Discover Engineering

Sponsored by Lola and George Aiken Fund

Workshop Descriptions

These workshops will run for 1 hour and are offered from **12:15 – 1:15 pm** and **1: 45 pm – 2: 45 pm**. During the transition break there will be snacks provided in Innovation Hall.

Learn to Code: Python
Python is a general-purpose, versatile, and powerful programming language. It's a great first language because it's concise and easy to read. Whatever you want to do, Python can do it. From web development to machine learning to data science, Python is the language for you. Come explore the Python language and create a personalized program that you can share with friends and family! Limit 15 *(geared for all grades)* *Important Note: participants will be required to bring their own computers.*

Step into a New Dimension! (double session)
Join us in the UVM FabLab to make digital fabrication projects with our laser cutter and 3D printers! Participants will learn laser cutting techniques used by college students in engineering, art, and architecture. We'll explore ways of creating designs with sustainable materials and how to optimize the use of 2D materials to build 3D objects. Limit 15 (*geared for grades 5-8 but all welcome*)

Build a Car with UVM's AERO!
Receive a hands-on introduction to engineering from UVM's Alternative Energy Racing Organization, a student-run club that designs and builds electric vehicles to compete at Formula Hybrid, an international collegiate competition! You will learn about the basics of electrical circuits and mechanical principles, then apply those concepts to create your own small-scale vehicle! Limit 15 (*geared for grades 5-8 but all welcome*)

Science and Art Unite! Photolithography "Sun Art" with GlobalFoundries
All you need is sunshine, water, and your creativity to make unique and beautiful art prints! In this activity you will work with GlobalFoundries (GF) engineers to learn the "photolithography" process like what GF uses in their semiconductor facility to make computer chips that power your cell phones, cars, and gaming consoles. You will combine your scientific and artistic skills using SunArt (light sensitive paper) to mimic the photolithography process. You will leave the session understanding this key process in semiconductor manufacturing and your very own work of art! Limit 15 *(geared for grades 5-7, but all welcome)*

Designing Bridges
Learn how bridges are designed from VTrans Bridge Design Engineers, a discipline that stems from Civil Engineering. We'll talk about key principles of designing bridges, forces that need to be resisted, and common shapes and materials used. All grades are welcome, we have a few levels of difficulty and participants can challenge themselves further depending how much weight they want their bridge to hold! Limit 30 *(geared for all grades)*

Precision Measurement and Metallurgy Presentation (double session)
Learn how to make 5 different precision measurements using a digital caliper and practice with a hands-on measurement exercise. You will also hear from Hazelett Materials Science Engineer Hale Tresselt as she explains the parts used in the exercise. Limit 12 *(geared for grades 8-10)*

Biomedical Engineering and Prosthetics
Learn how engineers design prosthetics and have fun making your own. Limit 20 *(geared for grades 5-8)*

Robot Olympics: Intro to Coding and Robotics
Program a robot to overcome challenges and to play games like "red light, green light". Learn basic coding with a simple-to-use block coding program. Add sensors to create obstacles and unique challenges for your robot. Limit 18 *(geared for all grades)*

Scouts BSA STEM Merit Badge Workshops
The BSA STEM Merit Badge workshops will run from 12 noon – 4:30 pm. Scouts can sign up for one workshop; see separate Scouts BSA information for workshop descriptions.