

Thermodynamics and Heat Transfer

Instructor: Prof. Paolo Coppa

Course Format: 2 Hours Lecture, 1 Hour Exercise

Period: Summer Semester

Language: English

Recommended Previous Knowledge: Good knowledge in integral and differential calculus.
Knowledge of basic Physics.

Contents:

In the lectures and the exercises, the student will be introduced into the main principles of Engineering Thermodynamics, Thermo Fluid Dynamics and Heat Transfer. They include:

- Fundamental laws of thermodynamics
- Thermodynamic diagrams
- Thermodynamic cycles for close and open systems
- Air and steam mixtures
- Basic laws of fluid dynamics
- Heat transfer mechanisms: conduction, convection, and radiation heat transfer. Heat

Each topic goes with an exercise, which will be solved as an example in the exercise. Additionally the student receives additional example problems for home studies.

Learning Outcomes:

K1: Learning the basic elements of Engineering Thermodynamics, Fluid Dynamics and Heat transfer, including introduction to fundamental physical and analytical principles and their application.

K2: Giving students an understanding of the basic problems and concepts in Thermodynamics, Fluid Dynamics and Heat Transfer and developing the competence to analyze problems regarding thermal plants and components and to solve them mathematically.

K3: Getting the competence to apply the principles of Thermodynamics, Fluid Dynamics and Heat Transfer to affords practical problems in thermal plant and component design

Reading Resources:

- M.W.Zemanski, M.M. Abbott, H.C. Van Ness, Basic Engineering Thermodynamics, Mc-Graw Hill Inc. 1975
- I.P.Holman, Heat Transfer, Mc. Graw Hill Int. 1981
- Any other equivalent book

Performance Record:

Written examination and oral test

Workload: 90 hours total

Further Information:

www.engineering-sciences.uniroma2.it/

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