

**Number & Title of Course:**

ARCH 4030 Mechanical and Electrical Systems, 4 credits

**Course Description:**

This course is an introduction to the variety of principles and systems at work in a building. Topics emphasized: environmental resources, environmental control, fundamental envelope performance and life safety.

**Course Goals:**

- Assess and communicate the system needs and solutions for a given building type.
- Respond to sustainable principles through an approach to the contextual resources and the building systems.
- Explore the synthesis of building systems, and convey the architect's point of view in communicating strategies for integrating systems within the building.

**Course Objectives:**

- Students should understand the importance of climate, site analysis, and envelope assembly as it relates to the environmental systems and control.
- Students should be able to apply basic design strategies for Indoor Environmental Quality, HVAC, lighting, plumbing systems, and acoustics.
- Students should be able to evaluate the impact of system size and location on building design.
- Students should understand life safety requirements such as alarms, suppression and protection systems.

**Student Performance Criterion addressed:**

B.6. Environmental Systems

B.9. Building Service Systems

**Topical Outline:**

Understanding Resources (10%) Understanding Systems (40%)

Application of Concepts (50%)

**Prerequisites:**

ARCH 4000 Design V: Technology

**Textbooks/Learning Resources:**

Grondzik, Kwok, *Mechanical and Electrical Equipment for Buildings*

**Offered:**

Spring, Annually

**Faculty assigned:**

Stacey Bowers, AIA, NCARB, Adjunct Assistant Professor of Architecture