Architecture 535 "Case Studies in Building Environmental Technology"

Credit Hours:	3 (Seminar) - The first day of class is Tuesday, Jan 8th through Apr 22nd.
Time:	8:30 - 11:30 AM, Tuesday, including the Workshops' time.
Class:	In-person, Art & Arch. Bldg. Room 2227. MIDEN – UM-VR Lab.
Laboratories:	BT Computer Lab., Rm 2119, Zoom Office Hours, M/Tue: 11:30-1:00 PM
Instructor:	Mojtaba Navvab, Ph.D., FIES**,** Email: moji@umich.edu
Pre-requisite:	Graduate standing or permission of instructor

Description:
In this course, several buildings are studied regarding the influence of building environmental control systems on occupants' comfort. The course participants will evaluate selected awarded design buildings' envelopes for their environmental control systems and high-performance design. Basic sizing of the building systems is performed. Other areas of interest include case studies on building automation, data collection, and controls for building operations for various building types. Energy, daylighting, lighting, and acoustic performance analysis are performed for selected building types. Participants can develop their building design under a given climatic condition and work as an individual or team study.

Objectives:
1) To understand environmental technology design techniques through case studies.
2) To evaluate building system design and its compliance with building standards.

Methodology:
A case study is a research methodology. Case studies are often used in exploratory research. They can help us generate new ideas (other methods might test that). They are an essential way of illustrating theories and in this course can help to show how different aspects of a building technology are related to each design objective; see possible examples: https://xr.engin.umich.edu/architecture-lighting-miden/

Seminar Topics
Environmentally responsive site planning
Environmentally preferable materials and products
High-performance HVAC
High-Performance Electric Lighting and Daylighting Influence of Climate Change on Occupants' Comfort LEED application and complaisance **Recommended Book:**
ASHRAE Standards application and compliance with
Renewable energy
Superior indoor air quality
Acoustic, thermal, and visual comfort
Water efficiency
Building commissioning

Mechanical and Electrical Equipment for Buildings, Stein, B., Etl, 1992, **(ISBN-0-47186937-6)**