ROMA HEAT 206: Heat Transfer

Instructor
Prof. Aldo Fanchiotti

Credits
4 credit-hour, or 60 contact hours

Textbook
- Reader and notes provided by professor

Objectives
To develop an understanding of basic heat transfer phenomena and concepts, and to apply them to realistic engineering problems. At completion of the course, students should be able to analyze and solve conduction, convection, and radiation transfer problems by appropriate methods to determine temperature distributions and/or energy transfer rates for steady and transient conditions; and be able to analyze and design common heat transfer equipment and devices including extended surfaces and heat exchangers.

Topics
- Introduction: heat and energy; the first Principle of Thermodynamics; heat and temperature; thermal capacity; specific heat. The three basic modes of heat transfer: conduction, convection, radiation.
- Dimensional analysis and indexes method. The Buckingham’s theorem. Definitions and physical meanings of dimensionless parameters used to
describe convective phenomena. Examples: flat and cylindrical surfaces; flow in ducts.


**Assessment**

- 10% homework
- 10% class participation
- 20% mid-term exam
- 20% projects
- 40% final exam