CHAPTER 1: INTRODUCTION AND BASIC CONCEPTS

CHAPTER OUTLINE
1. Introduction to heat transfer
   a. Thermodynamics vs. heat transfer
   b. Definition
   c. Modes of heat transfer

2. Conduction
   a. Definition
   b. Rate equation, Fourier’s law
   c. Example: steady-state 1D conduction in a solid wall (handout 1.1)

3. Convection
   a. Definition
   b. Forced vs. natural convection
   c. Rate equation
   d. Example: measuring convection heat transfer coefficient (handout 1.2)

4. Radiation
   a. Definition
   b. Rate equation, Stefan-Boltzmann law
   c. Example: radiation between a steam pipe and a room (handout 1.3)

CHAPTER OBJECTIVES
- Define the linkage between thermodynamics and heat transfer
- Describe the different modes of heat transfer and define their rate equation