



HANYANG UNIVERSITY

Hanyang International Winter School

Heat Transfer

Professor: **Se-Jin Yook**
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Home Univ.: Hanyang University
Dept.: School of Mechanical Engineering

Description: The transport mechanisms of heat can be classified as conduction, convection, radiation and combination of these. With the concept on transport mechanisms of heat, the method of setting-up energy balance equation for given engineering systems and the mathematical solution of each energy balance equation would be studied. The applications of energy balance equations to the design of heat transfer equipment would also be studied. **This course is designed mainly for mechanical engineering major students.**

Objective: a) to cover the basic principles of heat transfer, b) to present a wealth of real-world engineering applications to give students a feel for engineering practice, and c) to develop an intuitive understanding of the subject matter by emphasizing the physics and physical arguments

Preparations: Prerequisite courses are Fluid Dynamics, and Thermodynamics

Credits	3	Contact Hours	09:00-12:00 13:00-14:30
Schedule:	Week 1	Basic concepts of heat transfer, Heat conduction equation, Steady heat conduction, Transient heat conduction, Numerical methods in heat conduction, Fundamentals of convection, Velocity and thermal boundary layers	
	Week 2	External forced convection, Internal forced convection, Natural convection, Fundamentals of thermal radiation, Radiation heat transfer, Heat exchangers	

Evaluation(%)	Midterm	Final	Attendance	Assignments	Participation	Etc.
	45%	45%	10%	0%	0%	0%