Market-driven Systems, FRTN20, spring 2014

2014-02-28

Administration

Responsible for the course is professor Karl-Erik Årzén (046-222 8782) at the Department of Automatic Control. Teaching assistants are Alfred Theorin (046-222 32 70) and Anders Mannesson (046-222 87 96). Administrator at the department is Eva Westin (046-222 87 87). The offices are on the 2nd and 5th floor of the Mechanical Engineering building.

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 nominal lecture hours are as follows:

Tuesdays 10.15-12.00 in M:E
Thursdays 10.15-12.00 in M:D

However, during some weeks there are no lectures and in other weeks the lectures and exercises have switched place. For the details, see the schedule at the end of this document.

The lectures are given by Karl-Erik Årzén (046-2228782), Anders Rantzer (046-2228778), and Bo Bernhardsson (046-2228786). In addition two guest lectures are given by Krister Forsman from Perstorp AB and Kurt Jörnsten from Norwegian School of Economics.

Exercise sessions

The exercise sessions are given as follows:

Wednesdays 08.15-10.00 in M:X2a and X2b
Fridays 08.15-10.00 in M:L1 and The Department of Automatic Control's seminar room

However, during some weeks there are no exercises and in other weeks the lectures and exercises have switched place. For the details, see the schedule at the end of this document.

Teaching assistants are Alfred Theorin (046-222 32 70) and Anders Mannesson (046-222 87 96), M-building 2nd floor.

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	16	31/3-4/4 Half day	Lab B	Alfred Theorin	Batch Control
2	20	19/5-23/5 Half day	Lab B	Anders Mannesson	Distributed Systems

Project

The project will be made in groups of 2-4 students. The projects will be introduced in the lecture on Thursday April 10, 2014. The project report (approx 10-20 pages, written in English or Swedish) should be handed in on Friday May 16. The project presentations will be held during the final week of the course (more details will be provided later). Each group should prepare a 10 minutes presentation.

Exam

The exam is given Friday May 30, 2014 at 14:00-19:00 in Sparta: A-B. A second occasion is given on Monday August 25, 8:00 – 13:00 in MA10-B. No lecture handouts, exercise materials or hand-written notes are allowed.

Weekly plan

Week	*Date*	*Lecture/Exercise*	*Content*	*Who*
Week 12	18/3	L1	Intro Continuous systems	Karl-Erik Årzén
	19/3	E1	Continuous systems	Alfred/Anders
	20/3	L2	Discrete Systems	Karl-Erik Årzén
	21/3	E2	Discrete Systems	Alfred/Anders
Week 13	25/3	L3	Batch Systems	Karl-Erik Årzén
	26/3	E3	Batch Systems	Alfred/Anders
	27/3	L4	Manufacturing Operation Systems (MOS) Key Performance Indicators (KPI)	Karl-Erik Årzén
	28/3	E4	MOS and KPI	Alfred/Anders
Week 14	1/4	LX	Project Info + startup	Karl-Erik Årzén
	3/4	L5	Guest Lecture	Krister Forsman, Perstorp
	31/3 -4/4	Lab 1	LAB1: Batch Control	Alfred Theorin
Week 15	8/4	L6	Model Predictive Control	Anders Rantzer
!!	9/4	L7	Distributed control with prices	Anders Rantzer
!!	10/4	E5	Model Predictive Control	Alfred/Anders
	11/4	E6	Distributed control with prices	Alfred/Anders
Week 16-18	Easter Break			
Week 19	6/5	L8	Utility Disturbance Management (UDM)	Karl-Erik Årzén
	7/5	E7	UDM	Alfred/Anders
Week 20	13/5	L9	Game theory 1	Bo Bernhardsson
	15/5	L10	Game theory 2	Bo Bernhardsson
	16/5	E8	Game theory	Alfred/Anders
	12-16/5	Lab 2	LAB2: Distributed systems	Anders Mannesson
Week 21	20/5	L-Pres	Project Presentations	All
	21/5	E9	Game theory cont.	Alfred/Anders
!!	23/5!	L11 (10:15-12)	Guest Lecture	Kurt Jörnsten
Week 22	30/5	Exam	Tentamen 14:00-19.00 Sparta:A-B	