

Heating and Cooling Systems EEN-E4002 (5 cr)

Course plan 2024

Course staff

Teacher-in-Charge:
Professor of Practice
D.Sc. (Tech) Panu Mustakallio



Course assistant:
M.Sc. Student
Moazam Imran



Course lecture recordings:
Senior University Lecturer
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Contact: E-mail, MyCourses

Fields of activity on the course

- Six (6) learning assignments (to be submitted via MyCourses)
- Learning:
 - Lectures with introduction to assignments in Aalto (6 times, 2-3 h/lecture)
 - Self-studying, "learning by doing"
 - Recordings (12 topics related to the course material)
 - Teacher's receptions (2 h, always following Friday after lecture at 10-12 in zoom, will be discussed)
 - Familiarize yourself with the recordings/lecture slides and the learning assignment, and preferably start to prepare solutions for all exercises *before* each Teacher's reception
- No examination

- Lectures
 - Location: R2 - 253, Rakentajanaukio 4, with the exception of lecture on 14.2. only at Zoom (Teacher's reception link)
 - Time: Wednesdays at 9:15 – 12:00 (see: Timetable)
 - is an opportunity to
 - participate in teaching
 - discuss the topics
 - have an introduction and guidance to the assignments
 - is not a mandatory activity to pass the course, **still strongly recommended for learning and having knowledge for assignments**

Learning assignments

- Each learning assignment consists of 2-3 exercises (i.e., computational problems) that are solved and reported appropriately (see: evaluation criteria).
- Learning assignments are returned via MyCourses platform by the given deadlines (submission is open by 23:59 on each day of deadline). Deadline extension is possible by permission only. Delayed submission without permission is penalized by reduction of score.
- Maximum score per assignment: 10 p ($\rightarrow$ MAX 60 p). Passed (mark 1) = 50 % of the total score (= 30 p).

Evaluation criteria

1. The submission is complete by the deadline. The student's contribution is original, and nothing gives a reason to suspect the student of plagiarism.
2. The results are highlighted (e.g., bold, underlined, tabulated etc.) and they are correct.
3. Calculation procedures with assumptions, equations, substitutions (including units) and intermediate results are shown and appropriate.
4. Visualizations of the problem have been done when applicable, using standardized drawing symbols and practices. The system descriptions, graphs, figures, and schematic diagrams indicate that the problem has been understood correctly (i.e., the visualization adds value to the report).
5. The language (either English or Finnish) is good and easy to read. The terminology is correct. Good scientific reporting practices is followed, including references and citations, when applicable. If references are needed, they are listed in a separate reference list. All in all, the reporting should be brief and succinct and its appearance impeccable.
6. Practical advice in addition to previous criteria: Avoid only hand-written text and calculations (if not extremely clear), which easily at some stage might give wrong calculation results and you can't repeat and recheck easily. Preferably perform calculations with some tool like Excel. Combine assignment exercise text + figures and solution text + equations and calculations etc into a clear, brief report for instance in Word.

Teacher's reception

- Teacher's receptions
 - is realized as a zoom meeting (online workspace)
 - is open on Fridays at 10:00 – 12.00 (see: Timetable),
Note: This proposed time will be discussed during
1st lecture and confirmed
 - is an opportunity to have instruction for the learning
assignments in contact with a teacher
 - is not a lecture or a mandatory activity to pass the course
- Link to the Zoom meeting is in MyCourses:
Passcode: 044045

Timetable

Date	Activity
Wed 10.1.	Lecture 1, LA1 Release
Fri 12.1.	Teacher's reception 1
Wed 17.1.	Lecture 2, LA2 Release, (LA1 Deadline Tue 16.1.)
Fri 19.1.	Teacher's reception 2
Wed 24.1.	Lecture 3, LA3 Release, (LA2 Deadline Tue 23.1.)
Fri 26.1.	Teacher's reception 3
Wed 31.1.	Lecture 4, LA4 Release, (LA3 Deadline Tue 30.1.)
Fri 2.2.	Teacher's reception 4
Wed 7.2.	Lecture 5, LA5 Release, (LA4 Deadline Tue 6.2.)
Fri 9.2.	Teacher's reception 5
Wed 14.2.	Lecture (NOTE: Remotely in Zoom), LA6 Release, (LA5 Deadline Tue 13.2.)
Fri 16.2.	Teacher's reception 6
Wed 21.2.	Optional LA Extra Release, (LA6 Deadline Tue 20.2.)
Tue 27.2.	Optional LA Extra Deadline

- Course material and info: MyCourses portal (mycourses.aalto.fi) → Remember to enroll!
- Basic terminology is written in underlined italics, **recommendations for extra self-learning** in blue font and **explanations** in red font.
- Literature related to the course:
 - Lecture slides and complementary material shared via MyCourses
 - J. Kreider, P.S.Curtiss, A. Rabl: Heating and cooling of buildings – Design for Efficiency
 - O. Seppänen: Rakennusten lämmitys