

Course Programme

Digital Communications, Advanced Course (ETTN01), 7.5 hp, 141103 – 141219

First lecture: Monday 3 November (week 45), 15.15 – 17.00 in E:2311.

Project starts in Week 46.

Laboratory lesson: LAB (4 hours) starts (preliminary) on Tuesday 9 December 2014 (Week 50 = 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 per week!

Written Examination:

1:st opportunity: Monday 12 January 2015, 14.00 – 19.00, MA:MA09-E-F

2:nd opportunity: TBA

3:rd opportunity: TBA

Notice: Application is required for the 2:nd and 3:rd opportunity. Applications are made on the homepage of this course.

- 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: 3/11: Monday 15.15 – 17.00 in E:2311
10/11: Monday 13.15 – 15.00 in E:3308
17/11: Monday 15.15 – 17.00 in E:2311
24/11: Monday 13.15 – 15.00 in E:3308
1/12: Monday 15.15 – 17.00 in E:2311
8/12: Monday 13.15 – 15.00 in E:B
15/12: Monday 15.15 – 17.00 in E:2311

Wednesdays 10.15 – 12.00 in E:2311 (Exception: 12 November the room is E:B)

Exercise class : Tuesdays 15.15 – 17.00 in E:2311

Thursdays 13.15 – 15.00 in E:2311
(but not in study week 2, i.e.13 November, Instead the second exercise in study week 2 is on Friday 14 November 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 10 November: **Project info & start-up procedure.**

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

Study week 5: **Deadline for the project report** (pdf-format, Email) Thursday 4 December 2014, 17.00.

Study week 6: LAB starts.

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

Study week 7 (141219): Study period ends.

Preliminary Course Outline for the course Digital Communications, Advanced Course (ETTN01), 2014:

<u>Week</u>	<u>Contents</u>
45	<p><u>Lecture (3/11)</u>: Introduction. 5.1 – 5.1.2 (pages 329-341). <u>Exercise (4/11)</u>: Problems 5.1, 5.11, Example 5.2 on page 334, 5.6i, 5.9. <u>Lecture (5/11)</u>: 5.1.2 – 5.1.7 (pages 336 – 360). <u>Exercise (6/11)</u>: 5.15a, 5.19, 5.16b, Example 5.4 on page 343, 5.13a, 5.14.</p>
46	<p><u>Lecture (10/11)</u>: Project info and start-up procedure , 5.2 (pages 360 – 377). <u>Exercise (11/11)</u>: 5.20, 5.18a, 5.21, 5.23, Example 5.20 on page 373, 5.30. <u>Lecture (12/11)</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 (14/11)</u>: Example 5.23 on page 384, 4.34i), 5.34, 5.33.</p>
47	<p><u>Lecture (17/11)</u>: 3.4.1 (pages 161 – 163), Problem 5.34, 3.4.3 (pages 167-170). <u>Exercise (18/11)</u>: 3.16, Example 5.4 on page 343. 5.34 ((5.133) – (5.138)). <u>Lecture (19/11)</u>: 8.1 – 8.2.1(pages 501– 512). OFDM introduction. <u>Exercise (20/11)</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>
48	<p><u>Lecture (24/11)</u>: OFDM lecture notes pages 1-45. <u>Exercise (25/11)</u>: OFDM problems X1, X2, X3, X4, X5. <u>Lecture (26/11)</u>: 9.1 – 9.2 (pages 581 – 596). <u>Exercise (27/11)</u>:): OFDM problems X6, X7, X8, X9, X10,</p>
49	<p><u>Lecture (1/12)</u>: 9.2 (591 – 596), Problem 5.34, 7.3(pages 480 – 486). <u>Exercise (2/12)</u>: 9.2, 9.3, 9.4, 9.5. <u>Lecture (3/12)</u>: 7.3.21-7.3.2 (pages 484 - 490). <u>Exercise (4/12)</u>: 9.6, 9.7, 9.8, 9.10 Deadline for project report this week on <u>Thursday 4 December, 17.00!</u></p>
50	<p>Lab starts this week! <u>Lecture (8/12)</u>: Summary of the course. <u>Exercise (9/12)</u>: 7.7, 7.9, 7.10a. <u>Lecture (10/12)</u>: Project presentations <u>Exercise (11/12)</u>: Problem solving/Question time</p>
51	<p><u>Lecture (15/12)</u>: Project presentations <u>Exercise (16/12)</u>: Problem solving/Question time <u>Lecture (17/12)</u>: Project presentations <u>Exercise (18/12)</u>: Problem solving/Question time Friday 19 December 2014: Study period ends.</p>
3	<p>Written examination Monday 12 January 2015, 14.00 – 19.00, MA:MA09-E-F</p>