Market-driven Systems, FRTN20, spring 2016
2016-03-22

Administration
Responsible for the course is professor Charlotta Johnsson at the Department of Automatic Control. Teaching assistant is Josefin Berner. Administrator at the department is Eva Westin. The offices are on the 2nd and 5th floor of the Mechanical Engineering building.
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Prerequisites
Automatic Control, Basic Course, (FRT010)

Course Material
The course material consists of a set of articles and chapters from various books.
The material is collected in a binder that is distributed during the first week of the course.

Lectures
The lectures are given as follows:
> Mondays 10.15-12.00 in M:L1
> Fridays 13.15-15.00 in M:L1

Exceptions:
- Lecture on Friday 25/3 is moved to Wednesday 23/3 at 10.15.12.00 in M:L1.
- Lecture on Monday 28/3 is moved to Tuesday 29/3 at 10.15-12.00 in M:L1.
- Lecture on Friday 6/5 is moved to Wednesday 4/5 at 10.15-12.00 in M:2112B.

Exercise sessions
The exercise sessions are given as follows:
> Mondays 13.15-15.00 in M:M2.
> Fridays 15.15-17.00 in M:M2.

Exceptions:
- Exercise on Friday 25/3 is moved to Wednesday 23/3 at 15.15-17.00 in M:M2.
- Exercise on Monday 28/3 is moved to Tuesday 29/3 at 13.15-15.00 in M:M2.
- Exercise on Friday 6/5 is moved to Wednesday 4/5 at 13.15-15.00 in M:2112B.

Laboratory sessions
The two laboratory sessions are mandatory and are given in connection to different parts of the course. Booking lists are posted on the web page. Before the lab sessions some home assignments have to be completed. No reports are required after the labs.

Lab	week	date	Room	Responsible	Content
1	14	4/4-8/4 (Half day)	Lab B	Josefin Berner	Batch Control
2	17 alt	26/4-29/4 (Half day)	Lab B	Fredrik Magnusson	Distributed Systems

Project
The project will be made in groups of appr. four students. The projects will be introduced in the exercise session on Friday April 17, 2015. The project report (approx 10-20 pages, written in

English or Swedish) should be handed in on Wednesday May 18th. The project presentations will be held on Monday May 23. Each group should prepare to make a 15 minutes presentation.

Exam

The exam is given Monday June 2, 2016 at 14:00-19:00 in Sparta A and Sparta C. A second occasion is given in August (registration necessary). No lecture handouts, exercise materials or hand-written notes are allowed.

Weekly plan

Week	Date		Lecture/Exercise	Content	Who
Week 12	Mo. 21/3	10.15-12.00 M:L1	Lecture1	Intro Continuous systems	Charlotta Johnsson
	Mo. 21/3	13.15-15.00 M:M2	Exercise1	Intro Continuous systems	Josefin Berner
	We. 23/3	10.15-12.00 M:L1	Lecture2	Discrete Systems	Charlotta Johnsson
	We. 23/3	15.15-17.00 M:M2	Exercise2	Discrete Systems	Josefin Berner
Week 13	Mo. 29/3	10.15-12.00 M:L1	Lecture3	Batch Systems	Charlotta Johnsson
	Mo. 29/3	13.15-15.00 M:M2	Exercise3	Batch Systems	Josefin Berner
	Fr. 1/4	13.15-15.00 M:L1	Lecture4	Manufacturing Operation Systems (MOS)	Charlotta Johnsson
Week 14	Mo. 4/4	10.15-12.00 M:L1	Lecture5	Key performance Indicators (KPI)	Charlotta Johnsson
	Mo. 4/4	13.15-15.00 M:M2	Exercise4	MOS and KPI	Josefin Berner
	Fr. 8/4	13.15-15.00 M:L1	Lecture6	Key performance Indicators (KPI)	Guest lecture: Krister Forsman, Perstorp
	Fr. 8/4	15.15-17.00 M:M2	Lecture 7	Project information (start-up)	Charlotta Johnsson
	4/4 -8/4		Lab 1	LAB1: Batch Control	Josefin Berner
Week 15	Mo. 11/4	10.15-12.00 M:L1	Lecture8	Industy4.0/ SmartManufacturing	Charlotta Johnsson
	Fr. 15/4	13.15-15.00 M:L1	Lecture9	Utility Disturbance Management (UDM)	Guest lecture: Anna Lindholm, Modelon
	Fr. 15/4	15.15-17.00 M:M2	Exercise 5	Industry4.0 and UDM	Josefin Berner
Week 16	Fr. 22/4	13.15-15.00 M:L1	Lecture10	Model Predictive Control	Charlotta Johnsson
	Fr. 22/4	15.15-17.00 M:M2	Exercise6	Model Predictive Control	Josefin Berner
Week 17	Mo. 25/4	10.15-12.00 M:L1	Lecture11	Distributed control with prices	Charlotta Johnsson

	Mo. 25/4	13.15-15.00 M:M2	Exercise7	Distributed control with prices	Josefin Berner
	Fr. 29/4	13.15-15.00 M:L1	Lecture 12	Game theory 1	Bo Bernhardsson
	26-29/4		Lab2	LAB2: distributed systems	Fredrik Magnusson
Week 18	Mo. 2/5	10.15-12.00 M:L1	Lecture13	Energy control	Tentative Guest: Kurt Jörnsten, Norw. School of Economics
	We. 4/5	10.15-12.00 M:2112B	Lecture14	Game theory 2	Bo Bernhardsson
	We. 4/5	13.15-15.00 M:2112B	Exercise8	Game theory	Josefin Berner
Week 19	9/5-13/5	No lectures (re-exams)	(omtenta)		
Week 20	Mo. 16/5	13.15-15.00 M:M2	Exercise9	Tentative: Q&A	Josefin Berner
Week 21	Mo. 23/5	10.15-12.00 M:L1	Lecture 15	Project presentations	Charlotta Johnsson
Week 22	Tu. 2/6		Examination	Course examination	Course examination Time: 14:00-19.00 Place: SpartaA, SpartaC