

CAMPS COMPETITIONS and Cool Web Sites!

Check out these sites for more information about summer engineering camps, engineering competitions for high school kids, and web-based activities that will bring out the engineer in you!

American Society for Engineering Education
www.asee.org/precollege

American Society of Mechanical Engineers
www.asme.org/educate/k12

Discover Engineering On-line
www.discoverengineering.org

Get Tech
www.gettech.org

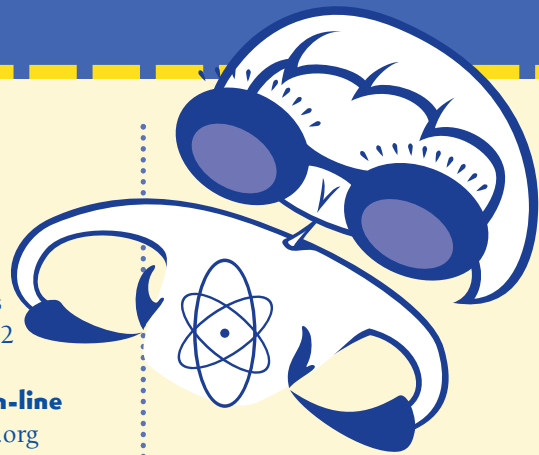
NASA for Kids
www.nasa.gov/kids.html

National Engineers Week
www.eweek.org

National Academy of Engineering Celebration of Women
www.nae.edu/cwe

Try Science
www.tryscience.org

Women in Engineering
www.wieo.org



School Selection 101

You've talked to guidance counselors and neighbors who are engineers. You've studied the "best college" magazines and college guides, visited campuses and done taste tests at the dining halls. Now, what's left to help you discern which of the engineering schools is right for you? Well, here are some tips and questions to ask to help you decide which school is the best fit.

- 1 Career placement:** What industry recruiters come to this school? What percentage of graduates finds jobs within the first six months of graduation? What's the median salary for engineering graduates, by discipline? Is there an ongoing job counseling and placement service available even after graduation?
- 2 Academic support:** What is the retention rate for the engineering school? What's the retention rate for women? For people of color? Are

there tutoring services available? Is there a charge? Is there online help? In-person help? What's the availability of faculty advisors? Does the school have mentoring programs? Does it have a Women in Engineering and Science (WISE) program? A Minorities in Engineering program (MEP)? What if I want to switch majors? What percentage of engineering students graduate within four years? Within five years?

- 3 What's the percentage of women** in the undergraduate program? Of people of color? What's the percentage of women on the engineering faculty?
- 4 Extracurricular opportunities:** What percentage of engineering students participates in sports and intramural programs or are active in campus clubs? Are there student chapters of engineering societies, like SWE (Society of Women Engineers) on campus?
- 5 Work experience:** Are there cooperative education and internship programs available? What companies participate? What percentage of students get job offers from their co-op or internship companies?

ACKNOWLEDGEMENTS

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Special thanks to the following organizations for background information, ideas and facts about engineering.

- IBM Women in Technology
- Educational Development Center:
- Center for Children and Technology,
- Get Tech!, Discover Engineering!,
- How Stuff Works, TryScience.org
- American Society for Engineering Education, American Society of Mechanical Engineers
- National Academy of Engineering
- National Engineers Week
- Society of Women Engineers

WEPAN Administration Center
Lore-El Center
Stevens Institute of Technology
Castle Point on Hudson
Hoboken, NJ 07030
www.wepan.org



CONNECTIONS

11TH
AND 12TH
GRADES

CONNECTING STUDENTS TO THE WORLD OF ENGINEERING

Improving People's Lives

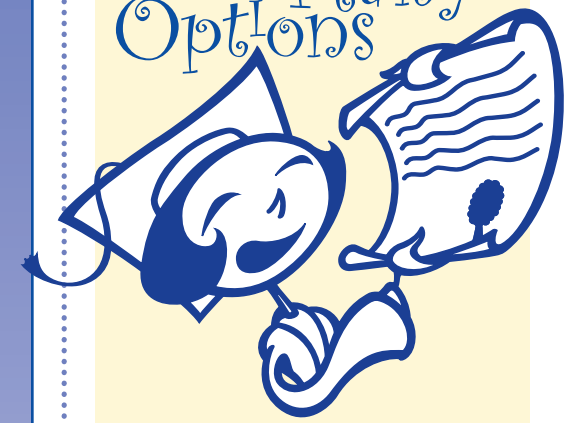
Engineering empowers people to solve all types of problems in a wide range of fields. Engineers design new kinds of sports equipment to give players an extra edge while keeping them safe from injury, and provide more "family time" by developing "smart" appliances that save time on housework.

