

December 2008; Issue #71

## TOPIC: ABET: Choosing Accredited Universities

In this issue, you'll find the tools to help your students explore...assess...and experience engineering! From a look into the world of Daina Briedis, a chemical engineer and her work with ABET (Accreditation Board for Engineering and Technology) to enjoying a hands-on activity where students will explore the considerations required when designing a new power plant. Students will recognize first-hand how engineering is all around them. Enjoy!

### EXPLORE...

Find your dream job, meet extreme engineers, watch videos

## What Do Engineers Do?

### How Do I Pick the Right College or University?

With more than 300 universities offering engineering programs, picking the right one may seem like a daunting task. Accredited engineering programs are offered in every state in the country with a selection of majors offered at each university. Engineering programs are accredited by ABET, Inc., a non-profit institution that evaluates programs to ensure they meet quality standards needed to prepare students to enter the profession. The ABET Web site—[www.abet.org](http://www.abet.org)—provides a searchable database of engineering programs by discipline, region, and state.

### What's Important to Me?

Determine the factors most important to you in choosing an engineering program. The following is a list that may be important to consider in finding the right college or university for you:

- Engineering discipline
- Distance from home
- Financial constraints—public vs. private, instate vs. out of state, or the need to secure a scholarship
- College selectivity—finding the right academic fit based on your SAT scores and academic record
- Availability of co-op or intern programs
- Size of institution, class size, and approach to learning
- Other offerings—sports and other campus activities, military academy
- Campus facilities—including student housing, food, and recreational facilities
- Setting—urban, suburban, or rural
- Regional differences

### Picking an Engineering Discipline

While it may be an advantage to select an engineering discipline going into college, it's not critical. Most engineering programs expose you to a wide range of engineering topics your first two years. In addition, programs such as chemical, civil, mechanical, and electrical engineering—the big four—are very broad and give you access to a vast array of career choices. If there are three or four engineering areas you are interested in, particularly if they are not widely offered, it might be wise to select a university that offers each of them. It's OK if you're not sure what you want to do, but do a lot of exploring. If you can't do that within your coursework, do it outside of your classes—whether it's through volunteering or jobs. The most important thing to do is follow your interests. It's easy to think that there is a road map, but most often the things you do that are unique and different from everyone else end up defining your success. Volunteer and get involved in things outside of class, and don't be afraid to take risks. For more tip on how to "Make it Happen", visit <http://www.jets.prg/explore/make.cfm>

## Extreme Engineer: Daina Briedis

### What She Does

Daina is an Associate Professor in the Department of Chemical Engineering at Michigan State University. In addition she volunteers as an ABET (*Accreditation Board for Engineering and Technology*) evaluator which evaluates colleges and universities for accreditation in the field of engineering. Once accredited, these schools are reevaluated every six years. Daina also finds time consulting with schools that are striving for the ABET accreditation. To learn more about ABET and why selecting an accredited school is important in your college/university search, go to [www.abet.org](http://www.abet.org).

### Making a Difference

Diana makes a difference by constructing ways to creatively interact and teach her students at Michigan State University. In addition, her work as an ABET evaluator enables her to assist colleges and universities to achieve higher qualities of education for future students. Graduating from an accredited program signifies adequate preparation for entry into the engineering profession. In fact, many employers require graduation from an accredited program as a minimum qualification.

### Why Engineering?

In the summer between high school and college Daina worked as a summer intern at Astronomical Corporation of America where flight instruments were designed. It was here that she developed a love of taking data and turning it into something viable and seeing the end result. Another factor was that her father was also an engineer!

### Advice

Daina has great advice for high school student entering the engineering college curriculum. She believes that it's important to work hard and learn to work together with peer groups. She also points out that it's vital to get to know the faculty at your school and know that the professors are there to help and talk if needed.

### Hobbies/Free Time

In her free time Daina loves to play the piano, cross country ski, kayak, water ski, sew and read. She also loves to watch her two daughter's sports activities (one's a sophomore in HS and the other a sophomore in college). Daina is also very involved in her church.

### Education

Daina attended high School at Whitnall in Greenfield WI. It was here that she was involved in the school's math club where students often participated in math competitions. She also enjoyed her advanced chemistry classes and had excellent instructors in both areas. After high school she finished her undergraduate work at the University for Wisconsin. Her graduate work was completed at Iowa State in Ames IA for chemical engineering.

