

Level 1 Overview

Hand Tools: BMX Bikes

Students will learn to use assorted hand tools including box wrenches, screw drivers, adjustable wrench, and a variety of pliers by disassembling and reassembling BMX bicycles.

Laser Etching

Students will be challenged to create a new design in CorelDraw or download a design from the internet and modify it for etching. Time will be provided to assemble the laser cut wood project. Projects may vary.

Arduino: Introduction to Physical Computing

A first step into the Arduino universe of physical computing. Students will learn about Arduino hardware, bread board, IDE, Jumper cables, and LED's. Students will complete activities to assemble breadboard circuits and write code to control LED lights. **If possible, students should bring their own PC/Mac laptop with Arduino IDE installed.**

CAD Skills: Introduction, Sketching, & 3D Printed Keychain

Students will be introduced to OnShape software for computer aided design. They will use OnShape to learn fundamental CAD modeling techniques including sketching and extruding. The students will then be challenged to design their own keychain for 3D printing. The 3D printed keychain may be used in the mold making class. **If possible, students should bring their own PC/Mac laptop, create an OnShape.com student account prior to class and bring their log in information with them.**

Hand Sewing (on-site only)

Students will learn the basics of hand stitching including laying out and measuring fabric, preparing needles and thread, reviewing types of stitches and hems, and sewing together materials to make a customized tool belt.

Sheet Metal Fabrication – Metal Marquee Star

Learn how to operate a spot welder to permanently attach the sheet metal star frame together.

DC Electronic Circuits – Metal Marquee Star

Wire up 5 LED's, a switch, and batteries to complete a DC electronic circuit and make the metal star light up. Install electronics in the metal star using wire strippers, crimpers, scissors, heat gun, soldering iron, and multi-meter.

Silk Screening: 2-Color T-Shirt

Learn to setup silk screen press with vinyl cut designs and silk screen shirts using 2 colors. Students will make their own 2-color Urban Workshop t-shirt to take home.

Vacuum Forming (on-site only)

Learn to use vacuum former to make a super hero. Learn about temperature, vacuum pressure, draft, draw depths, and part lines. Students will de-mold and, as time permits, learn special effects painting.

Silicone Molding: Open Face Mold

Learn the basics of silicone-based mold making. Students will explore advantages and disadvantages of various mold making materials. They will review things such as viscosity, durometer, pressure casting, vacuum degassing, and cure time.

Woodshop: Hand Tool Skills & Practice

Students will use woodshop hand tools including hand saws, hand drills, drill bits, files, sand paper, hammers, and chisels to learn fundamental woodworking skills.

Woodshop: Marshmallow Crossbow

Use hand tools to finish and fit prefabricated parts made on the CNC router to assemble a marshmallow crossbow

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