

ART 108—Hand & Power Tools Syllabus

Fall 2012

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Course Purpose:

Art 108 is designed to introduce interior design and art students to our wood shop facility and prepare them for projects they will be required to complete in Art 112 and Interior Design classes using the shop.

Course Description:

This is an introductory course on the safe and appropriate use of basic hand and power tools. The class will focus on the construction of a small bench. The emphasis of this class, however, will be on the process rather than the outcome. I'm more concerned with what you learn than I am with what you build. I want you to learn enough during this class to better understand what is involved in the actual process of constructing something from a set of plans. This will, in turn, help make you better designers, and you'll be better able to understand the nomenclature and communicate with those in your industry.

In Interior Design 352 you will be required to construct projects that you design. The practical, hands on knowledge that you acquire from this class will not only enable you to design with greater foresight, but it will also enable you to fabricate your designs with greater efficiency and accuracy; resulting in a more satisfactory conclusion to your design problem.

Course Policies:

Since this is a short course, we must cover a lot of material in a short time. If you miss a day, you will fall behind and there is no time available to catch up. Therefore, attendance is mandatory (please note that this is department policy). I understand that personal circumstances, such as family obligations or illness, will occasionally make it impossible to attend class. Please do your best to get here. If you miss two days, you will not receive a passing grade! In addition, coming to class after roll call is taken, usually 10 minutes into the class period, will result in a ½ day absence on the roll sheet.

Testing and Evaluation:

This is a pass-fail course. To pass, students will need to attend class, participate in the practice sessions, and make a sincere attempt to complete their assigned projects. Students will be required to understand how to read a tape measure, how to set up and use a router, and how to set up and use both the ripping and crosscut fences on the table saw. Students must also demonstrate an understanding of the information presented to them during this course. There will be a short take-home test that will be due back on the tenth day of the class.

This will cover important points that I stress in my lectures and knowledge of vocabulary words. Turning in the completed test is a requirement for passing the class.

Material List and Bench Project Parameters:

You will need to get 8 feet of a 1-inch thick by 12-inches wide S4S board from Home Depot or Lowe's. I suggest that you get Poplar. You can also use Oak or Pine. You must be able to build your entire bench project, and practice board exercise out of 8 feet of this wood. That means that the dimensions of your bench must not exceed the supply of materials. **You can only use 1"x12"x8' of S4S poplar** (pine and oak optional). You will use 12" for the first project and up to 84" for your bench.

You must have a completed set of plans before you can start your bench project. These plans must be accurate, include three views (plan, front elevation, and side elevation) and have dimensions and a cut list. Using graph paper and drawing your project to scale will give you an idea of the proportions of your bench design.

The bench must be constructed using dadoes, and have a stretcher(s) running between the legs (held in place by at least 2 screws per side). All machining after initial rough cuts will be done in class. Construction of the bench will also be done in class.

The bench must be constructed from solid wood (no plywood, MDF, or particleboard)

The instructor must approve all bench designs!

Support Services Available:

Students with disabilities who have accommodation needs are required to meet with the Director of the Disability Resource Center (in Room B132) to establish their eligibility for accommodation. Telephone: (425) 564-2498 or TTY (425) 564-4110. In addition, students are encouraged to review their accommodation requirements with each instructor during the first week of the quarter.

Class Schedule

- Day 1** **Section A and C: September 18**
Section B and D: October 30
Introduction to class
Introduction to project
- Day 2:** **Section A and C: September 20**
Section B and D: November 1
Machining a board
Introduction to the table saw, jointer, and planer
- Day 3:** **Section A and C: September 25**
Section B and D: November 6
Starting your practice board
Safety glasses, dust masks optional
- Day 4:** **Section A and C: September 27**
Section B and D: November 8
Introduction to router and drill press, sanding processes
- Day 5:** **Section A and C: October 2**
Section B and D: November 13
Shop practice: Router, drill press, sanding
Safety glasses, earplugs optional, dust masks advised
Need: your layout and cut list for your bench
- Day 6:** **Section A and C: October 4**
Section B and D: November 15
Demonstration of scroll saw, band saw, large sanding machines
Finishing your practice board
Need: your wood for your bench
- Day 7:** **Section A and C: October 11**
Section B and D: November 20
Shop time
- Day 8:** **Section A and C: October 16**
Section B and D: November 27
Demonstration on dadoes, chiseling
Shop time
- Day 9:** **Section A and C: October 18**
Section B and D: November 29
Demonstration of bench assembly
Shop time
- Day 10:** **Section A and C: October 23**
Section B and D: December 4

Turn in test
Shop time

Day 11: Section A and C: October 25
Section B and D: December 6
Shop time

Art 108 vocabulary

Back-up board

Bearing

Chuck

Clamp

Collet

Crosscutting or crosscut

Cross-grain construction

Dado

Edge routing bit

End grain

Fence

Flush trim

Groove

Jointer

Kick back

Kerf

Plunge cut

Rabbet

Ripping or rip cut

Router

Safety glasses

Square

Stop-block

Thickness planer

Table saw

Tearout

Trammel points

Art 108 bench project-Basic Construction Steps

- 1) Start with a drawing and a cut list.
- 2) Choose the pieces of your board best suited for each part of your project. Consider grain patterns, knots, and board irregularities.
- 3) Rough cut your board down to smaller pieces. Leave each piece at least 1 inch longer than its final **length** measurement.
- 4) Joint one edge of each board and then rip them to their final width plus 1/32 of an inch. Joint that 1/32 off to remove the saw marks.
- 5) Crosscut your boards (**with the exception of the stretcher and any shelf**) to their final length. Use a back-up board.
- 6) Mark and cut any arches/designs that you wish to have on the legs.
- 7) Mark, but **do not cut**, any designs that you wish to have on the top.
- 8) Cut dados. Use a back-up board for through dados.
- 9) Cut any designs in the top. Sand end grain edges that are exposed with 100 grit sandpaper. Rout edges to be routed, remember, **end grain first**. Don't forget to **leave a shoulder where necessary**.
- 10) Measure and cut stretcher to length (also the shelf, if you have one). Mark and cut any designs on the stretcher, and use the router if you like on the stretcher bottom.
- 11) All faces and all edges **not** in a joint should be sanded down to at least 150 grit sandpaper. Don't sand legs too thin. **Do not sand end grain of legs!**
- 12) Fit pieces together. Drill screw pilot hole/counter bore in the top for screws. Screw top to legs.
- 13) Install stretcher.
 - Locate stretcher position, mark centerline on both the inside and outside of legs
 - Lightly clamp into place.
 - Check to make sure that all pieces are fitting squarely.
 - Make sure that legs are bottomed out in the dados.
 - Mark points on the centerlines of legs for drilling.
 - Drill pilot holes/counter bores.
 - Install screws.
 - Cut and install plugs. Saw them flush, sand smooth.

Cut List

	Thickness	Width	Finish Length	Rough Cut Length
Top	$\frac{3}{4}$ "			
2 Legs	$\frac{3}{4}$ "			
Stretcher(s)	$\frac{3}{4}$ "			