

**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/Co requisites** (Entry-level competencies **required** for enrollment)

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
- 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