



Number & Title of Course: ARQU 6361: Buildings Systems (3 credits)

Course Descriptions: The topics covered in this specialized technology course include mechanical systems, environmental controls, life safety codes, and means of egress and circulation. The topics are presented in a comprehensive and integrated manner in relation to the spatial and structural design of a building system. Each topic will also be illustrated with traditional and contemporary examples and addressed in terms of local and regional context.

Course Goals & Objectives:

The students will:

- **Explore** the methods, strategies, and mechanical environmental control systems and how to incorporate them in the schematic design phase.
- **Select** the strategies of the diverse alternatives of applied systems with emphasis on the economic and energetic impact.
- **Accrue** the necessary knowledge to discuss with consultants, of each professional practice discipline, to select the appropriate options for each pertinent building issue.
- **Understand** the basic considerations to design basic fire protection systems.
- **Develop** the capacity to apply relevant issues to the process of designing drinking, sewer, and rainwater management systems.
- **Explore** the principles and methods of circulation, vertical and horizontal transport as per the spatial requirements of the presented design program.
- **Be Familiarized** with codes and standard information resources guide the practice of architecture and these technologies.
- **Establish** a rational methodology for decision making as to the different technological components and systems that impact architectural design.

Student Performance Criterion/a addressed:

A02: Design Thinking Skills	Ability
A03: Visual Communication Skills	Ability
A04: Technical Documentation	Ability
B01: Pre-Design	Ability
B02: Accessibility	Understanding
B03: Sustainability	Understanding
B05: Life Safety	Ability
B06: Comprehensive Design	Ability
B08: Environmental Systems	Understanding
B11: Building Service Systems	Understanding
C01: Collaboration	Ability
C07: Legal Responsibilities	Understanding
C08: Ethics & Professional Responsibilities	Understanding

Topical Outline

TOPIC	WEEKS
▪ Plumbing systems	04
▪ Fire control and suppression systems	04
▪ Mechanical ventilation and air conditioning systems	04
▪ Conveying systems	04



Prerequisites: Admission to the Master of Architecture

Textbooks/ Learning Resources:

Stein, B., Reynolds, J.S., Gondzik, W.T. and Kwok, A.G. 2010. *Mechanical and Electrical Equipment for Buildings*. 11th Edition, John Wiley & Sons, New York, NY.

Ching, Francis D. K. and Winkel, Steven R, 2009 "Building Codes Illustrated – A guide to Understanding the 2009 International Building Code" 3rd Edition, John Wiley & Sons. New York, NY.

Allen, E. and Iano, J., 2007. *The Architect's Studio Companion*. 4th Edition, John Wiley & Sons. New York, NY.

ASHRAE. Handbook-HVAC *Systems and Equipment*. American Society of Heating, Refrigerating and Air conditioning Engineers, Inc., Atlanta, GA.

AIA. Ramsey/Sleeper. 2000. *Architectural Graphic Standards*. 10th Edition, John Wiley & Sons. New York, NY.

Offered: Fall only; Annually

Faculty Assigned: Juan Penabad