

UCSD StudentTECH 2020

Wearable Electronics for Today's Modern Tween

Sponsored by the San Diego Supercomputer Center,
University of California, San Diego

Be Stylin' in Wearable Electronics that are Absolutely Stunning!

Monday- Friday, July 20 - 24, 2020

Class meets on the campus of UC San Diego from 8:30 am - 3:00 pm

Course Overview:

How to design, construct, and program wearable electronic items such as wristbands, t-shirts and accessories. Learn how to safely install electronic circuits that light up on your command.

This course focuses on how design and produce programmable wearable items. Learn the fundamentals to safely install circuits on clothing items. Practice putting together code that will make the electronics light up and/or play music. This programming course combines fashion with fun! No prior coding skills needed.

What you can expect from this workshop:

- An introduction to using mini sensors and circuits
- Learn to program the circuits to follow rhythms and musical patterns
- Sew devices and fashion accessories into clothing in a safe and sturdy manner
- A working understanding computer programming that links to electronic devices
- Collaborate in teams to complete wearable projects

Class Structure and Learning Goals:

Each day includes follow-along instruction on how to use mini sensors and circuits that is followed with ample time for students to work individually or in teams so they can apply the concepts they learn in the class to their project. Students wrap up each day with a group reflection on what they have learned and share what they would like to learn the next day.

Prerequisites:

- Must be a current student in grades 6-8
- Have an interest in learning how to make programmable wearables
- Eager to ask questions, share ideas, and help others in the class
- No programming experience needed

Each day will consist of instruction and ample time for students to work on their own projects. Topics to be covered each day include:

Day 1:

- Presentation of sample wearables

- Safety procedures for making electronic wearables
- How wearables are used today
- Introduction to circuit design
- Brainstorm designs for wearables

Day 2:

- Follow along on connecting circuits
- How to embed wearable devices
- Programming time spans, loops, and interactive commands
- Compare code with other students

Day 3:

- Practice lighting up wearable devices
- Practice making devices play sounds
- Test wearables

Day 4:

- Refine wearables
- Make videos of wearables in action

Day 5:

- Wearable display and presentations
- Advanced projects you can do at home

About Programmable Wearables

Programmable Electronic Wearables are part of STEAM-based instruction that encompasses the areas of Science, Technology, Engineering, Art, and Mathematics. Creating wearables combines computer programming, circuit and sensory hardware, and collaborative learning to promote creativity and innovation in a fun and engaging way.

About Ruth Maas

Ruth Maas taught middle and high school computer science for nearly a decade. She has presented at numerous technology workshops and conferences. She teaches online courses in technology including topics such as artificial intelligence, the impact of social media on society, and computer programming.

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