


 The logo for SWENEXT, with 'swe' in a vertical blue font and 'NEXT' in a large, bold, blue font with a yellow horizontal bar through the 'E'.


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What is Chemical Engineering?

Chemical Engineering deals with designing processes to manufacture, transform and transport various materials. The first stages of process development usually begin with experimentation in the laboratory followed by implementation and the final execution of the technology in full-scale production.

Chemical Engineers can work in any industry, as many depend on the synthesis and processing of chemicals and materials. Some examples of industries that chemical engineers are in demand include aerospace, automotive, biotechnology, consumer products, electronics, energy/oil, environmental and medical/pharmaceuticals.

[Watch this video to learn more about Chemical Engineering.](#)

Day in the Life of a Chemical Engineer

Meet Rosa Rueda, a Chemical Engineer with BP. [Find out how she got there](#), the types of project she's working on, and how you can #BeThatEngineer on SWE's *All Together* Blog.



Engineer Your Halloween Costume!

Halloween is creeping up at the end of the month, along with costume parties, haunted houses and trick-or-treating. Many people design their own costumes to get ready for the festivities. Did you know costume design is part of Design Engineering within the textile industry? Engineers merge fashion with technology to create different materials and shapes of clothing.

Some examples of costumes using engineered materials come from the mind of “out-of-the-box” fashion designer [Hussein Chalayan](#). He is known for designing dresses that have light-up LEDs, garments made from aircraft components controlled by remote control, and even Lady Gaga’s bubble dress. [Click here for a tutorial of how to make the dress!](#)

Another trend in the costume/fashion industry is green clothing—clothing made from biodegradable, organic, sustainable, or recycled material. For example, the fashion company Patagonia uses recycled plastic bottles in their fleece jackets instead of down.

Fashion design has also been a passion for real-life engineers, such as [Dona Sarkar](#), head of Windows Insider Program at Microsoft and [Pavlina Akritas](#), Associate Lighting Designer at Arup. Dona uses her design skills from her Computer Engineering background to create her clothing designs. Pavlina takes a different approach in the fashion industry as she uses her Electrical Engineering background to create the correct lighting for fashion shows and photo shoots.

As you make your Halloween costume this year, use your engineering intuition—who knows, you might come up with a new fashion trend!

Unconscious Bias: What is it and How do we conquer it?

Unconscious bias is the stereotype that certain groups of people should act or tend to be a certain way. This bias can often lead to feelings of discouragement for girls pursuing an interest in the STEM fields or to different treatment of guys and girls in their math and science classes.

A common example of illustrating unconscious bias is the following:

A father and his son are involved in a terrible car crash, where the father does not make it. The son is sent to a nearby hospital to undergo surgery. Just when he is about to go under the knife, the surgeon says, “I cannot operate on this boy—as he is my son.”

How is this riddle possible? There could be various scenarios: the father who didn’t make it was a priest and the surgeon is his real father, or one father is the biological father and the other is a step father. However, the obvious answer could be missed by

many: that the surgeon was the boy's mother.

Just like in the riddle above, this gender bias is still true for women in the STEM field today. Although we've come a long way, many people naturally assume what roles men and women play in society, often making it difficult or discouraging for women to seek anything else. This is one of the reasons why women are still outnumbered in STEM fields.

The good news is that organizations like the Society of Women Engineers (SWE) and the Association for Women In Science are taking the initiative to combat unconscious bias and support women dealing with the bias.

Common techniques to conquer classroom and workplace bias is the following:

- Question your own assumptions.
- Analyze opportunities to change.
- Take a risk—get out of your comfort zone and try something new.
- Disrupt the Default by reaching out to different individuals.
- Speak out about the issues you are facing.
- Hold yourself and others accountable for their behaviors and self-reflections.

Read more about conquering unconscious bias:

- [Creating Equitable STEM Workplaces](#)
- [Fighting Implicit Bias in STEM with Increased Cognitive Control](#)
- [Project Implicit Test](#)—Identify your own unconscious biases.

2020 SWENext Awards Season – Apply Now

Do you live within a couple of hours of **San Diego, Buffalo or Des Moines**? Are you willing to travel to one of these cities early next year with your friends? If so, read on!

We are excited to announce the 2020 SWENext Awards and the DesignLab Community Engagement Challenge.

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 **STEM in Action: 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 involvement with STEM and what they are doing in their community.

