

Passaic County Technical Institute

CARPENTRY II

JANUARY 2004

CARPENTRY II

I. DESCRIPTION

Carpentry two is a full year course which is intended to introduce the student to the proper and safe use of materials, stationary and portable power tools and hand tools. The student will learn basic residential construction from blueprint reading and drawing to wall and roof framing.

II. OBJECTIVES

1. Orientation (9.1; 9.2)
 - a. Become familiar with the shop environment
 - b. Follow shop safety rules
 - c. Develop a knowledge of careers in carpentry
 - d. Learn to work as part of a team

2. Stationary power tools (safe and proper use of) (9.1;9.2A,B,C,F)
 - a. Table saw
 - b. Radial Arm saw
 - c. Drill press
 - d. Jointer
 - e. Shaper
 - f. Belt sander
 - g. Band saw

3. Portable power tools (safe and proper use of) (9.1;9.2A,B,C,F)
 - a. Drill-screw gun
 - b. Sanders
 - c. Circular saw
 - d. Jig saw
 - e. Reciprocating saw
 - f. Power miter saw
 - g. Routers
 - h. Pneumatic tools

4. Hand tools (9.1;9.2A,B,C,F)
 - a. Measure and layout tool
 - b. Squares
 - c. Hand saws, crosscut, rip, back, coping, keyhole, back saw
 - d. Planing, smoothing and shaping tools
 - e. Drilling and boring tools
 - f. Fastening tools, hammers, screw drivers, wrenches
 - g. Prying tools, crow bar, pry bars, nail pullers

- h. Safe tool storage and care
- 5. Footings and foundation (9.1; 9.2)
 - a. Building layout 3, 4, 5 and use of batter boards
 - b. Footings and concrete calculations
 - c. Calculation of block for a foundation
- 6. Construction materials (9.1; 9.2)
 - a. Wood-lumber types, sizes, wood products
 - b. Steel-uses and sizes
 - c. Fasteners-screws, bolts and nails
 - d. Concrete and masonry
 - e. Doors and windows
 - f. Hardware
 - g. Sealants and adhesives
 - h. Wall surfaces
 - i. Floor coverings
 - j. Roofing materials
 - k. Finishes
- 7. Blueprint reading and drafting (9.1; 9.2)
 - a. Symbols, and lines, Measurement
 - b. Footing and foundation plans
 - c. Floor plan
 - d. Elevations
 - e. Introduction to going and site plan
- 8. Residential construction (9.1; 9.2)
 - a. Floor framing openings
 - 1. Box sill, headers, tail joist, bridging
 - b. Wall framing
 - 1. Identification of component parts
 - 2. Partition framing
 - 3. Conner post construction
 - 4. Stud and framing material construction
 - 5. Door and window R.O.
- 9. Roof framing (9.1; 9.2)
 - a. Rise and Run-pitch
 - b. Calculate line length
 - 1. Use of framing square
 - 2. Mathematics
 - 3. Projection and overhang
 - 4. Plumb and level cuts of common rafter
 - 5. Ridge board and collar ties
 - 6. Gable studs

III. TEXTBOOKS AND INSTRUCTIONAL MATERIALS

“Modern Carpentry” including teacher resource manual by
Willis H. Wagner/Howard Smith G.W. Publishing copyright 2000
Goodhart-Wilcox Co.
Workbook for Modern Carpentry

IV. TEACHING STRATEGIES

Various teaching methods will be employed in order to meet the needs of the learner. Demonstration on all tool safety issues as well as use of videos and individual testing on power tools to insure understanding. Hands on activities will be used to build skills.

Hands-on demonstrations and close supervision will be provided in the shop environment with safety reinforced each day.