Engineers help developing nations create a safe water supply, develop new technologies to ensure the privacy of those who use the Internet, and create new drugs and materials that help bones heal faster. One of our nation's biggest challenges that engineers are addressing is the development and implementation of equipment and technologies to keep our nation secure.

And what about those challenges that lie ahead for you? One of the challenges you're currently facing is making the best choices – in your coursework, your extracurricular activities, and your college selection process – to create a path to the future you desire, one in which you can be a key player in solving some of the world's pressing problems.

Connections is a newsletter to help you learn more about exciting and rewarding career options in engineering. We hope it will help explain what engineers really do, how they make a difference in the world, and what you can do to prepare yourself now, if this is a field you'd like to explore in a few years.

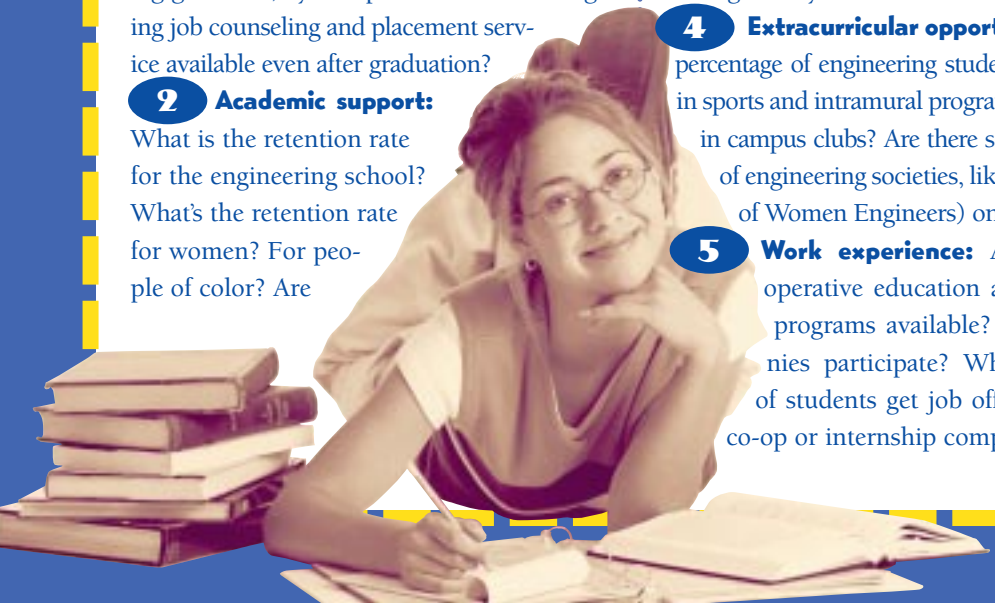
Engineering Degrees Offer Many Options



Think you might be good at engineering, but not so sure a career in industry is right for you? Don't rule out engineering just yet! An engineering degree can be the first step to a wide variety of careers because the study of engineering builds problem-solving skills that are highly valuable to professionals in any line of work. Mary Ameen, a civil engineer with a law degree and an MBA (masters in business administration), explains: "Engineering courses teach you to think and to apply this process to solving problems. This type of logical thinking is helpful not only to technical problems but in management and other areas, as well."

A career in management is an obvious transition for many engineers. After working as an engineer for twelve years, Kim Keller recently became a project manager at Johnson & Johnson. She believes

Continued on page 2



MANY OPTIONS



Continued from page 1

that she would not be in her current position if not for her experience as an engineer. "You must understand the technical aspects of the industry to pursue the business side. Today, companies are realizing the benefits of an engineering degree because it is more than just a degree - it is a thought process and a way of approaching problems," Keller said.

The fields of medicine and law are also excellent career paths

for engineers. An undergraduate degree in chemical or biomedical engineering provides the strong foundation in the sciences that is necessary for entrance into medical or dental school. While the analytical preparation received through an engineering degree is an asset for any lawyer, patent law, which involves protecting the rights of people who invent or create new things, actually requires a background in a technical field.

Considering that most people will change their careers at least 3-4 times during their lifetime, it is important to have as many options to choose from as possible. If you're still not convinced that a technical degree offers a great deal of career flexibility, check out the list below for even more examples of career opportunities for engineers:

the Hot List

Here are some of the many career options that are open to a college graduate with an engineering degree:

F.B.I. Special Agent	Environmental Consultant
Lawyer	College Administrator
Veterinarian	Financial Analyst
Doctor	International Business Consultant
Dentist	Marketing Director
Technical Writer	Project Manager
Museum Curator	Sales Manager
Professor/Teacher	U.S. Military Officer
Video Game Designer	Urban/Regional Planner
Webmaster	

For more information about engineering fields and alternative careers for engineers, see *Is There an Engineer Inside You? A Comprehensive Guide to Career Decisions in Engineering* by Celeste Baine (Bonamy Publishing, 1998).

