Encouraging Young Women to Explore Engineering

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While there are an equal number of females as males enrolled in law school and medical school, women comprise only 20% of total undergraduate enrollment in engineering programs at the college level (The 2002 NSF WMPD Report).

This reality can in part be traced to the negative stereotypes about engineering that women commonly hear while growing up, and to the lack of exposure that many high school students have to the field of engineering in general.

The MIT Women’s Initiative program seeks to increase the number of women enrolled in engineering majors by educating middle and high school girls nationwide through presentations made by MIT women students.

The Women’s Initiative program emphasizes the importance of creating personalized interactions between school-aged women and college women. School-aged students can identify more closely with college students than with college recruiters and industry professionals. The enthusiasm shown by MIT women reveals a new and different side of engineering to younger girls.

One teacher in Massachusetts wrote, "There is a definite need to encourage women to enter these fields. Young women need to know that anything is possible and need to have role models to reinforce that idea... you certainly have met those needs."
Goals and Objectives

Our primary objectives are to...

- **Encourage** school aged girls to pursue studies and careers in engineering.
- **Empower** and **motivate** high school girls to take the most challenging math and science courses in high school.
- **Expose** students to the field of engineering and **challenge** its common stereotypes.
- **Educate** and **share** experiences with other institutions and groups who wish to start similar programs.

Last year, we visited nearly 20 high schools and one middle school in Los Angeles, CA, Charleston, SC, and Washington D.C. In just one week, our presenters reached more than 1,500 students and teachers.

One girl in Texas taking advanced math classes wrote, "I was intimidated by the computer science field because of all the math and science involved... I am much more informed now and definitely more interested. You make it seem much easier to accomplish!"
The Presentations

Our presentations, ranging from 60-90 minutes, are all unique, as each pair of presenters works together to decide the best approach. However, all presentations share the same common goals, which are to:

- **Describe** what engineering actually is.
- **Show** that the world around us is filled with the products of engineers.
- **Discuss** and **destroy** widespread, negative stereotypes that surrounds the engineering field.
- **Illustrate** why engineering can be a **rewarding career**.
- **Explain** how an engineering degree can lead to **further education** (law, medicine, business, graduate school) and also careers in various other fields.
- **Inform** students about local engineering programs (summer programs, engineering schools in the area)
- **Include** the students and demonstrate that engineering is all about **teamwork**. Every presentation involves a **fun team activity** related to engineering, such as building the strongest bridge out of index cards or making towers out of toothpicks and marshmallows.
- **Connect** with the students by sharing **personal experiences** of being an engineering student.

A teacher at Central Kitsap HS wrote, “I’m glad you’re doing this! It helps students to see the uses of their studies and provides motivation!... The two women presenters worked very well together... Students paid close attention to them.”
Positive Reactions

“I am intimidated by the computer science field because of all the math and science involved... I am much more informed now and definitely more interested. You make it seem much easier to accomplish!”

- Student in Texas

Students from Wando High School in Charleston, South Carolina said:

“Engineering class is a lot different from the engineering explained today and it makes it seem a lot more interesting!”

“It’s interesting—I learned that I’m terrible at math but I like to solve problems, so it might be for me.”

“I thought [engineering] was either nerdy or the ‘construction guy’ stereotype.”

“I sort-of thought engineering was a boring job that guys did where they would use wood and build things.” After the presentation: “I realized that anyone can be an engineer and you have to apply your math and science knowledge to real-life situations.”

“Engineers practically make the world go around.”
A Senior at Central Kitsap HS wrote that before the presentation, “Engineering] sounded interesting, but somewhat nerdy or boring.” After the presentation she said, “It sounds much more like a team environment with collaboration and interesting ideas.”

The Stars of the Program: Our Presenters

“My favorite part of the program was providing examples of the variety of things that engineers do. We spoke with lots of smart, talented girls who had never considered going into engineering because they simply had no idea what it was. They really responded to the different projects we presented, and we could see them re-evaluating their possibilities for the future.”

- Rachel Pytel, PhD Candidate
  Materials Science & Engineering

“I knew this program was going to make a huge difference when one of the students told me that before the presentation she had thought that "engineering is a dirty job for men." Showing the students photographs of women engineers made the students realize that women can be engineers and that there are many different types of engineers!”

- Anna Michel, PhD Candidate
  Ocean Engineering

“Having the opportunity to talk with students from my old school district was a rewarding experience. I loved sharing the projects I was working on and showing the students that a career in engineering can be both practical and exciting.”

- Victoria Qian Liu, Undergraduate
  Electrical Engineering & Computer Science
Dear Potential Sponsor,

One of the most amazing aspect of our program is that we offer our presentations free of charge to any school district in the nation that applies. Although this allows us to reach even the most economically disadvantaged areas, it also means that we must rely on generous donations from sponsors to finance the traveling costs.

Being a sponsor entails several benefits. At the end of the academic year, all sponsors will receive a report containing pictures and information from the presentations. Sponsors are also invited to come meet our presenters during our meetings at MIT. In addition, for sponsors who donate a significant amount, we will use a portion of the donation to fund trips to areas where the sponsor has branches.

Most of all, we believe that the most rewarding aspect of being a sponsor is knowing that you are helping to educate hundreds of women students around the nation about engineering. We hope you will join us to support this worthwhile endeavor.

Thank you,
Grace, Vicky, and Anna

For more information on becoming a sponsor, visit our website at http://hkn.mit.edu/wi/sponsors. If you have any questions or concerns, contact us at wi-directors@mit.edu.