

swe **NEXT**



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What is Electrical Engineering?

Electrical Engineering is the discipline that deals with designing and developing electrical systems and equipment. Electrical Engineers study and apply the concepts of electricity, electromagnetism, and electronics to both large and small-scale systems to process information and transmit energy. They work with all kinds of electronic devices and technologies, from the smallest pocket devices to large supercomputers, household appliances, lighting and wiring of buildings, telecommunication systems, electrical power stations and satellite communications.

[Learn more about Electrical Engineering!](#)

A Day in the Life of an Electrical/ Electronics Engineer

Kanika is an Electrical Engineer for John Deere India. 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 Black History Month

February is Black History Month, an annual celebration of achievements of African-Americans and their central role within US history. The following feature details the accomplishments of African-American female engineers and what engineering means to them.

Yvonne Young Clark

Yvonne Clark was the first woman to receive a Bachelor of Science degree in Mechanical Engineering at Howard University and a master's degree in Engineering Management from Vanderbilt University. Clark worked with NASA's Saturn V engines to identify hot spots and revitalize refrigerant technology through the Westinghouse's Defense and Space Center (now Northrop Grumman Electronic Systems). She was also a Fellow member of the Society of Women Engineers, starting in 1984. [Learn more about Clark here.](#)



Dr. Christine Darden

Dr. Christine Darden is an Aeronautical Engineer and mathematician who devoted much of her career to researching supersonic flight and sonic booms. In 1989, Darden was appointed as leader of the Sonic Boom Team, a subsidiary of the High Speed Research (HSR) Program within NASA. She also designed a computer program to simulate sonic booms. Darden was the first African-American woman at NASA's Langley

Research Center to be promoted into the Senior Executive Service, the top rank in the federal civil service. She is one of the researchers featured in the book *Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race*, by Margot Lee Shetterly. [Learn more about Darden here.](#)

Dr. Marian Croak

Dr. Marian Croak is currently the Vice President of Research and Development for Access Strategy and Emerging Markets at Google. Croak heads up projects to expand internet access to emerging markets and developing nations. One of these projects is Project Loon, an effort to extend high speed internet access to remote and rural regions via an array of balloons that will hover in the stratosphere. Before Google, Croak spent more than 30 years as an engineer at AT&T, where she led efforts to implement Internet Protocol (IP) technology into telephony and communications. She holds more than 130 patents



related to voice-over IP technology. [Learn more about Croak here.](#)

Meet More SWE Members!

- [Meet SWE Member Rebecca Mohilo - Electrical Engineer](#)
 - [Meet SWE Member Alexis Burns - Biomedical Engineer](#)
 - [Meet SWE Member Lorna Holt - Mechanical Engineer](#)
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E-week is Here!

Engineers Week is here! It will take place from February 16-22 this year. Beginning in 1903, the first Engineers Week was kicked off by the University of Missouri College of Engineering. The celebration was created as a tribute to Saint Patrick, who is considered the patron saint of engineers for his teachings in using lime mortar to build archways. In 1951, the National Society of Professional Engineers relaunched Engineers Week as a national celebration, choosing the week coinciding with President George Washington's birthday because he is considered to be America's first engineer!

There are many ways to participate in E-Week. The following is a list of engineering organizations that are sponsoring E-week programs:

- [National Society of Professional Engineers \(NSPE\)](#)
 - [American Society of Civil Engineers \(ASCE\)](#)
 - [STEM Expo in Chicago \(Wheaton\), IL](#)
 - [SWE E-Week Luncheon 2020 in Cleveland, OH](#)
 - [Engineers Week at the Perot Museum in Dallas, TX](#)
 - [Engineers Week Banquet in Newark, DE](#)
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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.](#)

Awards, Awards, Awards!

We love recognizing and celebrating our amazing SWENexters! Here are the SWENext award winners recognized in San Diego at the SWENext DesignLab event on February 1, 2020.

The **STEM in Action Award** recognizes girls in grades 6-12 who are actively interested in STEM and doing something in their community about it, such as participating in a SWENext Club, mentoring students or raising awareness of STEM. Here are the award winners.

Vanesha is in 8th grade. She created, initiated and helped lead the FIRST SheCodesArt workshop around website creation for 30 girls at Microsoft headquarters.



Audrey is in 9th grade. She founded [ai4girl.org](#), which is aimed at encouraging high school girls to get educated and involved in AI.

Jillian is in 9th grade. She has been involved for years in a variety of STEM-related endeavors including Vex Robotics Team, South Bay GEMS (Girls in Engineering, Math and Science) and uCode.

Emerson is in 10th grade. She is the secretary and treasurer of the SWENext Club at Patrick Henry High School. She is also the founder and President of (RIME) Represent in Math and Engineering.

Isabel is in 10th grade. She is involved in FIRST Robotics, organizing a First Lego League Qualifier at her high school, mentoring a FIRST Lego League Jr. team and with the SWENext Club at her school.

Kaavya is in 10th grade. She has competed in several STEM-related competitions including Science Olympiad, iGEM, and Technovation Challenge. She is in several STEM Clubs in high school including All Girls Stem Society, HOSA and Girls in Computer Science.

Madalyn is in 10th grade. She has been involved with FIRST for many years, mentored over 8 FLL teams, and mentoring FIRST Global Challenge Teams in Benin, Africa and Paraguay.

Anika is in 11th grade. She has participated in Technovation Challenge, Science Olympiad, FIRST Lego League, Microsoft DigiGirlz camp and SWE Envision.

Sara is in 11th grade. In addition to participating in FIRST and VEX Robotics competitions, she was the co-founder and co-president of the SWENext Club and NCWIT Club at her high school.

The **SWENext Local Innovator Award** recognizes the outstanding young women who are shaping the future by developing an engineering identity in themselves and others. Award recipients exemplify intellectual curiosity, enthusiasm and leadership in the STEM community. Here are the award winners.



Shayne Conner, a high school junior, has participated in over 50 events where she has presented to the public, taught youth and encouraged girls to consider STEM. She has over 600 hours of mentoring all-girls robotics teams.

Elaina Ashton, a high school senior, is the Chief Science Officer – STEM ambassador at her school and organizes the annual STEM night.

She is also co-founder of Education Empowers Inc., a nonprofit organization.

Emma Martz, a senior in high school, is the President of the SWENext Club at her high school. She founded GEARS (Girls Exploring Ambitions in Robotics and STEM) in order to encourage more girls to consider engineering.

Amber Stricklen, a high school senior, has been a team mentor for VEX JETS Robotics at Joe Walker Middle School and the head referee at the annual VEX Robotics Tournament since 9th grade. She also helped start a SWENext Club at her high school.

Congratulations to all of the award winners. We are so proud of you!

Are you Award Worthy? – Apply Now

Do you live within a couple of hours of **Buffalo or Des Moines**? Are you willing to travel to one of these cities with your friends? 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 Buffalo will be held on March 28, 2020.

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

The DesignLab Event in Des Moines will be held on April 18, 2020

[STEM in Action Award Application](#) Deadline: March 22, 2020

You Can Contribute to This Newsletter!

Want to contribute to the SWENext newsletter? If you've got an interesting story you want to share, you can write an article as a guest reporter! Just contact us with your idea at swenext@swe.org.

#SWENextChallenge - February Edition!

Who is your favorite teacher? Why? How do they inspire you? Take a picture with your teacher/their classroom and share!

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!





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swe.org | #BeThatEngineer