

2018 Middle School Summer Engineering Technology Program

Girls Exploring Engineering

Week-long camp that provides girls in middle school the opportunity to learn about various engineering disciplines. Through peer mentoring by female college students the campers will learn about STEM concepts through a fun and exciting project-based curriculum, along with faculty discussions about current research. This camp will allow young girls to explore what engineering has to offer, while discovering a new way to see the world around them.

Day	Morning Session	Afternoon Session
Monday	<p>Overview of Electrical Engineering Activity: LED Friendship Bracelet</p> <p>Light up those warm nights at the beach or summer camp with this simple soft circuit bracelet. During this lesson, we will be introducing Professor Ghoraani's research in wearable sensors and how incorporating wearable sensors help identify mild cognitive impairment, such as Alzheimer and Parkinson's disease.</p>	<p>Overview of Electrical Engineering Activity: Test Wearable Motion Sensors</p> <p>It's not just about how many steps you've taken or how many calories you've burned in a day. Wearable fitness trackers and health monitors are becoming more commonplace and diverse, but just what do you do with all of that data? During this lesson, students will use sensors that track their activity and motion data. We'll be looking to synthesize that data and turn it into an experience.</p>
Tuesday	<p>Soldering Workshop Activity: Solder a Flashing LED Sweetheart</p> <p>Build up your soldering skills with this introductory, DIY electronic production kit. The Flashing LED Sweetheart soldering kit features 18 LEDs that form the shape of a heart. This tri colored heart uses transistors to create a sequential light pattern.</p>	<p>Overview of Biomedical Engineering Activity: Build Your Own Pulse Detector</p> <p>Taking your pulse is as simple as holding a finger to your neck or wrist and timing the beats with your watch. If you want to record the data or use it to trigger events, you need to turn that mechanical pulsing action into an electrical signal. Campers will use an Arduino to create a pulse sensor that fits over a fingertip and uses the amount of infrared light reflected by the blood circulating inside.</p>
Wednesday	<p>Field Trip to Modernizing Medicine</p> <p>Our mission is to "modernize medicine." We are achieving this by combining our Modmed® products and services with structured treatment and outcomes data from millions of patient encounters to give you not only top-rated tools but also in-depth nationwide medical knowledge to do what you do best: treat patients and improve healthcare.</p>	<p>Overview of Biomedical Engineering Activity: Make a Model of the Human Heart</p> <p>The heart is a muscular organ that pumps blood to different parts of the body through blood vessels. The human heart has 4 chambers: 2 atria and 2 ventricles. The atria are used to receive blood from the body and the ventricles pump blood to the body. During this lesson, campers will be making a mechanical model of the human heart & understand its importance with the circulatory system.</p>
Thursday	<p>Overview of Mechanical Engineering Activity: Line Tracker</p> <p>Have you ever wanted to create your own robot? Students will be able to build their own line tracking robot. Everything from positioning the gears to wiring the different components will be covered. This robot will be able to follow different paths created out of electrical tape.</p>	<p>Overview of Ocean Engineering Activity: Solar Powered Boats</p> <p>Join us on this day as we introduce the campers to the various engineering organizations that FAU has to offer. These clubs do everything from building racecars to bridges to submarines. Later, the campers will be introduced into different types of renewable energy. They will also design and create their own solar powered boats.</p>
Friday	<p>Overview of Civil Engineering Activity: Build a Bridge</p> <p>Bridges are monumental structures that need to be safe for the people who cross over them every day. Building a bridge that is safe and secure is a challenge to civil engineers. Campers will design and build their own bridge out of popsicle sticks and then compete against other campers to see whose bridge can support the most weight.</p>	<p>Overview of Geomatics Activity: GPS Scavenger Hunt</p> <p>Engineers often need to collaborate in order to solve complex problems. On this day, the campers will work in teams to compete in a scavenger hunt. They will need to follow a preprogrammed GPS in order to find the location of hidden objects and compete different tasks.</p>