

ARC 5587 - ARCHITECTURAL STRUCTURES 1 (3 Credits)

Course Description

Evaluation of steel and wood structural systems including Statics, Strength of Materials, Beam (moment, shear, deflection), Column and Truss design for gravity and lateral forces.

Course Goals & Objectives

Upon the completion of this class, the student will be able to:

- Describe the history and development of wood and steel construction.
- Describe the properties of steel and wood.
- Discuss code requirements affecting steel and wood design and construction.
- Discuss the types of beams and their characteristic behavior.
- Design wood and steel beams to resist bending, shear and deflection.
- Design wood and steel columns to resist compression and buckling.
- Discuss connections for steel and wood.
- Design bolted and welded connections for steel construction.
- Design a truss.

Student Performance Criteria

Understanding:

A.3, Investigative Skills, A.4, Arch Design Skills; A.5, Ordering systems; A.6 Use of Precedents; B.3, Codes and Regulations; B.8, Building Materials and Assemblies

Ability:

B.5 Structural Systems

Topical Outline

General	15%
History and development of wood and concrete.	
Properties of wood and steel.	
Code Requirements.	
Types of Beams	
Beam Design	50%
Statics and Strength of Materials	
Shear, Moment and Deflection	
Column Design	15%
Connections	10%
Truss Design	10%

Prerequisites

ARC 5470- Intro to Technology
Physics, Calculus.

Textbook/Learning Resources

ARC 5587 - Architectural Structures 1 (Robert Hudson) - required.
Simplified Engineering for Architects and Builders (James Ambrose) - recommended.

Offered

Fall semester only; annually.

Faculty

Robert Hudson (Adjunct)