

Heating and Cooling Systems

EEN-E4002 (5 cr)

Course plan 2019

Course staff

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Sähkötiehentie 4, Room K263

Reception upon agreement

Fields of activity in the course

- Six (6) contact learning days
 - Wednesdays, at 9.15 room K326 (K1)
 - Self-studying
- Six (6) learning assignments (to be submitted via MyCourses for assessment)
- Total grade: 100 % learning assignments

Structure of contact learning days

- Theory (appr. 45 min)
- Instructions for learning assignments (45 min →)

Learning assignments

- Each learning assignment consists of 2-3 exercises (i.e. computational problems) that are solved and reported appropriately (see: evaluation criteria).
- Maximum score per assignment: 10 p (\rightarrow MAX 60 p). Passed (mark 1) = 50 % of the total score (= 30 p).
- Work reports are returned via MyCourses platform by the given deadlines.
- The correct answers (by exercise) will be shared to the course participants via email after the course. (To receive email, the student has to be registered in the course via WebOodi.)

Evaluation criteria for learning assignments

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 final results are highlighted (e.g. bold, underlined, table) 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.

Contact days (CD) and deadlines (DL) for learning assignments (LA): 2019

CD1	9.1.	Need of heating and cooling Theoretical principles and tools	
CD2	16.1.	Calculation of heating and cooling requirements	LA1 DL
CD3	23.1.	Supply and conversion systems	LA2 DL
CD4	30.1.	Distribution and auxiliary systems	LA3 DL
CD5	6.2.	Fundamentals of system design	LA4 DL
CD6	13.2.	Fundamentals of automatic control	LA5 DL
	20.2.	The end and evaluation	LA6 DL

- 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:
 - 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