



# Discover Engineering

## Sponsored by Lola and George Aiken Fund

### Workshop Descriptions

These workshops will run for 1 hour and are offered from **12:30-2:30**. 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! *(all ages, limit 20)*

*Note: participants will be required to bring their own laptops.*

#### **Step into a New Dimension! 2D and 3D Fabrication at the UVM FabLab (double session)**

Join us in the UVM FabLab to create a custom fabrication project! Participants will learn about laser cutting, 3D printing, and design techniques used by college students in engineering, art, and architecture. We'll explore ways of creating 2D and 3D designs with various materials and machines. *(geared for grades 5-8, limit 15)*

#### **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. Participants will take what they learn and build a bridge out of paper that will hold weight. All grades are welcome; we have a few levels of difficulty and participants can challenge themselves further depending on how much weight they want their bridge to hold! *(all ages, limit 25)*

#### **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 and hybrid vehicles to compete at Formula Hybrid, an international collegiate competition! You will learn about the basics of electrical circuits, then apply those concepts to create your own snap circuits! *(geared for grades 5-8 but all welcome, limit 15)*

#### **Constructing Cartilage**

In this hands-on biomedical engineering workshop, students will make their own hydrogels in the BME teaching lab and explore how material stiffness affects performance. Participants will use a vertical tester to compare the strength and flexibility of different hydrogel samples just like real researchers studying cartilage and soft tissues. *(geared for grades 8-12, limit 15)*

#### **Bright Ideas: Hands-On Circuit Building**

In this workshop you will build a series of circuits using breadboards, wires, resistors, and most importantly LEDs! Learn about current flow, circuits diagrams, and try out other components too, such as motors, light sensors, and 555 timers. *(all ages, limit 20)*

#### **Discover the Power in Wind!**

Come explore making electricity! We will use the engineering and design process to make turbine blades and generate electricity. *(all ages, limit 25)*