

Software Defined Radio for Forsvarets Materieltjeneste

- 1. Week 10 – Wednesday 10/3 – Digital Radio Communication Basics – U2.04**
- Brush up adapted to needs (jaas)
- 2. Week 11 – Thursday 18/3 – SDR Basics & Introduction to Ettus/GNU Radio – D1.36**
- Blocks of SDR in general with Ettus radio as primary example (ply); intro to the software (bka,yli)
- 3. Week 12 – Thursday 25/3 (G1) / Friday 26/3 (G2) – Exercises 1 – M1.56**
- Setup software on laptops; run first experiments to see things working correctly (bka,yli,bia)
- 4. Week 14 – Thursday 8/4 – GNU Radio Programming Principles & Channel Encoding – U2.04**
- Python programming and APIs (yli); Encodings, eg., Reed Solomon error correction (jks)
- 5. Week 15 – Thursday 15/4 (G1) / Friday 16/4 (G2) – Exercises 2 – M1.56**
- Radio programming; working with error correction and IP streams (bka,yli,bia)
- 6. Week 16 – Thursday 22/4 – Antennas, Channels, Noise, Available Standards – U2.04**
- Small antennas; beam forming; MIMO; link budget; standards (ply)
- 7. Week 17 – Wednesday 28/4 (G1) / Thursday 29/4 (G2) – Exercises 3 – M1.56**
- Programming with channel switching; detection of noise; listening to different bands (bka,yli,bia)
- 8. Week 18 – Thursday 6/5 – Frequency Hopping, Wideband, Jamming & Security – U2.04**
- General principles (bia); our own Secret Adaptive Frequency Hopping based on AES (yli,bka)
- 9. Week 20 – Thursday 20/5 (G1) / Friday 21/5 (G2) – Exercises 4 – M1.56**
- Programming with enabling security principles, eg., frequency hopping and encryption (bka,yli,bia)
- 10. Week 21 – Thursday 27/5 – FPGA Programming & Digital Filters – U2.04**
- Architecture of FPGA & programming the Ettus radio FPGA (skh); filter design (ply)
- 11. Week 22 – Thursday 3/6 (G1) / Friday 4/6 (G2) – Exercises 5 – M1.56**
- Own choice of theme (decision to be made two weeks before) (bka,yli,bia)
- 12. Week 23 – Thursday 10/6 (G1) / Friday 11/6 (G2) – Exercises 6 – M1.56**
- Own choice of theme (decision to be made two weeks before) (bka,yli,bia)
- 13. Week 24 – Friday 18/6 – Examination** (approx. 30 minutes per participant)

Time of day: All seminars and exercises begin in mornings at 9:00 and ends at approx. 12:30 (+lunch).

Handouts: Paper handouts are available on the day. On the day before (latest 12:00) handouts will be put at <http://svn.ihk-edu.dk/svn/WirelessCenter-Course/SDR-FMT2010/>

Laptops: For exercises Wireless Center laptops will be used.

Teachers: jaas = John Aa. Sørensen; ply = Per Lynggaard; bia = Birger Andersen; bka = Bipjeet Kaur; yli = Yao Li; jks = John K. Sørensen; skh = Samant Khajuria (email addresses <initials>@ihk.dk).

Version: 11/3 2010