

EEN-E2004 MASS TRANSFER 2024

Structure of the course

LECTURES (Tuesdays)

1. 16.1 12:15-14:00
2. 23.1 12:15-14:00
3. 30.1 12:15-14:00
4. 13.2 12:15-14:00
5. 27.2 12:15-14:00
6. 12.3 12:15-14:00

EXERCISE LESSONS (Fridays)

1. 19.1 12:15-14:00
2. 26.1 12:15-14:00
3. 2.2 12:15-14:00
4. 16.2 12:15-14:00
5. 2.3 12:15-14:00
6. 15.3 12:15-14:00

Structure of the course

- 5 homework problems: exercise lessons no. 2-6 include one homework problem each ($1/6=17\%$ of total course points)
- 3 large modelling assignments (33% of course points)
- Exam (50% of course points)

- Maximum points from course: 60 p
- To pass the course, **about** 20-22 overall points is needed **and** at least 6 (from 30) points from exam is needed
- Grade five is **about** 48 (of 60) points

Teaching materials

- Textbook: Ari Seppälä & Markku Lampinen, Mass Transfer,
 - Electric copy of textbook is available at Course pages-> MyCourses -> Textbooks and supporting materials
 - Section not included in course 6.1, 11.1, 11.3, 11.4
- Lecture slides
- Solutions of exercise problems
 - full solution of homework problems will be given only in excersices. Only final result some hints are given in the solutions file.

Lectures

- Mixture basics (Lecture 1)
- Diffusion (Lectures 1-2)
- Advection + diffusion = convection (Lecture 2)
- "Self-induced" convection: Stefan flow, natural/free convection (Lectures 2-3)
- Analogy between heat and mass transfer (Lecture 3)
- Mass transfer correlations and coefficients (Lecture 3)
- Coupled heat and mass transfer (Lecture 4)
- Mass transfer in porous/solid materials (Lectures 5-6)

Assignments

- Moisture movement and condensing of water vapor in building wall structures
- Enhanced cooling with wet surfaces
- Drying of porous material
- One of the above assignments can be replaced by your own topic

Need to ask something?

Please ask questions during lectures and exercises!

During other time, please contact:

Ari Seppälä ari.seppala@aalto.fi for lectures, assignments, exam and general matters

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