SWENext Newsletter - 9-12

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What is Materials Engineering?

Materials Engineering is the discipline that develops new and innovative materials with combinations of mechanical, chemical, and electrical properties. Materials Engineers are on the cutting edge of technology in virtually every field. Metals, plastics, ceramics, super- and semiconductors are some advancements in materials that were created by Materials Engineers. Materials Engineering is multidisciplinary. They are needed in the aerospace, automotive, environmental and healthcare industries.

Learn more about Materials Engineering!

Day in the Life of a Materials Engineer

Paula is a Materials Engineer who works as a Principal Multi-Disciplined Engineer for Raytheon Missile Systems. Find out how she got there, the type of projects she's working on, and how you can #BeThatEngineer on SWE's ***All Together*** Blog.

Celebrate Women's History Month

March is Women's History Month, an annual celebration of achievements of women

and their central role within US/ global history. The following feature details the accomplishments of a few female engineers.

Pilar Careaga

Pilar Careaga was the first woman to earn an engineering degree in Spain in 1929 and the first woman in Spain to conduct a train. After completing her degree in Industrial Engineering, she moved into politics and became the first woman to be mayor of Bilbao, serving the city for eight years.

Nora Stanton

In 1905, **Nora Stanton** was the first female member of the American Society of Civil Engineers (ASCE). That same year, she was the first woman to graduate from Cornell University with a degree in Civil Engineering.

Following her mother's and grandmother's footsteps, Nora also became active in the women's suffrage movement. In ASCE, she was only a junior member and was not allowed to become an associate member solely because of her gender. In 1916, she sued ASCE for refusing to advance her membership, even though she met all requirements. She lost, and no woman became a full ASCE member for a decade. In 2015, she was posthumously advanced to ASCE Fellow status.

Irmgard Flügge-Lotz

Irmgard Flügge-Lotz was Stanford University's first female full professor in engineering in 1961. She was the only woman in many of her classes as an Applied Mathematics major. As a pioneer in aviation theory, she made significant advancements in developing methods for predicting the aerodynamic pressures on bodies, wings and turbine blades.

In 1970, she received the Achievement award from SWE and was elected as a Fellow of the American Institute of Aeronautics and Astronautics.

Donna Riley

Dr. Donna Riley is the Head of the School of Engineering Education at Purdue University. She earned a B.S.E. in Chemical Engineering from Princeton University and a PhD from Carnegie Mellon University in Engineering and Public Policy.

She was a founding faculty member of the Picker Engineering Program at Smith College, the first engineering program at a U.S. women's college. She received the 2010 Educator of the Year award from the National Organization of Gay and Lesbian Scientists and Technical Professionals (NOGLSTP) and currently serves on the ASEE Diversity Committee.

Tips for Scholarship Writing

March is a great time to get started on your college scholarship search. There are numerous engineering-specific, local and national scholarships incoming freshmen can apply for. Here are four tips to help you write winning scholarship applications!

1. *Apply to the Right Scholarship*
   There are many scholarships to apply to—you just need to find them. However, the key is to find a scholarship that best suits your desired field of study and passions. For instance, if you want to pursue an Environmental Engineering degree or have volunteered in a green-initiative, you will have a better chance obtaining scholarships that award environmental work or are funded by environmental-conscious foundations. Applying to local or smaller scholarships will give you a better chance also!
2. *Play to Your Strengths*
   After deciding the right scholarship to apply for, you should play to your strengths when constructing your scholarship application. Everything within your application should highlight your strengths as an applicant for that particular scholarship including supplemental materials. Most scholarship websites have a FAQ or description of candidates that the sponsors are looking for. Make sure to position your application to highlight the appropriate strengths.
3. *Write a Killer Essay*
   A large part of your time and energy should be devoted to writing a killer essay. Many scholarship applications require an essay that scholarship reviewers will rely on when selecting a scholarship winner. Most providers are very specific in their length and format requirements; if you do not adhere to the guidelines, your essay will be disqualified. The key to writing a killer essay is to know your audience and what they want to read. This will immediately set you apart from the students who didn't bother doing the preliminary research. Always read the rules and requirements thoroughly and answer each part of the essay question to the best of your ability using examples, evidence and supplemental material to strengthen your argument and position.

4. *Polish Your Application*
   The most useful and often overlooked writing strategy is polishing your application by paying attention to detail. From making note of application deadlines and formatting essays, paying attention to details can make the difference between a winning scholarship application and rejection. Spelling and grammatical errors may automatically disqualify you. Make sure to double-check your work and have a friend, teacher or parent edit your essay/application.

How to Start a SWENext Club

Want to get together with other students to discover how AWESOME engineering is? Start a SWENext Club at your school or in your community! Check out the **SWENext 101 Guide** to learn how.

To register a SWENext Club, you must have a SWE member as a SWE Counselor/ Advisor. Your teacher can serve as an advisor by joining SWE for a reduced rate as an **Educator Member**. OR reach out to swenextclubs@swe.org to find out how to contact SWE members near you.

Ready to start a club? **Sign up here.**

Are you Award Worthy? – Apply Now

Do you live near **Des Moines**? Are you willing to travel to Des Moines with your friends in mid-April? If so, read on!

We are excited to announce the 2020 SWENext Awards.

The **SWENext STEM In Action Award** recognizes girls in **grades 6-12** who are actively interested in STEM and doing something in their community about it (for example, raising awareness, mentoring students, participating in SWENext, etc.).

STEM in Action Award recipients will attend the DesignLab event where they will meet women engineers, learn about careers in engineering, learn how to be a role model, and watch the DesignLab presentations. They will also receive a certificate during the awards ceremony.

Juniors and seniors who apply for the **STEM In Action Award** will have an opportunity to be deemed a **Local Innovator**. They will also attend the DesignLab event where they will receive a SWENext trophy and a mentoring session with a SWE member. To be considered for the Innovator award, juniors and seniors must submit a three-minute video with their STEM in Action application discussing their leadership and involvement in their STEM community.

Learn more and apply today!

The DesignLab Event in Des Moines will be held on April 18, 2020
STEM in Action Award Application Deadline: March 22, 2020 - **STEM in Action Application**

#SWENextChallenge - March Edition!

Tell us about a famous (or not so famous) woman in STEM who has inspired you. Share a picture of her!

To enter this month's challenge:

1. Make sure to follow @SWENext on Instagram (if you're not already!)
2. Post a photo or video to your account with a caption that explains your submission/answering the question.
3. Mention us (@SWENext) and use the hashtag #SWENextChallenge in your caption.

Make sure to post before the challenge ends on February 28th (12pm CT). Winner will be announced shortly thereafter!

Don't forget to follow our #SWENextMavens, Gabrielle (@stemmeetsgirl) and Shayne (@stem_shayneconner), who we hope will inspire you as you see their journeys as high school juniors in SWENext Clubs!

Check out Gabrielle every Monday and Friday! She will be posting highlights of starting her own SWENext club and topics like female engineering, girls competing in STEM competitions and starting a non-profit focused on girls in STEM.

Check out Shayne every other Wednesday! She will be posting highlights on her SWENext club and topics like college tips, scholarship tips, helpful software, robotics, challenges and women in STEM groups.

Remember, this is an opportunity to be a part of your SWENext e-community, so make sure you like, comment, and share!

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