

## **Level 3 Overview**

### **Woodshop: Intermediate (1 Session)**

Students will use all the professional wood shop machines while learning how to setup, adjust, use, and clean up the equipment. This class continues to build students skill and confidence with the equipment they learned in level 2, while introducing new machines such as the drill press, table router, and band saw.

### **Woodshop: Hardwood Vintage Skateboard (2 Sessions)**

Use professional woodshop tools to make a hardwood vintage-style longboard deck. Students will cut, plane, glue, shape, rout, sand, and assemble trucks and wheels.

### **Sheet Metal Tool Box (3 Sessions)**

Students will make a mockup and then design, cut, and rivet sheet metal together to make a handy toolbox for use in a shop. They will learn how to lay out a paper template, transfer their design onto sheet metal, bend it using a brake, Cleco fasten it together temporarily, and then rivet it permanently.

### **CAD Skills: Reverse Engineering Techniques (1 Session)**

Students will learn how to measure an existing machine part and determine critical dimensions for modeling in CAD software. This will include demonstrating measuring methods, measuring tools, such as rulers and calipers, and a refresher on how to create a new part model in Fusion 360. Students will learn about how parts fit together in an assembly and why tolerances are important to manufacturing. **If possible, students should bring their own PC or Mac laptops with Autodesk Fusion360 pre-installed.**

### **Arduino: Robotics (2 Sessions)**

Use Arduino controller with sensors and a servo motor to control a robotic 3D printed finger based on the In-Moov robot. Learn intermediate skills using Arduino IDE (Integrated Development Environment) and processing techniques for 3D printed parts. **If possible, students should bring their own PC or Mac based laptops with Arduino IDE software pre-installed.**

### **Welded Metal Sculpture (3 Sessions)**

Students will be challenged to use a variety of different metal parts to fabricate a metal sculpture. They will first design a paper mock-up in order to think through how parts are connected and to use as a template for cutting. Students may weld, rivet, bolt, or find unique ways to join metal.

\* Urban Workshop reserves the right to change class topics and the order the classes are taught without notice.