SYLLABUS (PENSUMLISTE)

PHYS225 – MEASUREMENT TECHNOLOGY

AUTUMN 2018

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: *"Course Compendium PHYS225 Measurement Technology"*
by B.T. Hjertaker (Autumn 2018)

The compendium includes (amongst others):

- Introduction to calculation of measurement uncertainty
- The impulse response
- Graphic representation of the frequency response
- Mathematical modelling of dynamic systems
- The state space model representation
- Solution of linear vector differential equations
- Transition matrix / resolvent matrix/ transfer matrix
- Controllability and observability
- General on control systems (forward- and feedback control)
- The PID controller

The syllabus also includes all exercise problems given in the course, and all lecture note handouts available at "My UiB"("Mitt UiB").