

ME 301: Heat Transfer

Course information

Date: 2020-09-16

Credit structure: 2-1-0-6 (L-T-P-C, 6 credits)

About this course: A core course for Mechanical Engineering that deals with the mechanisms of the transport of heat energy. The rate at which heat energy is transferred to or from a system is of importance in several applications. Certain applications such as heat exchangers demand increased heat transfer, whereas applications dealing with storing or transporting media at very high or low temperatures seek to minimize heat transfer. The three modes of heat transfer conduction, convection, and radiation are discussed, with additional application-oriented topics such as heat exchangers, boiling and condensation.

Course content:

Available at the course homepage, along with lecture plan.

Class timings:

Monday	9:30 AM — 10:15 AM
Tuesday	11:30 AM — 12:15 PM
Friday	10:30 AM — 11:15 AM

Discussion hour on Wednesdays, between 9 and 10 AM.

The Google Meet link for all the above sessions has been emailed separately.

Evaluation policy (tentative):

Collaboration between students is not permitted in all components, except “Term paper” which requires collaboration between members of the same team.

Component name	Total weightage	No. of evaluations	Description
Moodle Quiz	25%	≈ 10	In-class short problems or conceptual questions over Moodle.
Assignments	25%	3	Take-home assignments with few open-ended or reasoning based questions.
Exams	20%	2	Take-home exam with a shorter time frame than that for assignments.

Term paper	20%	1	Group-based evaluation and a viva voce will be conducted to give marks individually.
Lecture notes summarization	10%	NA	Students submit their scanned handwritten notes at the end of each week.
Google Quiz	0%	≈ 40	In-class conceptual questions in almost every class.

Course calendar:

One lecture video per lecture hour on an average.

- Before mid-sem: Lectures 01-21
- Post mid-sem: Lectures 22-42

Textbooks:

1. *Principles of Heat and Mass Transfer*, by Adrienne S. Lavine, Frank P. Incropera, David P. Dewitt, and Theodore L. Bergman, Wiley
2. *Heat and Mass Transfer*, 3e, by P. K. Nag, McGraw Hill Education
3. *Heat and Mass Transfer: Fundamentals and Applications (SIE)*, 5e, by Yunus A. Çengel and Afshin J. Ghajar, McGraw Hill Education

Attendance policy:

Attendance is compulsory in all classes, as per Institute rules.

Course home page:

https://iitdh.ac.in/~keerthi.mc/course_2020_HT/index.html

Course instructor:

M. C. Keerthi