

CENTRAL WASHINGTON UNIVERSITY INDUSTRIAL AND ENGINEERING TECHNOLOGY

IET 145: Machine Woodworking, 4 credits

FACULTY INFORMATION:

Instructor: Scott Calahan
 Office: Hogue Technology, Room 206
 Office Hrs. 1:00 – 1:50 M & W, 10:00 – 10:50 T & R, and by appointment
 Telephone: 963-3218
 E-mail calahans@cwu.edu

COURSE PREREQUISITES: None

COURSE DESCRIPTION:

Machine and tool operations, wood technology, designing and construction principles, finishing methods and materials. Two hours lecture and four hours laboratory per week.

TEXT BOOK:

1. Willis Wagner & Clois Kicklighter, Modern Woodworking, The Goodheart-Wilcox Company Inc., 2006

OTHER REQUIRED MATERIALS:

1. Safety glasses
2. Wood and other materials needed for your specific project, including but not limited to: hardware, abrasive paper, and finish.
3. Measuring tape

Learner Outcomes:

Assessment Strategy:

1. Demonstrate the ability to safely operate a variety of common woodworking machines and tools.	1. Each student will build a small wood project using woodworking machines and tools.
2. Demonstrate the ability to select and apply a wood finish that is appropriate for the product and expected service conditions.	2. Each student will apply a finish to their class project.
3. Identify and describe a variety of common hardwoods, softwoods and manufactured wood products.	3. Students will answer exam questions about woods and will correctly identify wood samples.
4. Select appropriate construction techniques for building wood products	4. Students will build a wood project.
5. Selects appropriate hardware for specific applications.	5. Students will select and install hardware on their class project.
6. Describe and compare the European frameless cabinet system with the traditional system.	6. Students will answer exam questions about the two systems.

ASSIGNMENTS:

1. Select a set of plans for a small piece of furniture or similar wood product to be built as a class project. You may modify a set of plans or draw your own if you cannot find a suitable set of plans. The item selected should incorporate a variety of woodworking operations and should require the use of most of the machines in the lab. See attached lab work evaluation sheet. The plans are to include a working drawing, material cutting list, and cost estimate.

These plans are due for approval by Friday, January 13

2. Construct and finish the project.

The finished project is due for grading on Friday, March 10

EXAMS:

Four short exams and a final exam will be given. The four short exams will be given at the beginning of one class every other week. Each exam will address the material covered during the prior two weeks. The final exam will be comprehensive.

LAB PROCEDURES:

- * Safety procedures must be observed at all times. Eye protection is required at all times in the woods lab.
- * Put all tools and materials away at the end of the lab period.
- * Help clean up the lab at the end of the lab period.
- * The lab is available for extra work outside of class time providing there are at least two people working in the lab. IET Dept. guidelines must be followed. Please clean up after yourself to maintain privileges.

EVALUATION:

A. Lab work = 60% (see attached evaluation sheet for points breakdown)

1. Project plan selection or design
2. Quality and quantity of project work
3. Demonstration of machine and tool operation proficiency
4. Lab clean-up

B. Tests = 40%

1. Tests approximately every two weeks in lecture section
2. Final exam (**March 16th 8:00 – 10:00**)

NOTE:

1. No make-up allowed for assignments or exams unless provision for such circumstances is made in advance of the date in question.
2. Missing class is not acceptable. Discussion, questions, safety instruction and instructions on machines are all valuable and should not be missed.
3. Students are expected to perform ongoing cleaning and minor maintenance on equipment in the laboratory. Work areas should be straightened up and clean before leaving the lab. If cleanup is not done to the satisfaction of the instructor, for whatever reason, percentage points will be subtracted from the percentage accumulated for a grade in the class.

The following grade scale will be used for determining the final grade:

A = 94%-100%, **B+** = 87-89%, **C+** = 77-79%, **D+** = 67-69%, **F** = below 60%

A- = 90%-93%, **B** = 83-86%, **C** = 73-76%, **D** = 63-66%,

B- = 80-82%, **C-** = 70-72%, **D-** = 60-62%

ADA STATEMENT:

Students who have special needs or disabilities that may affect their ability to access information and or materials presented in this course are encouraged to contact the instructor or Mr. Robert Harden, AD Compliance Officer, Director, ADA Affairs and Students Assistance on campus at 963-2171 for additional disability related education accommodations.

Winter/06

TOPIC OUTLINE:

Week 1	Project Design Selecting Materials Safety	Chapter 1 Chapter 2 Chapter 3
Week 2	Measurement and Layout Wood Joints Adhesives and Gluing	Chapter 4 Chapter 7 Chapter 9
Week 3	Planer, Jointer, Wide Belt Sander Radial Arm Saw and Table Saw Band Saw, Scroll Saw Sanding Machines	Chapter 13 Chapter 14 Chapter 15 Chapter 19
Week 4	Drilling Machines Lathe Hand Tools	Chapter 16 Chapter 17 Chapters 5 & 6
Week 5	Routers and Shapers Sanding Machines Abrasives	Chapter 18 Chapter 19 Chapter 11
Week 6	Hardware and Fasteners Synthetic Materials “Specialty Machines”	Chapter 10 Chapter 24 Demonstration
Week 7	Cabinetwork Drawer and Door Construction	Chapter 21 Chapter 22
Week 8	Abrasives Sheet Material	Chapter 11 Chapter 35
Week 9	Finishing Wood Identification	Chapter 12 Chapter 2
Week 10	Finishing	Chapter 12

Note: Schedule and topics are subject to change.

IET 145
Lab Work Evaluation, Winter 2006

Name: _____

I. Project selection or design (due by Friday, January 13 th)	
A. Working drawings	_____ 10
B. Cutting list	_____ 10
C. Itemized cost estimate	_____ 10
II. Completed Project (due Friday, March 10 th)	
A. Layout, cutting & machining	
1. Efficient material usage	_____ 10
2. Observation of safety procedures	_____ 10
3. Machining quality (freedom from machine marks, torn grain & machine burns)	_____ 10
4. Demonstration of machine & tool use skills	_____ 20
B. Operations	
Rabbet joint	_____ 5
Dado joint	_____ 5
Dovetail joint	_____ 5
Dovetail-dado joint	_____ 5
Butt joints with dowels or plates	_____ 5
Miter joints	_____ 5
Mortise & tenon joints	_____ 5
Box joints	_____ 5
Molded or shaped edges	_____ 5
Turnings	_____ 5
Drawer construction	
Design (materials and joints)	_____ 5
Operation (guide system)	_____ 5
Door or hinged lid (design and construction)	_____ 10
Hardware installation	_____ 5
C. Assembly	
Square and true surfaces, alignment, etc.	_____ 10
Structural integrity	_____ 10
Dimensions as per plans	_____ 10
Grain match, grain direction, sheet material edge Treatment	_____ 10
D. Finishing	
Excess glue removal	_____ 5
Repairs and finish sanding	_____ 10
Staining	_____ 5
Top coats or penetrating finish	_____ 10
Detailing (final rub-out and wax)	_____ 5
E. Other (difficulty, time spent, participation, clean-up, etc.)	_____ 20
TOTAL	_____ 250

