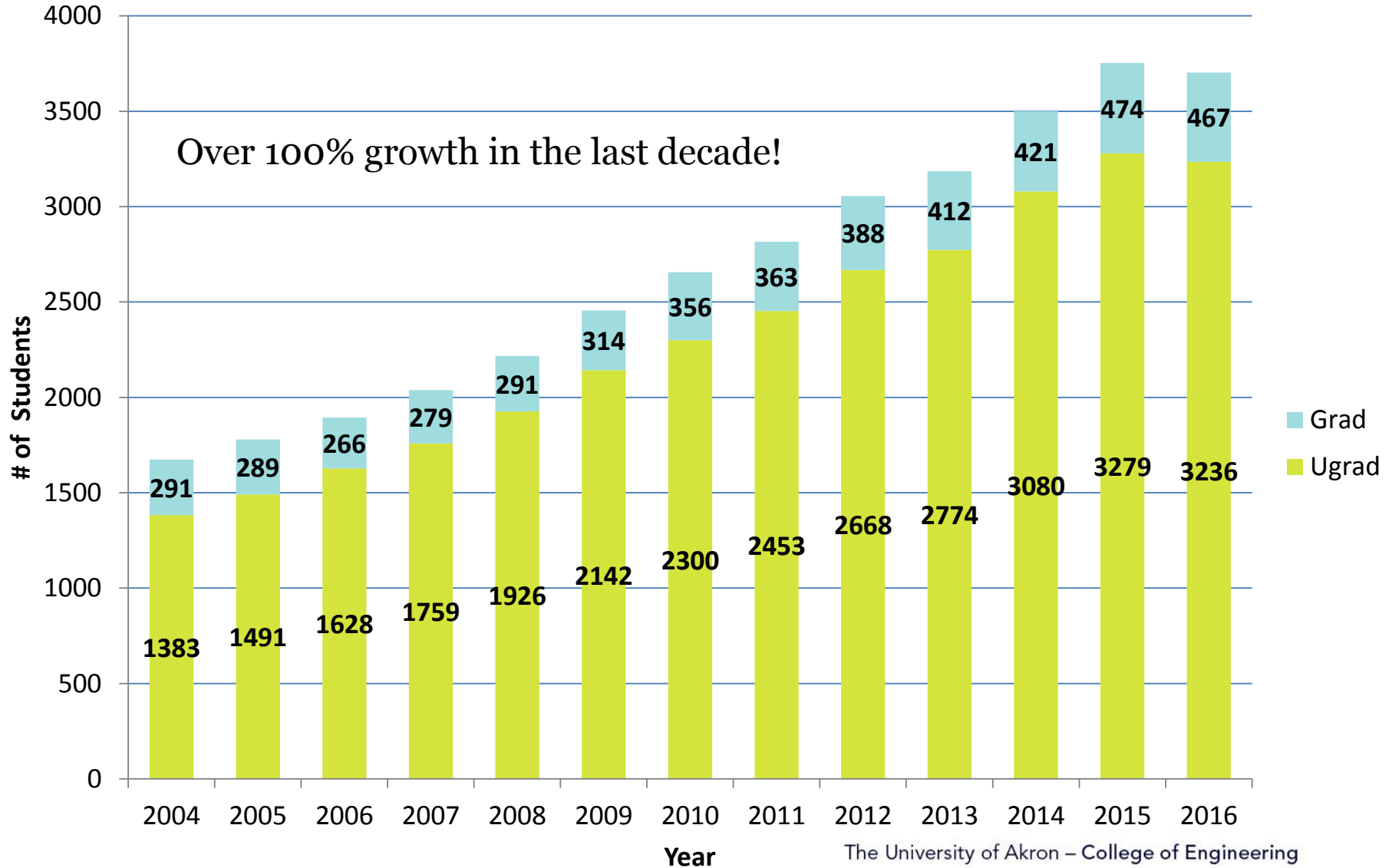


About the College of Engineering

- Established in 1914
- 100 faculty, all PhDs
- Over 3,000 undergraduates
- Over 50% of incoming freshmen in the Honor's College are engineering students
- 80% of incoming freshmen transfer in CCP/AP credits
- 70% of engineering students receive a minor

