SYLLABUS (PENSUMLISTE)
AND
COURSE GRADING
PHYS225 – MEASUREMENT TECHNOLOGY
SPRING 2014

Textbook: John P. Bentley: ”*Principles of measurement systems*” 4th edition

Chapter 1 - **The general measurement system**

Chapter 2 - **Static characteristics of measurement system elements**

Chapter 3 - **The accuracy of measurement systems in steady state**

Chapter 4 - **Dynamic characteristics of measurement systems**

Chapter 6 - **Signals and noise in measurement systems**

Chapter 8 - **Sensing elements (NOT Ch 8.1.4, 8.8, 8.9 and 8.10)**

Chapter 9.1 - Signal conditioning elements : Deflection bridges

Chapter 12 - Flow measurement systems

Chapter 16.4.4 – Ultrasonic transit time flowmeter

Compendium: B.T Hjertaker: ”*Lecture notes on Control Systems Theory*” (Autumn 2013)

Lectures on control systems and state space analysis include:

- Mathematical models of dynamic systems

- General on control systems (forward- and feedback control)

- Graphic representation of the frequency response

- State space and state space vectors

- Solution of linear vector differential equations

- Transition matrix / resolvent matrix

- Mono- and multivariable systems

- Transfer matrix

- Feedback systems and stability in systems with feedback loops

- Loop transfer function, ”følgeforhold” and ”avviksforhold”

- PID controller

- Controllability and observability

The syllabus also includes all exercise problems given in the course, and all lecture note handouts available from the student web.

Course grading

The course grade is obtained as follows:

- Oral exam   100 %