

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: ARC 131

Credits: 3

Course Title: Materials and Methods of Construction I

Course Description: Covers use of wood as a building material in all phases of construction. Deals with species used, growth characteristics, hygroscopic properties and applications of lumber and plywood. Includes wood framing systems, pre-manufactured components, modular systems, windows, doors, cabinets, and flooring. Lecture 3 hours per week

General Course Purpose: To give the student a comprehensive understanding of wood-based construction systems as one of the primary components used in architectural design projects.

Course Prerequisites and Co-requisites:

None

Course Objectives:

Upon completing the course, the student will be able to

- a. Identify the important commercial species and sources of production;
- b. Demonstrate an understanding of the differences in hardwoods and softwoods;
- c. Identify the growth patterns of wood;
- d. Identify the physical properties of major species and the appropriate use of each;
- e. Demonstrate an understanding of the importance of moisture content in wood and wood products;
- f. Identify the structural properties of wood;
- g. Prescribe the preservative treatments that can be used on woods and wood products;
- h. Identify the "standards of quality" and grading of wood;
- i. Demonstrate an understanding of the processing of lumber, forest to finished product;
- j. Identify plywood and plywood products and understand its manufacture, grading, and use;
- k. Demonstrate an understanding of the nomenclature of home and building and construction practices, including platform frame, trusses, and engineered systems;
- l. Identify wood products usage in window, doors, flooring, shakes, and cabinets;
- m. Apply finish procedures and materials (paints, stains, protective coatings);
- n. Demonstrate an understanding of the usage of gypsum products and insulation; and
- o. Identify the basic construction process associated with wood construction.

Major Topics to Be Included:

- a. Wood
- b. Wood products
- c. Paints and protective coatings
- d. Aluminum products
- e. Gypsum products
- f. Specialized foundation systems
- g. Pole construction
- h. Floor ceiling systems
- i. Wood-framed floors
- j. Wall systems
- k. Roof ceiling systems
- l. Shingle roofing
- m. Shingle siding
- n. Painting and finishing
- o. Building codes
- p. Construction standards
- q. Moisture control

Effective Date of Course Content Summary: August, 2008