These are rolling applications which means we will review your application and determine the award within two weeks of your application. Apply early so you can save your seat at the DesignLab event! Learn more and apply today!

The DesignLab Event in San Diego will be held on February 1, 2020.

STEM in Action Award Application Deadline: January 5, 2020 - [STEM in Action Application](#)

The DesignLab Event in Buffalo will be held on March 28, 2020.

STEM in Action Award Application Deadline: March 1, 2020 - [STEM in Action Application](#)

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](#)

The **DesignLab Community Engagement Challenge** will happen at the same time in the same cities as the STEM-in-Action Award. The Challenge asks **teams of high school students** to create a hands-on engineering activity for younger students that will help resolve a local issue. Teams who enter the challenge will gain experience with STEM outreach, project implementation and leadership.



The teams will present their proposal to a panel of women engineers at the **DesignLab Event for a chance to win \$1,000 to implement their project**. Winning teams then implement their project and create a video about it. The winner of the best project and video will **win an all-expense paid trip to SWE's annual conference, WE20, in New Orleans, Louisiana**.

The DesignLab Challenge provides students with:

- The opportunity to make an impact on your community using engineering.
- Serve as a role model and inspire the next generation of women in STEM.
- Engage with a woman engineer who will serve as the teams SWE Challenge Mentor to assist the team with program development and connect you to other SWE resources.

The first step is to let us know that you would like to enter the Challenge.

[Read the Proposal Brief Here.](#) This will give you an overall understanding of the challenge objectives and requirements.

Then, assemble your team and submit an Entry Form. Your team must consist of 5 to 15 high school students and one faculty member. At least 50% of your team must identify as female. Once an Entry Form is submitted, your team will be paired with a SWE Challenge Mentor. [Click here to view the Entry Form.](#)

The deadline to submit an entry form varies by site:

- San Diego's deadline: November 1, 2019
- Buffalo's deadline: January 12, 2020
- Des Moines' deadline: January 26, 2020

[Learn more about the DesignLab Challenge!](#)

If you have any questions, email swenext@swe.org.

Congratulations to the 2019 DesignLab Community Engagement Challenge Winner!

Congratulations to the 2019 DesignLab Community Engagement Challenge winner, Poway High School!

The community issue they chose to work on was to help elderly people feel less lonely. The solution they pursued was to spread happiness to elderly people which has been proven to help them feel less lonely.

The Outreach event they held with middle school girls involved making bookmarks, door hangers, memory boxes, and other things that could be given to elderly people to spread happiness. While making these items, the middle school girls learned about laser cutting, CAD and AutoDesk Inventor, 3-D printing and Electrical Engineering.



Congratulations to the Poway Team! See you in Anaheim at WE19!

[Watch the Poway DesignLab video here.](#)

The DesignLab Challenge runner-up was Team Chessie. The community challenge they chose was to find a way to minimize the fertilizer build-up in the Chesapeake Bay. The solution they came up with was to use semi-permeable gelatin



spheres that contain algae to filter the nutrients out of the water.

They traveled to four different elementary schools to do a hands-on activity with 385 4th and 5th graders. The students made their own gel. They were also given a take-home packet with environmentally friendly tips.

Congratulations to Team Chessie for the great impact you had on all of those kids!

[Watch the Team Chessie DesignLab video here.](#)

Become a SWENext Beat Reporter

Hi SWENexters!

Are you looking for a great opportunity to get involved within the SWENext network? We have an opportunity for you! Become a beat newsletter reporter and write articles that could be featured in the next newsletter.

The SWENext High School newsletter is sent to thousands of fellow SWENexters and their adult advocates around the country every month. Article topics can include Spotlight Features of your SWENext Group, fun STEM activities you did in class, an engineering related book review, or anything STEM-related.

If interested, please contact me, Eleonora Chakraborty via elesakura@gmail.com. Can't wait to read your articles!

#SWENextChallenge - October Edition!

A SWENext Club is a great way to share your love of science and engineering with other students like you. And it's a great way to get involved with the Society of Women Engineers as a high school student. If you would like to start a SWENext Club at your school or in your community, [learn more about SWENext Clubs here](#). Questions? Send them to swenext@swe.org.

This month's #SWENextChallenge is for those already in a SWENext Club.

Share a picture of your SWENext Club and tell us what you did at your first meeting.

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 own 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 October 28 (12pm CT). The winning SWENexter will be announced by October 31 and will receive a \$25 gift card.



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