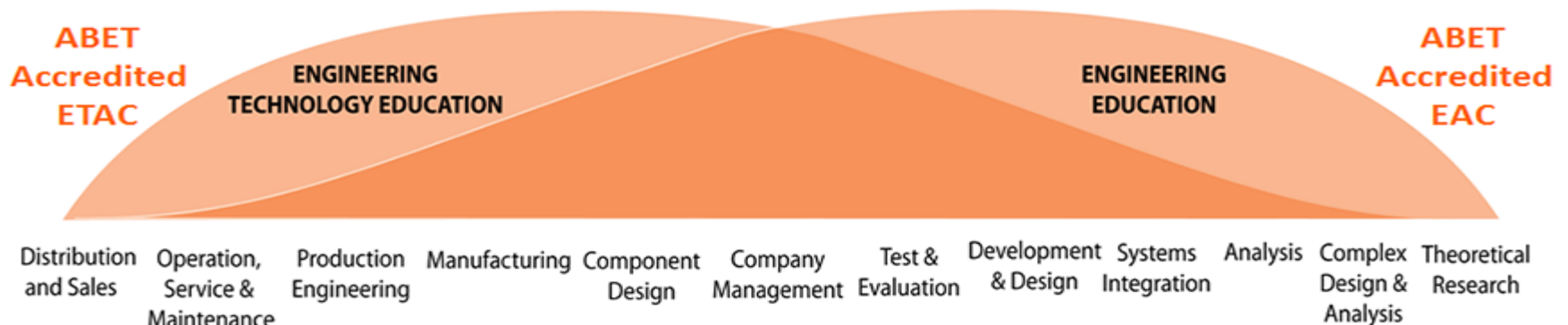


College of Engineering Majors



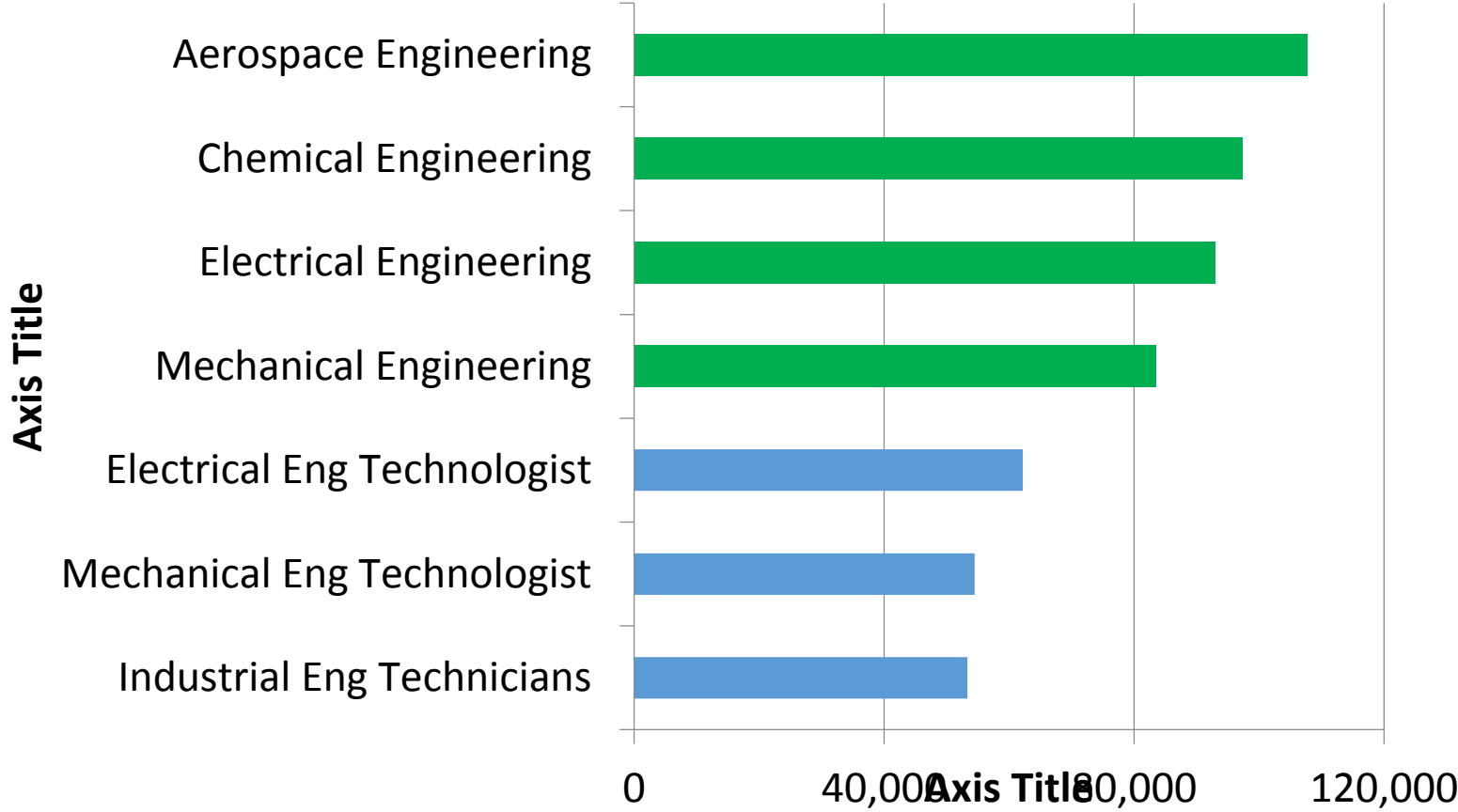
Engineering vs. Engineering Technology

- Engineers come up with innovative ideas and design and develop new products
- Engineering Technologists work with the engineers to decide how to manufacture the products, what equipment is needed
- Engineering Technicians work with the technologists to operate the machines and create the product.
- Engineers are required to take Calculus-based classes, Technologists are required to take Algebra-based classes



(Chart above from the American Society for Mechanical Engineers.)

Median Income by Major



Undergraduate Programs

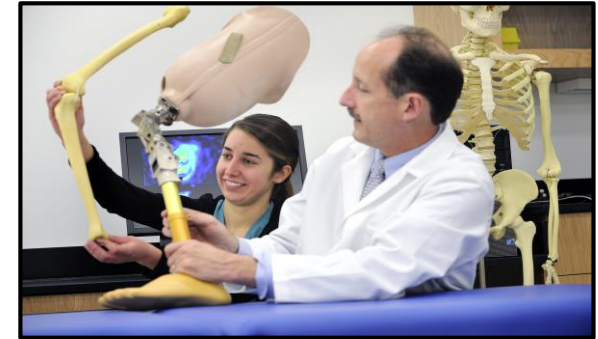
- Aerospace Systems Engineering*
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Corrosion Engineering*
- Electrical Engineering
