

Bronze Work for Woodworkers with David Orth

Welcome to the strange and wonderful planet of Metalworking where, to a woodworker, many things might seem upside down or sideways. Actually you'll be surprised how well woodworking has prepared you for this interplanetary experience. Many tools for this type of bronze working are either in your woodshop already or they are easy to find and reasonably priced.

You will also be exposed to a method of modeling and pattern making that is reminiscent of boat building. This method will allow us to craft voluminous, curvilinear shapes from flat sheets of relatively thin material. Please call or email me if you have any questions about course content or requirements.

Course summary and objectives:

- Understand the practical differences between working with wood and metal.
- Become aware of safety issues.
- Learn low-cost methods for cutting, forming, texturing, riveting, silver brazing, grinding, buffing, and patinating sculptural bronze plate (16 gauge, silicone bronze).
- Learn to weld bronze (MIG).
- Design and craft a bronze drawer pull or cabinet handle.
- Make a scale model for a sculpture, paperweight, or other tabletop object.
- Translate the scale model into full-scale paper patterns.
- Craft the full-scale object using the methods you have learned in this class.
- Apply patinas to both projects (classic brown and verdigris).

Schedule

Day 1

Introduction
Slide show
Unique safety issues for metalworking
Comparison of metal and wood
First practice project – cabinet door knob – cutting, soldering, & patination
Second practice project – bronze paper weight – MIG welding, grinding, and burnishing

Day 2

Finish second practice project
Designing shapes & deriving patterns
Further methods of fastening and forming
Develop design and patterns for our main project, a table top sculpture or functional object of your own design *or* a candlestick design that will be provided to you.



Day 3

More methods of cutting, forming, and fastening
Interfacing bronze and wood
Continue projects
Brainstorming, Q&A Session

Day 4

Continue projects
Brainstorming, Q&A Session
Short discussion of Computer Aided Design as applicable - for interested folks

Day 5

Finish projects, more on patination
Brainstorming, Q&A Session

Tool List

- Eye protection goggles.
- Full-face shield.
- Dust masks
- Work gloves – leather preferred.
- Latex or vinyl gloves
- Long sleeves, long pants. No shorts.
- Work shoes. No sandals. Tennis shoes are probably suitable if they do not have top venting (you will not want little drops of bronze spatter between your toes!).
- Ear protection (I suggest that you bring both headphone and earplug types).
- Roll of $\frac{3}{4}$ " strapping tape (the kind with fibers running the length).
- One or two blocks of easy to work, fine grained wood for model making. Basswood, redwood, mahogany are good. Approximately 3.5" x 5.5" x 8". They can be glued up from smaller stock.
- four - 14 tpi metal cutting blades for reciprocating jigsaw. Bosch blades T118B or equivalent are good.

Further Recommendations

- 8" general purpose flat file – coarse, rapid removal
- 8" general purpose triangular file – coarse, rapid removal
- 24oz or 32oz ball-peen hammer.
- 11 x17 paper pad, pencil, eraser – blank newsprint ok.
- Scissors
- Utility knife – the common kind.
- Saber saw (handheld reciprocating jigsaw)

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- Auto-darkening helmets are available starting at about \$50. I use a Chicago Electric available at Harbor Freight with an adjustable lens range of 9 to 13. If you want to use a standard helmet (non-auto darkening) purchase a #8 lens to fit. (Helmets come with a #10 lens, which is usually too dark for welding bronze.)
- 4.5" or 5" right-angle grinder.
- If you have one, a die grinder (electric or air) and tree shaped burrs with rounded tip.

Suggested reading:

Bronze fabrication is a specialty you won't find much discussion about. Everything will be covered in class, so there are no necessary readings. However, I do recommend this book for those who are interested in a broad introduction to welding:

Richard Finch

Welder's Handbook: A Guide to Plasma Cutting,
Oxyacetylene, ARC, MIG, & TIG Welding

Suppliers:

Most items that you are bringing with you can be found at your local hardware store. Also check out your local welding supply house. Bronze, silver brazing, and welding supplies will be provided.

www.HarborFreight.com
www.WeldingSupply.com

I look forward to working with you. Please call or email if you have any questions.

Best wishes,
David Orth