V. OUTLINE OF COURSE

a. Orientation

1. demonstrate knowledge of jobs in carpentry and related field
2. pass all shop safety tests
3. maintain a neat and safe work area
4. follow shop safety rules

b. Hand and power tools

1. demonstrate proper and safe use of hand tools
2. demonstrate the safe and proper use of stationary power tools
3. demonstrate the proper and safe use of portable power tools

c. Footings and foundation

1. demonstrate a knowledge of layout and construction of footings
2. identify different types of foundations
3. use mathematics to calculate materials for footings and foundations
4. use the 3, 4, 5 method for layout

d. Construction materials

1. demonstrate the ability to identify different types of wood
2. demonstrate a knowledge of non wood materials used in construction
3. know the different types of fasteners used in construction
4. demonstrate a knowledge of door and window types
5. demonstrate a knowledge of interior and exterior wall and roof coverings
6. be able to identify trim components of residential construction

- e. Blueprint reading and drafting
 - 1. demonstrate the use of drafting tools and techniques
 - 2. demonstrate the proper use of scale in drawings
 - 3. draw a foundation plan to scale
 - 4. draw a floor plan and elevation to scale
 - 5. draw section views as needed

- f. Residential construction
 - 1. build a scale model house from plans
 - 2. build footing and foundation for model
 - 3. draw section views as needed

IV. EVALUATION

Students are evaluated using the following criteria:

- 1. Class and shop participation
- 2. Project and test grades
- 3. Quizzes and assignments
- 4. Notebook work
- 5. Special projects

V. PROFICIENCIES

Upon successful completion of the requirements of this course, the student will be able to:

- 1. Maintain a neat and accurate notebook
- 2. Maintain an assigned book
- 3. Maintain proper writing utensils
- 4. Work cooperatively and effectively with others.
- 5. Further develop an awareness of job opportunities
- 6. Identify and follow all shop safety procedures
- 7. Understand and apply carpentry math
- 8. Identify and demonstrate proper use of nail fasteners and adhesives
- 9. Identify and select various building materials
- 10. Demonstrate a safe and skillful use of various hand tools
- 11. Demonstrate a safe and skillful use of various portable tools and stationary machines
- 12. Demonstrate basic blueprint drawing and reading skills, project layout, elevations and site layouts
- 13. Identify various residential foundation methods and designs
- 14. Identify basic floor systems
- 15. Identify basic wall systems
- 16. Demonstrate proper framing techniques
- 17. Demonstrate the basics of cabinet making

STUDENT PROFICIENCIES

CARPENTRY LEVEL II

COURSE OVERVIEW

This course introduces the beginning students to all phases and equipment needed to draw, understand and build a model frame house. In the process, he/she will lay out and construct floor and wall framing and prepare all openings for the finished project.

PROFICIENCIES

Upon successful completion of the requirements of this course, the student will be able to:

18. Maintain a neat and accurate notebook
19. Maintain an assigned book
20. Maintain proper writing utensils
21. Work cooperatively and effectively with others.
22. Further develop an awareness of job opportunities
23. Identify and follow all shop safety procedures
24. Understand and apply carpentry math
25. Identify and demonstrate proper use of nail fasteners and adhesives
26. Identify and select various building materials
27. Demonstrate a safe and skillful use of various hand tools
28. Demonstrate a safe and skillful use of various portable tools and stationary machines
29. Demonstrate basic blueprint drawing and reading skills, project layout, elevations and site layouts
30. Identify various residential foundation methods and designs
31. Identify basic floor systems
32. Identify basic wall systems
33. Demonstrate proper framing techniques
34. Demonstrate the basics of cabinet making

Key I = Introduced
 D = Developed in Depth
 R = Reinforced

CARPENTRY II
SCOPE AND SEQUENCE CHART

Suggested Grade Levels

SKILL TO BE LEARNED	9	10	11	12
Understand and follow all safety rules	I	D	R	R
Identify carriers in carpentry	I	D	R	R
Hand tool safety	I	D	R	R
Power tool safety	I	D	R	R
Shop Math	I	D	D	R
Good work habits	I	D	R	R
Measuring skills		I	D	R
Blueprint reading and drawing		I	D	R
Wall and floor framing		I	D	R
Roof framing		I	D	R
Wall and floor coverings		I	D	R
Interior and exterior trim		I	D	R
Cabinet making skills		I	D	R
Construction codes		I	D	R
Estimating materials		I	D	R