**ASSESS...**

Find your strengths, prepare for the future

### PathAssess NOW Available!

Discover how your interests today can become your dream career of tomorrow!

The JETS PathAssess™ is an online tool that gives students in grades 9-12 an inside look as to how their interests and skills can align with a career in engineering.

Through a series of demographic and interest inventory questions, students will receive a personalized profile that gives them a glimpse into the types of engineering careers they may wish to pursue. Go to [www.jets.org/assess](http://www.jets.org/assess) to learn more.

## EXPERIENCE...

Get active and unlock the mysteries of engineering

### Hand-On Activity



## Rolling Blackouts & Environmental Impact — What are our Electricity Options?

Grade Level: **11 (11-12)**

Group Size: **2**

Time Required: **80 minutes in 2 parts**

In this month's activity, [Rolling Blackouts and Environmental Impact](#), students explore the environmental considerations required when designing a new power plant to increase electricity generation capacity. The electric power that we use every day at home and at work is generated by a variety of power plants. Power plants are engineered to utilize the conversion of one form of energy to another. The main components of a power plant are an input source of energy that is used to turn large turbines, and a method to convert the turbine rotation into electricity. The input sources of energy include fossil fuels (coal, natural gas, and oil) wind, water, nuclear materials, and refuse. This activity asks students to research how much energy can be converted to electricity from many of these input sources in order to determine what the best new power plant for their town would be. They also consider the impact of the by-products associated with using these natural resources, and examine electricity requirements for their towns. To do this the students will research and evaluate the electricity needs of their community, the available local resources for generating electricity, and the impact of using those resources.

In the United States, the Accreditation Board for Engineering and Technology (ABET) provides accreditation for engineering programs to ensure they all meet an established level of quality standards. For information on [ABET](#) accredited institutions, visit the [Accreditation and Curricula](#) page on the Engineering Pathway. ABET has an [accredited programs search database](#) on their website.

The American Society of Engineering Education (ASEE) [Engineering K12 Center](#) provides a few additional resources for students exploring engineering at the college level including information on careers in [The Engineering Alphabet](#), information on [finding the right school](#), and an [engineering college search database](#).

The [Engineering Pathway](#) Portal to the National Science Digital Library (NSDL) brings together quality engineering education materials for from all over the internet allowing teachers to search all of these documents in a single location. Each month during the year in the Pre-Engineering Times, the Engineering Pathway highlights one or more engineering activities available on the collection related to the month's theme. This month's activity is from the [TeachEngineering Digital Library](#), which is a part of the Engineering Pathway.

### JETS Challenge



Each Friday JETS posts a new challenge question. Use these challenges to warm up for TEAMS or NEDC competition, in your classroom for extra credit, or at an engineering club meeting.

#### ***This Week's Challenge:***

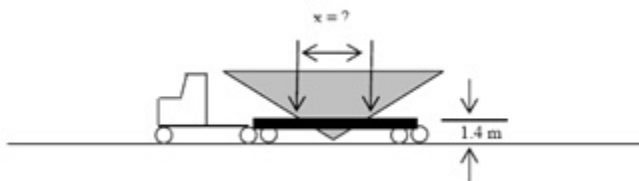
#### ***Challenge 116 — Roof Truss Transportation***

Click here to <http://www.jets.org/programs/challenge/Question-challenge116.pdf> to download a printable version.

Go to Roof trusses (8 m long x 2.5 m high) are being hauled upside down on a stretch truck frame. A minimum of 0.6 m clearance to the ground is required.



The Challenge: How far apart (meters) are the lower support frames mounted 1.4 m above the ground?



**Submitting Answers to JETS**

E-mail your answer to JETS at [challenge@jets.org](mailto:challenge@jets.org) and enter 'Challenge xx' in the subject line. NOTE: Only those submissions with 'Challenge 84' (enter the actual week's challenge number) in the subject line will be considered for the monthly drawing.

JETS, Inc. – 1420 King Street, Suite 404 – Alexandria, VA 22314 – P: 703-548-5387 – E: [info@jets.org](mailto:info@jets.org) – [www.jets.org](http://www.jets.org)