

Course outline
JEE 634 Climate Influence on Buildings and End-use Requirements 3 (2-0-6),
Semester 2/2019
Wednesday, 9:00-12:00
Coordinator: Dr. Pipat Chaiwiwatworakul

This course aims to introduce students to the phenomena related to the use of energy in buildings. Students will learn mechanisms and method of calculation for air properties, thermal comfort, air-conditioning load, and energy use in buildings. It covers the subjects of influences and energy use of buildings, solar radiation and climate, air psychrometry, thermal comfort, air-conditioning, air flow in buildings, lighting, building energy code, and estimation and management of energy use in buildings with the use of a building energy code program.

Week	Date	Topic	Instructor
1	15/1	Introduction - The significance of energy use in buildings - Building end-use energy in Thailand	Prof. Surapong
2	22/1	A Perspective View on Energy Requirements in Buildings - The indoor requirements and the varying outdoor environment - Factor affecting energy use	Prof. Surapong
3	29/1	Air Psychrometry - Properties of moist air and its calculation - Air-conditioning process	Dr. Pipat
4	5/2	Solar Radiation I - Position of the sun	Dr. Pattana
5	12/2	Solar Radiation II - Sun shading	Dr. Pattana
6	19/2	Air-conditioning I - Option to achieve thermal comfort - Ventilation	Dr. Pipat
7	26/2	Air-conditioning II - Space cooling load calculation	Dr. Pipat
8	4/3	Building research lab visit (Bang khun tien campus)	Dr. Pipat
	11/3	----- Midterm Examination -----	Dr. Pipat
9	18/3	Thermal Comfort and Ventilation Requirement - Thermal comfort under controlled environment - Adaptive comfort and energy implication	Prof. Surapong
10	25/3	Lighting - Quantities and properties of light - Vision and perception - Lighting methods - Lighting equipment	Prof. Surapong
11	1/4	Acoustic	Mr. Ekawat
12	8/4	Building Energy Code I - Building Envelope	Dr. Pipat
13	22/4	Building Energy Code II	Dr. Pipat

		- Lighting System, AC System, etc.	
14	29/4	Building Energy Code III - Whole Building Energy Compliance	Dr. Pipat
15	6/5	----- Final Examination -----	Dr. Pipat