SYLLABUS

(Second Semester, 2021)

Subject No.	M2794.003200	Class No.	001	Subject	Environmental Thermal Engineering	Credit	3

Professor	Name: Min Soo KIM	Homepage: http://reflab.snu.ac.kr
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	Office Hour / Place: After the Class / Classroom	

1. Objective	Based on the basic principles of thermodynamics, fluid mechanics and heat transfer, analysis on the refrigeration system and air-conditioning system will be practiced. For an optimal design of heating, cooling, humidification, and ventilation system, the system components will be studied and proper system integration will be made. Effective energy utilization will be covered together with new and renewable energy system design.
2. Textbook	W. F. Stoecker, Air Conditioning and Refrigeration, 2nd ed., McGraw Hill (1982) F. C. McQuiston, J. D. Spitler, J. D. Parker, Heating, Ventilating, and Air Conditioning, John Wiley & Sons (2000)

3. Evaluation	Attendance	Homework	Mid Exam	Final Exam	Attitude	Others	Total
	0%	20%	35%	35%	0%	10%	100%
	Students who are absent for over 1/3 of the class will receive a grade of 'F' or 'U' for the course. (Exceptions can be made when the cause of absence is deemed unavoidable by the course instructor.)						

4. Plan	Week	Contents
	1	Introduction, Carnot refrigeration cycle, Actual vapor compression cycle
	2	Compressor, Ideal performance and Actual performance
	3	Heat exchanger, Condenser, Evaporator
	4	Expansion device, Operating characteristics, Optimal design
	5	Absorption refrigeration system, Heat pump system
	6	Refrigerants and related environmental issues, Ice storage
	7	Heat pipe, Natural refrigeration
	8	Design of refrigeration system, Mid-term examination
	9	Air-conditioning system and related components
	10	Humid air and its property, Air conditioning processes
	11	Heat load calculation
	12	Air-conditioning systems for building applications, Energy usage in buildings
	13	Indoor air quality, Air cleaning, Ventilation
	14	New and renewable energy
	15	Fuel cell system & Current issues, Final examination

5. Note	