- Mechanical Engineering

**New, industry-driven programs that are unique in the U.S.*

Department of Biomedical Engineering

B.S. Biomedical Engineering Three Tracks

- **Biomechanics**
- **Instrumentation, Signals and Imaging**
- **Biomaterials and Tissue Engineering**



Biomedical Engineers develop technology to help prevent, diagnose and treat diseases, to help rehabilitate patients and to improve healthcare.

Biomedical Engineers design artificial joints and surgical instruments, medical devices and instrumentation, drug delivery systems and artificial tissues, etc.

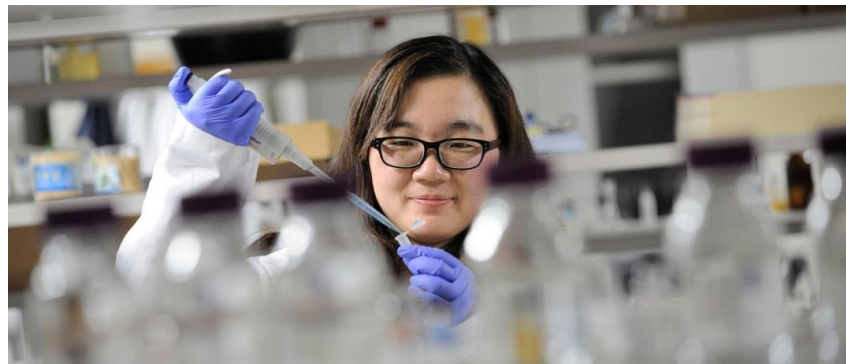


Department of Chemical & Biomolecular Engineering

B.S. Chemical Engineering

Chemical engineers transform raw materials into useful products such as chemicals, oil, gas, pharmaceuticals, polymers, paints, textiles, soaps, cosmetics, tires, nuclear power, food, etc.

