Assignment 2
Control of thermal power plant

Assignment practicalities
MS-E2133 Systems Analysis Laboratory II

Completing the assignment

- Read and familiarize yourself with the assignment instructions and ready-made MATLAB/Simulink files

- Explore and study the topic of the assignment
  - Åström, K. J. and Murray, R. M. *Feedback systems: an introduction for scientists and engineers.* Ch. 1, 5.4, 6, 10
  - Kirk, Donald E. *Optimal control theory: an introduction.* Ch. 5.2
  - Supplementary material on the MyCourses-page
    - Model reduction
    - Säätötekniikka (in Finnish)

Schedule

Time	Event
Mon 26.10.2020 at 14:15	**Introductory lecture**
Wed 4.11.2020 at 14:15	Introduction to SIMULINK
Mon 9.11.2020 at 14:15	Introduction to dynamic systems
Fri 11.12.2020 at 18:00	**Deadline for reports**

- Link to additional lectures in MyCourses
- Reserve enough time to complete the assignment
- Workload should be about the same as in the first assignment

Assistant's reception hours

- Via Zoom on Wednesdays at 14:15 – (16:00)
  - https://aalto.zoom.us/j/65019324844 (same link every week)
  - Individual guidance for each group
    - "Waiting room" feature of Zoom is activated for the meeting
    - Assistant will pick participants in the order of arrival – wait for your turn in the queue
  - If nobody shows up during the first 30 minutes, the assistant may leave

- At other times by appointment

- E-mail (janne.lahti@aalto.fi)

- Any problems related to the course
  - Questions about the assignment instructions
  - Problems related to MATLAB

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Writing the report

- Answer **<u>all questions</u>** given in the assignment instructions
  - Many short questions, read the instructions carefully
- Justify your answers
  - Show that you understand the problem and the solution
- Simulation required in many questions
  - In many cases the solution is found through trial & error
  - Simulate with different starting states and parameter values
- Return the project work via MyCourses
  - The complete report (.pdf)
  - All MATLAB- and SIMULINK-files (.zip)
    - Different SIMULINK models for Exercises 3, 5, 7, 9 and 11

Grading

- All tasks must be completed and questions answered
  - Each task is graded separately, but extra points can be awarded for particularly good answers
- All required figures must be included and commented
- Demonstrate understanding
- The assignment is graded based on the first submitted report
  - Significant flaws or shortcomings must be corrected before passing the course
- The grade for the course is determined based on the average of the two assignments

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SAL

Pairs

- By default, it is assumed that you work similarly as in the first project (with same pair / alone)

- If you want now to:
    - Change your pair / start working alone, notify the course assistant (and your previous pair!)
    - Find a pair after doing the first project alone, notify the course assistant who can check if it is possible (= if there are also others who like to find pair now)

➔ Send a message to janne.lahti@aalto.fi