

Course Programme

Digital Communications, Advanced Course (ETTN01), 7.5 hp, 161031 – 161231

First lecture: Monday 31 October (week 44), 15.15 – 17.00 in E:2311.

Project starts in week 44.

Laboratory lesson: LAB (4 hours) starts on Tuesday 6 December 2016 (week 49 = Study week 6).

Application to the laboratory lesson is made on the homepage of this course where you book one available time-slot. Applications can be made one week before the lab starts, or maybe earlier, check Messages!

Messages will be distributed on the homepage of this course, <http://www.eit.lth.se/kurs/ettn01> . Check messages at least twice a week!

Written Examination:

1:st opportunity: Tuesday 10 January 2017, 08.00 – 13.00, Vic:3C+D

2:nd opportunity: Friday 21 April 2017, 08.00 – 13.00, E:2311

3:rd opportunity: Friday 18 August 2017, 08.00 – 13.00, E:2311

- Course Literature:**
- “Introduction to Digital Communications”, compendium August 2006.
 - Lecture notes on OFDM
 - Manual for the laboratory lesson.

The lecture notes on OFDM, and the manual for the laboratory lesson will be available on the homepage of this course, (they are not available yet).

You are allowed to use the compendium and the lecture notes on OFDM during the written examination.

This course is defined by the pages and problems given in the course outline given below in this course program, and by the laboratory lesson.

Teacher: Göran Lindell, Room E:2360, email: Goran.Lindell@eit.lth.se

Lectures: Mondays 15.15 – 17.00 in E:2311 study-weeks: 1,2,3,4,7.
in E:1406 study-weeks: 5,6.

Wednesdays 15.15 – 17.00 in E:2517 study-weeks: 1,4,5,6,7.
in E:2311 study-weeks: 2,3.

Exercise class : Tuesdays 13.15 – 15.00 in E:2311 study-weeks: 1,2,3,4,5,6.
in E:3318 study-week 7.

Thursdays 10.15 – 12.00 in E:3308

Time plan for the project and lab:

Study week 1: Study period starts. Try to find a project partner as soon as possible. **Send me an email this week containing names and email to the two persons in the project group!**

Study week 2: Lecture Monday 7 November: **Project info & start-up procedure.**

Study weeks 3+4+5: **Project work.**

Study week 4: Send me an email and describe in short the status of your project work.

Study week 5: **Deadline for the project report** (pdf-format, Email) Thursday 1 December 2016, 17.00.

Study week 6: LAB starts.

Study weeks 6+7: **Project presentations and opponents.**

Study week 7: Last study week with planned course activities.

Preliminary Course Outline for the course Digital Communications, Advanced Course (ETTN01), 2016:

| <u>Week</u> | <u>Contents</u> |
|--------------------|--|
| 44 | <p><u>Lecture (31/10)</u>: Introduction. 5.1 – 5.1.2 (pages 329-341). <u>Exercise (1/11)</u>: Problems 5.1, 5.11, Example 5.2 on page 334, 5.6i, 5.9. <u>Lecture (2/11)</u>: 5.1.2 – 5.1.7 (pages 336 – 360). <u>Exercise (3/11)</u>: 5.15a, 5.19, 5.16b, Example 5.4 on page 343, 5.13a, 5.14.</p> |
| 45 | <p><u>Lecture (7/11)</u>: Project info and start-up procedure , 5.2 (pages 360 – 377). <u>Exercise (8/11)</u>: 5.20, 5.18a, 5.21, 5.23, Example 5.20 on page 373, 5.30. <u>Lecture (9/11)</u>: 5.4.1 (pages 380 – 392), Example 5.34, Figure 5.26 on page 393, 5.4.4 – 5.4.6 (pages 396 – 405). <u>Exercise (10/11)</u>: Example 5.23 on page 384, 4.34i), 5.34, 5.33.</p> |
| 46 | <p><u>Lecture (14/11)</u>: 3.4.1 (pages 161 – 163), Problem 5.34, 3.4.3 (pages 167-170). <u>Exercise (15/11)</u>: 3.16, Example 5.4 on page 343. 5.34 ((5.133) – (5.138)). <u>Lecture (16/11)</u>: 8.1 – 8.2.1(pages 501– 512). OFDM introduction. <u>Exercise (17/11)</u>: 8.1, 8.4, 8.6a,b,c,e, 8.7a,b,c,e, 2.32a,b, 8.8a, Example 8.4 on page 512.</p> |
| 47 | <p><u>Lecture (21/11)</u>: OFDM lecture notes pages 1-45. <u>Exercise (22/11)</u>: OFDM problems X1, X2, X3, X4, X5.. <u>Lecture (23/11)</u>: 9.1 – 9.2 (pages 581 – 596). <u>Exercise (24/11)</u>:): OFDM problems X6, X7, X8, X9, X10, X11</p> |
| 48 | <p>Deadline for project report this week on <u>Thursday 1 December, 17.00!</u> <u>Lecture (28/11)</u>: 9.2 (591 – 596), Problem 5.34, 7.3(pages 480 – 486). <u>Exercise (29/11)</u>: 9.2, 9.3, 9.4, 9.5. <u>Lecture (30/11)</u>: 7.3.21-7.3.2 (pages 484 - 490). <u>Exercise (1/12)</u>: 9.6, 9.7, 9.8, 9.10</p> |
| 49 | <p>Lab starts this week! <u>Lecture (5/12)</u>: Summary of the course. <u>Exercise (6/12)</u>: 7.7, 7.9, 7.10a. <u>Lecture (7/12)</u>: Project presentations <u>Exercise (8/12)</u>: Problem solving/Question time</p> |
| 50 | <p><u>Lecture (12/12)</u>: Project presentations <u>Exercise (13/12)</u>: Problem solving/Question time <u>Lecture (14/12)</u>: Project presentations <u>Exercise (15/12)</u>: Problem solving/Question time Friday 16 December 2016: Study week 7 ends.</p> |
| 2 | <p>Written examination Tuesday 10 January 2017, 08.00 – 13.00, Vic:3C+D.</p> |