Arch 425: Environmental Systems

Credit	3 credit hours
Instructors	Jong-Jin Kim (daylight@umich.edu)
Time/Place	Th 8:30-11:30 am
Location	Room 2104 A&AB
Office Hours	Thursday 11:30 am -12:30 pm @ Room 1205B Art and Architecture

DESCRIPTION

This course explores the design and integration of thermal, lighting, and acoustic systems in buildings. Students will begin with fundamental physics principles of heat, light, and sound, then advance to practical design methods for passive building systems, HVAC, daylighting, electric lighting, and acoustic control. Specific topics include: thermal properties of matters, psychrometrics, thermal comfort, heat transfer, passive and active heating and cooling, daylighting and electric lighting, water services, and architectural acoustics. The primary focus is enhancing human well-being in built environments through the strategic incorporation of environmental technologies in building design.

INSTRUCTIONAL METHODOLOGY

In-person lectures will be given on a specific topic each week. In-class exercise and weekly assignments will be issued to ensure student understanding of important course contents. A project to experiment daylighting design of a building will be conducted. Bi-weekly recitations will be given by GSIs to further articulate course topics as well as to answer students' questions on assignments. All assignments must be regarded as exams, and students must work them out independently.

ACADEMIC POLICIES

Attendance at all classes is required. In class, there will occasionally be a quiz that helps understanding of lecture materials. Class attendance is essential for successful completion of the course.