Level 4 Overview

Bluetooth Speaker (7 Sessions)

The goal of this project is to bring together multiple disciplines of making found in the shop into one project.

Woodworking: Students will use their skills and knowledge they have gained in the previous levels to make the wooden enclosure for the speaker using classical woodworking joinery and drilling precise holes for the electronic components.

Electronics: Students will learn about the engineering facts of each component in the Bluetooth speaker including: lithium ion batteries, single pole single throw switches, speakers, amplifiers and Bluetooth chips. These components will be assembled and mounted into the wooden enclosure.

Leather: Students will use the skills learned in the Leather working class to make their own leather handle that will be mounted to the wooden enclosure.

Metal Power Tools & Manufacturing Techniques (5 Sessions)

Students will learn the full arc of manufacturing metal parts from fabricating stock metal to a final product by making a complex MC Escher like metal frame called a Cube Knot.

Fabricating: Students will take raw metal and cut dozens of precise metal parts to their project and prepare them for the welding.

MIG Welding & Work Holding: Students will MIG weld their parts together to form the basic structure of the Cube Knot project. It will be tack welded temporarily, verify its accuracy and finally fully welded the project to finish.

Grinding Techniques: The welds will be ground away to make smooth flush faces using hand grinders, bench grinders, belt sanders and disc sanders.

Steel Tempering: Students will learn about steel tempering and other heat treatments to metal to improve certain qualities. Students will also learn how to change the color of the project using propane blow torches to blues, purples and oranges.

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