

Number & Title of Course: ARCH 207 Environmental Control Systems 1 (activity component).

Course Description: Theory and application of climate, energy use and thermal comfort as determinants of architectural form in envelope load dominated buildings. Emphasis on sustainable architectural methods of ventilating, cooling, heating, and daylighting. 2 lectures, 2 activities.

Program Goals & Course Outcomes

- Think critically and creatively about architectural problems.
 - Ability to respond to site characteristics in the development of a project design (B2).
- Use a diverse range of skills including writing, speaking, drawing, and modeling to think about and convey architectural ideas.
 - Ability to make technically clear drawings and models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design (B4).
- Understand and apply the technical aspects of architecture, while considering the environmental impact of design decisions.
 - Ability to demonstrate the principles of environmental systems design, how design criteria can vary by geographic region, and the tools used for performance assessment (B6).
 - Understanding the selection and application of building envelope systems (B7).
- Make reasonable decisions based on an architectural understanding of ethics, diversity, and sustainability.
 - Apply sustainable principles by integrating knowledge of climate, site, materials, and assemblies as design drivers (SLO 1).
- Engage in lifelong learning.
 - Ability to gather, assess, record, and comparatively evaluate relevant information (A3).
- Work productively in groups
 - Ability to productively collaborate on group projects.

Student Performance Criteria Addressed

A3 Investigative Skills

B2 Site Design

B4 Technical Documentation

B6 Environmental Systems

B7 Building Envelope Systems and Assemblies

Topical Outline:

Climate and site analysis (20%)

Post occupancy evaluation (27%)

Solar geometry and shading (12%)

Passive heating and cooling (12%)

Daylighting (12%)

Energy modeling (5%)

Storm water management (12%)

Prerequisites: see lecture component.

Textbooks/Learning Resources: see lecture component.

Offered: Spring annually.

Faculty assigned: Kelle Brooks (Lecturer), Chandrika Jaggia (Lecturer), Gabriel Kaprielian (Lecturer), Kent MacDonald (Lecturer), JoAnne Moore (Lecturer), Brian Osborn (Assistant Professor), Margaret Pedone (Lecturer), Barry Williams (Lecturer), and Stacey White (Lecturer).