

**METU Department of Mechanical Engineering**  
**ME 508 Thermal Radiation**  
**Fall 2021**

*Instructor* : Dr. İlker Tari, E-104 (ICHMT), itari

*Assistant* : NA

*Text* : "Radiative Heat Transfer, 3th ed." by M.F. Modest, Academic Press, 2013.

*Schedule* : Thursdays 8:40-11:20 in G203.

**Material**

Fundamentals of Thermal Radiation (weeks 1-2)

Radiative Properties (week 3)

View Factors (week 4)

Monte Carlo Methods for view factor calculations (weeks 5-6)

Radiative Exchange between Gray, Diffuse Surfaces (weeks 7-8)

Radiative Exchange between Partially-Specular, Gray Surfaces (weeks 9-10)

Radiative Exchange between Nonideal Surfaces (week 11)

The Equation of Radiative Transfer in Participating Media (weeks 12-14)

**Reading**

Chapter 1

Chapter 3

Chapter 4

Chapter 8

Chapter 5

Chapter 6

Chapter 7

Chapter 10

Homework : Assigned problems from the textbook and Monte Carlo simulations. Computer programming skills required for Monte Carlo HWs

Grading : There will be homework, a midterm exam, and a final exam.

Mid-term exam : 30%

Homework : 30%

Final Exam : 40%