Chemical engineers also design equipment and devise processes for manufacturing chemicals, pharmaceuticals, polymers, etc., by applying principles and technology of chemistry, physics, biology and engineering



Department of Chemical & Biomolecular Engineering

B. S. Corrosion Engineering

Corrosion engineers integrate knowledge of chemistry, physics and materials science to manage the effects of corrosion on materials, devices and structures.

Corrosion engineers develop new materials (alloys, polymers, ceramics) and strategies to slow down the rate of corrosion.

Corrosion costs the U.S. \$400 billion per year

UA has the nation's only B.S. in Corrosion Engineering

Students work with faculty, industry and government in National Center (NCERCAMP) to solve real-world issues



Department of Civil Engineering

B. S. Civil Engineering

Civil engineers are responsible for contracted projects from start to finish related to infrastructure in a variety of companies and industries, private, public and governmental.

Civil Engineers provide the infrastructure for the growth and maintenance of municipalities. Bridges, roads, highways, traffic lights, buildings, water treatment, etc.

Concentrations focus on structures, transportation, or the environment



Department of Electrical and Computer Engineering

B.S. Electrical Engineering

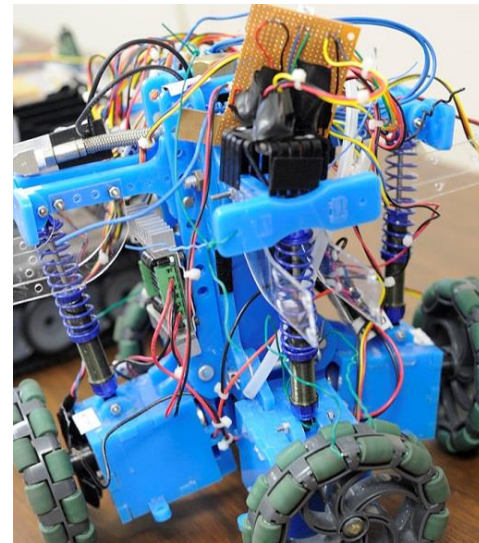
Electrical engineers are involved with the design and application of small scale electrical circuits as well as large scale power systems, and everything in between.



Department of Electrical and Computer Engineering

B.S. Computer Engineering

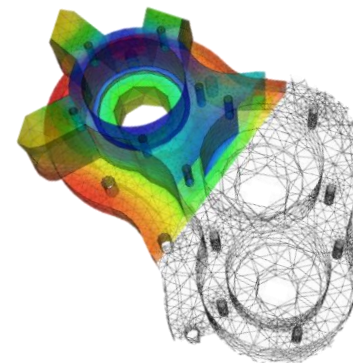
Computer engineers are concerned with both the design of computer-based hardware and software, as well as their integration into other devices.



Department of Mechanical Engineering

B.S. Mechanical Engineering

Mechanical engineers design, analyze and/or build various aspects of mechanical systems through their understanding of material properties and physics.



Department of Mechanical Engineering

B. S. Aerospace Systems Engineering

Aerospace systems engineers manage processes which require input from a variety of constituents to identify optimal solutions as they relate to the aerospace industry.

Aerospace Engineers become project managers in the aerospace industry
Nation's only B.S. Aerospace Systems Engineering, unless you join the Air Force



Preparing for College

- Math, Chemistry and Physics are all great classes to take
- However, engineers must be able to effectively communicate. Don't avoid English, Writing and Speech classes
- Send AP, IB and CLEP scores to the colleges you are applying to
- Send Post-Secondary/College Credit Plus/Dual Enrollment COLLEGE transcripts to the colleges you are applying to, not just your HS transcripts

Thomas Paine Quotation

“What we obtain too cheap, we esteem too lightly...”

- Paine was speaking about “freedom” as it relates to what would become the American Revolution, but it is applicable in other areas.
- **UA may be very close to where you live now. Since it is so close, so accessible, do you value it too lightly?**

Why Akron?

