



## Syllabus

### ARC 249 Building Mechanical Systems

#### General Information

---

**Date**

September 25th, 2018

**Author**

Matthew Rischpater

**Department**

Science and Technology

**Course Prefix**

ARC

**Course Number**

249

**Course Title**

Building Mechanical Systems

#### Course Information

---

**Credit Hours**

3

**Lecture Contact Hours**

3

**Lab Contact Hours**

0

**Other Contact Hours**

0

**Catalog Description**

ARC 249 Building Mechanical Systems is intended for Architectural Technology majors. This course will present an overview of the principles and practices used in the design of mechanical systems for buildings. Students will study the design and selection of HVAC, plumbing and electrical systems and the architect's role in selecting these systems. To better accommodate the global initiative to focus on more sustainable design, it is necessary for the prudent architect to holistically integrate the architecture and mechanical systems of a building. The material covered in this class is presented in a lecture format.

**Key Assessment**

This course does not contain a Key Assessment for any programs

**Prerequisites**

None

**Co-requisites**

None

**Grading Scheme**

Letter

#### First Year Experience/Capstone Designation

---

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

#### SUNY General Education

---

This course is designated as satisfying a requirement in the following SUNY Gen Ed category  
None

## FLCC Values

---

### Institutional Learning Outcomes Addressed by the Course

Vitality

Inquiry

Perseverance

Interconnectedness

## Course Learning Outcomes

---

### Course Learning Outcomes

1. Examine the impact of mechanical systems and sustainability in architectural designs.
2. Compare various HVAC systems and determine proper applications for each.
3. Design an energy efficient wall sections that accommodates the building code and incorporates sustainable design strategies.
4. Schematically design and illustrate electrical and plumbing diagrams.

## Program Affiliation

---

This course is not required as a core course in a program

## Outline of Topics Covered

---

Introduction to Building Mechanical Systems

### Mechanical

- Introduction to Mechanical Systems
- Overview of Mechanical Systems
- HVAC Fundamentals
- Psychrometric Chart
- R-Values, U-factors and Insulation
- HVAC Delivery Systems
- Cooling Systems
- Diagram Air Conditioners
- Heating Production Equipment and Systems

### Plumbing

- Introduction to Plumbing
- Water Quality Testing
- Piping Equipment and Code Review
- Residential Plumbing Layout
- Commercial Plumbing Layout
- Fire Protection Equipment and Systems

## Electricity

- Introduction to Electricity
- War of Currents
- Power Equipment Systems
- Switching Diagrams and Room Layouts
- Introduction to Lighting
- Architectural Integration
- Communication and Life Safety