LESIA CRUMPTON-YOUNG

Lesia Crumpton-Young is an associate dean of engineering and faculty member at Mississippi State University (MSU). A Texas A&M graduate, Lesia directs a laboratory at MSU that researches the use of virtual reality and computer simulation in ergonomics. Ergonomics is an engineering field that focuses on designing equipment and work or living space to fit characteristics of people to help reduce injury and increase productivity. Redesigning the workplace for disabled persons, and designing equipment such as computer keyboards to prevent and control Carpal Tunnel Syndrome, a painful hand disorder, are major areas of Lesia's research.



“Working at a university allows me to conduct research, work with students and teach...all things that I love to do. Solving ergonomics design problems is particularly rewarding to me because people spend a great deal of time at work and they deserve to work pain free!”

LOREND A WARD

Lorenda Ward is a structures aerospace engineer at the National Transportation Safety Board where she is part of a team investigating major aircraft accidents. She is currently working on both the EgyptAir flight 990 and AlaskaAir flight 261. When she is on the "Go-Team," Lorenda must be able to travel within two hours after notification of an accident. At the accident, she serves as the on-site commander, where she must restrict access to the wreckage, ensure that the accident site is well secured, and maintain the proper safety precautions throughout the investigation. She may assist in locating and retrieving the cockpit voice



“I chose aerospace engineering because I have always loved airplanes. That is why I have my private pilot's license.”

MARJOLEIN C. H. VAN DER MEULEN

As an assistant professor of Mechanical and Aerospace Engineering at Cornell University, Marjolein C. H. Van der Meulen hopes "to make a difference and contribute back to society." In addition to teaching, she conducts re-

PIONEERS & Problem-solvers



search in orthopedic biomechanics, where she focuses on understanding the role of mechanical loading in bone growth, development, and adaptation. Key questions in her research are motivated by medical and biological problems such as osteoporosis.

When I went to college, engineering seemed interesting-but so did science and medicine. Orthopedic biomechanics combines all of these fields.”



“My dad really steered me towards engineering, and I became interested in biomechanics during high school when I saw a 60 Minutes segment on helping paraplegics regain walking skills. I majored in mechanical engineering, which has many applications in medicine. Application of engineering principles to the human body has fascinated me since high school.”

MAGALY SPECTOR

Magaly Spector arrived in the U.S. with her family and a degree in physics from Havana University in 1980. One year later, Bell Lab-

oratories hired Magaly as a member of the senior technical staff. When her son was only four months old, Magaly enrolled at Lehigh University to pursue a master's degree in electrical engineering and a doctorate degree in physics. Magaly is currently a researcher at Bell Labs, the research and development arm of Lucent Technologies. She has received many patents for her work in the area of fiber-optic communication. The systems Magaly develops are responsible for high-speed Internet access and clear telephone calls throughout the world that we all enjoy.

“I feel I am working at the leading edge of technology. I know that the work I do will make a big difference in people's lives. Using my mind to create the world of the future is very exciting.”



SANDRA BEGAY-CAMPBELL

Sandra Begay-Campbell is a member of the Navajo Nation and an engineer at Sandia National Laboratories. Sandra manages Sandia's Native American solar energy program, which helps Native American tribes use the sun's energy to generate electricity. Solar energy enables the tribes to install the electrical power they need for preserving traditions, encouraging and maintaining independence, creating jobs, choosing lifestyles and caring for the earth.



“My parents were strong role models and mentors for me. As a tribal leader, my father showed me that I needed to use my skills to assist other American Indians. My mother guided me as a working woman and mother. I chose engineering because I was very interested in architecture, but I knew I was not an artist. I did enjoy math and solving problems so I attended a program as a high school junior that introduced me to engineering. I discovered that civil engineers combined all of my interests.”

Just the FAQs: THE TOP 10

QUESTIONS ABOUT ENGINEERING

1. What do engineers do?
2. What hours do they work?
3. How long do they have to go to school?
4. What kind of grades do I need in high school to get into a good engineering school?
5. What are the different fields of engineering?
6. What is the career outlook for engineers?
7. How open is engineering to women and people of color?
8. How do I know if I'm "engineer material?"
9. How does engineering help people and society?
10. How can I learn more about engineering?

Take a tour of some of these web sites to find answers to these frequently-asked questions about engineering:

www.asee.org/precollege
www.swe.org
www.nae.edu
www.asme.org/educate/k12