The Akron Engineering Experience

- Student Design Teams
- Capstone Senior Projects
- Co-operative Education Experience
- Other Support Services



Student Design Teams

Teams design, budget, build and compete against students at other schools in projects related to their discipline

- Competitions are regional, national, or international
- Any engineering student can join any team
- Provides a teamwork skills and long-term friendships



Society of Automotive Engineers (SAE) Formula Team

- Akron Formula teams placed in the top 15 in 12 of the last 17 years
- UA is invited (one of a few US schools) to compete in Europe
 - Formula Design ranked 5th in Austria and 8th in Germany



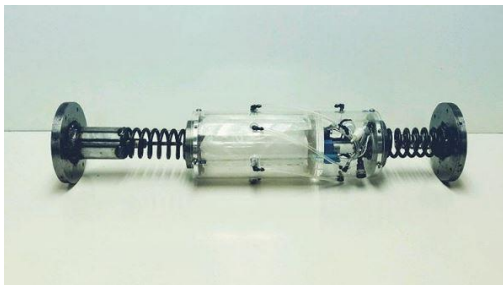
Concrete Canoe & Steel Bridge Design Teams

- Concrete Canoe:
 - Finished 1st overall in Regional competition 2017
 - Finished 3rd overall in National competition 2017, 1st in Innovation!
- Steel Bridge:
 - Finished 2nd overall in the 2017 Regional competition
 - Finished 15th Nationally out of 123 teams



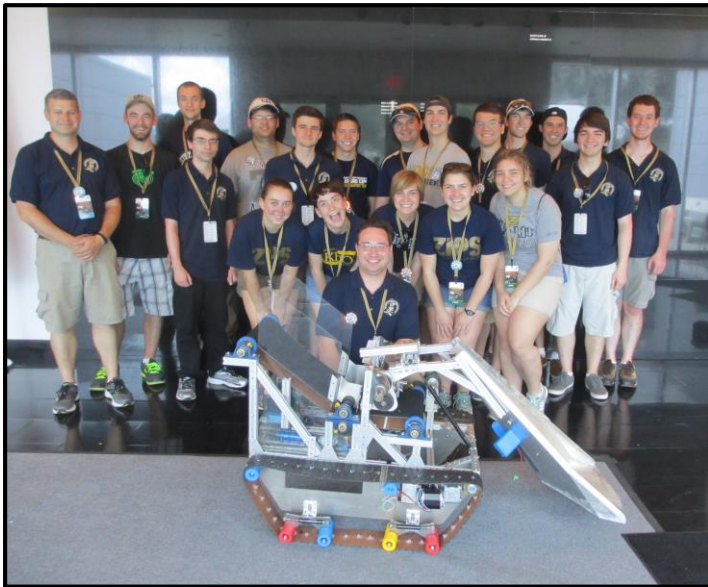
Akronauts – Rocket Design Team

- For 2017, Project Zaphod was tasked with reaching a precise altitude of 5,280 feet while carrying an unknown fragile object which was provided on launch day



NASA Robotic Mining Competition

- NASA-sponsored Robotic Mining Competition held at Kennedy Space Center (50 schools)
- Earned 1st in Communication in 2016
- Gives NASA innovative ideas and solutions for lunar excavation



SAE Aero Design Team

- Finished 3rd in Advanced Class competition in 2017, 1st place out of all US teams
- Finished 1st in Design in 2017
- Aero Design ranked 1st in the U.S. 2014, 2015, 2016 and 2017



26 Engineering Student Organizations

- SAE Baja Design Team
- Engineering Service Design Team
- BME Design Team
- Corrosion Design Team
- Human Powered Vehicle Team
- Student Chapters of National Societies
 - ASME, IEEE, AIChE, ASCE, BMES, AIAA
- Engineering Student Council
- National Society of Black Engineers
- Society of Hispanic Professional Engineers
- Society of Women Engineers
- EUREKA Honors Engineering
- Tau Beta Pi
- ...and more!

Capstone Senior Design Projects

- A culminating design experience for all engineering students
 - Often inspired/supported by industry
- Provides students with real-world/experiential learning



Undergraduate Research

Undergraduate students participate in a variety of research projects in the College of Engineering.

Several faculty work with high school students as well.



