Level 2 Overview

Power Mechanics: 4 Cycle Engines
Disassemble and reassemble a lawn mower engine using assorted hand tools including a variety of wrenches and pliers. Students will learn the 4-stroke engine process and about the various engine components and processes.

CAD Skills: Intermediate Drawings & DXF for Laser Etching
Review drafting principles and create drawings of parts files provided to produce a manufacturable drawing. If possible, students should bring their own PC or Mac based laptops with Autodesk Fusion360 pre-installed.

Torches & Jewelry Making
Students will learn how to set a flat backed cabachon in a copper bezel to create a necklace. They will learn soldering techniques with a torch and get familiar with industry jewelry making tools.

Arduino: Sensors
This session will introduce more advanced use of inputs and outputs for use with a variety of sensors. Knowledge learned in this lesson lays the foundation for advanced control systems and robotics. Students will gain more experience in programming and creating their own Arduino sketches. If possible, students should bring their own PC or Mac based laptop with the Arduino IDE installed.

Intermediate Laser Etching: Rotary Tool
Students will create custom designs and then prepare files for engraving on an aluminum water bottle. They will learn how to set up and operate the rotary tool and how to transfer 2-dimensional objects on to a 3-dimensional cylinder including measuring and laying out the work piece on CorelDraw.

Painting and Finishing Techniques
Using the metal marquee star or the keepsake box, students will apply advanced painting or finishing techniques. Students may also prep and stain their keepsake box, learning natural staining & common finishing techniques used in woodworking.

MIG Welding
Learn how to operate a MIG welder including discussing settings and material properties. Learn to prepare metal for welding, rod selection and weld clean up.

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.

Woodshop: Power Tool Introduction
Students will learn to use a miter saw, table saw, router/shaper, belt sander, and powered hand drill & bits

Woodshop: Keepsake Box (2 Sessions)
Students will use power tools to cut and assemble a wooden keepsake box. They will learn how to make rip and cross cuts, miter edges, plane surfaces down to the correct thickness, glue and clamp edges, and assemble their completed boxes.

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