Cooperative Education Program

- Real-world, paid (\$15-20/ hour average) engineering experience
- Optional, except for Aerospace Systems, >90% of eligible students participate
- 5th oldest in the US; started in 1914
- 70% offered full-time positions with their Co-op employers
- Co-ops in more than 37 states; a few different countries
- Individualized interaction with staff at every step



Cooperative Education Program

	Fall	Spring	Summer
Year 1	Class	Class	Vacation/Class
Year 2	Class	Class	Vacation/Class/ Potential Co-op
Year 3	Class	Co-op I	Class
Year 4	Co-op II	Class	Co-op III
Year 5*	Class	Class	

- *Co-op can extend the program to five years as you are adding a year of work experience to your growing resume.*
- *You are only paying tuition when you are taking classes.*

Co-op and Full-time Employers of UA Engineering Students

There have been nearly 2000 employers during the last decade, from all over the world.

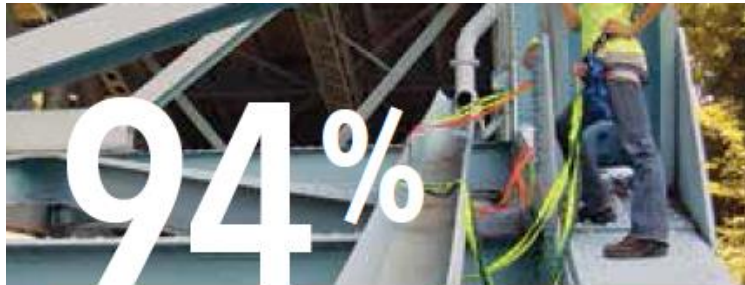


Placement and Debt Information



HIT UA ENGINEERING GRADS EARN AN AVERAGE
STARTING SALARY OF MORE THAN \$63,000

**THE GROUND
RUNNING**

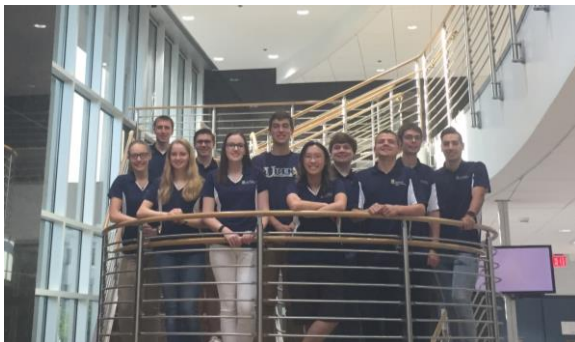
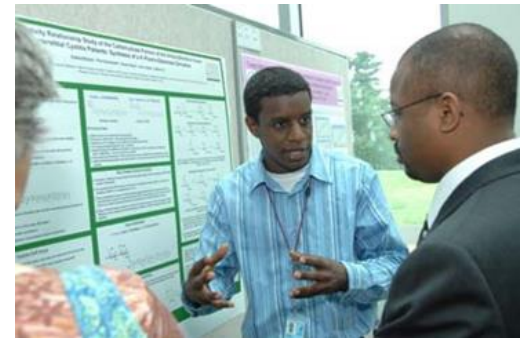


OF ENGINEERING GRADS PARTICIPATE
IN EXPERIENTIAL LEARNING.

University of Akron engineering students gain valuable experience in their field while earning their degree. And it's the kind of experience that gets results – 96% job placement at graduation with average starting salary of more than \$62,000!

Student Support

- Women in Engineering Program (WIE)
- Increasing Diversity in Engineering Academics (IDEAS)
- Freshman study tables
- Engineering Tutoring Program
- Full-time Freshman Academic Advisor
- All students in the College of Engineering have a faculty advisor
- Living Communities (WIE, MIE)



The University of Akron – College of Engineering

Engineering Scholarships

- The College offered almost 400 scholarships for 2017-18.
- One online application for next year, 2018-2019, opening October 1st and **due January 5th**.
- Submit an application this fall at www.uaengineeringscholarships.com



Take away message

- The most cited rankings are from U.S. News and are based **solely** on peer evaluations – the subjective opinions of deans and senior faculty.
- Using actual metrics to evaluate undergraduate engineering programs, you might consider
 - How students perform in the things engineers do, such as those captured by the student design teams (design, budget, build, compete)
 - The rate of employment after graduation

*Using these more relevant metrics, **The University of Akron has a top-tier engineering program ... in your own backyard.***

*Thank you for your interest in
The University of Akron's
College of Engineering*

www.uakron.edu/engineering
www.uakron.edu/futureengineer



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The
University
of Akron