ELEC-E7110
Trends in Communications Engineering Research

Fall 2020

Riku Jäntti (riku.jantti@aalto.fi)

Samuli Aalto (samuli.aalto@aalto.fi)

Mika Nupponen (mika.nupponen@aalto.fi)

Course overview

- Learning outcomes:
  - After this course student has good understanding on recent progress in communications engineering and is familiar with the work carried out in selected ELEC research groups. Student has also learned principles of project work.
- Lectures on Tuesdays 10-12 in Zoom
- Individual learning diaries
- Project work (including Workshop)
- Final grade = 0,2 * Lecture participation grade +
  0,4 * Learning diary grade + 0,4 * Project work grade
- Remember to register for the course in WebOodi!

Lecture schedule

- 08.09.2020, 10-12, zoom: Introduction + Lecture 1
- 15.09.2020, 10-12, zoom: Lecture 2
- 22.09.2020, 10-12, zoom: Lecture 3
- 29.09.2020, 10-12, zoom: Lecture 4
- 06.10.2020, 10-12, zoom: Lecture 5
- 13.10.2020, 10-12, zoom: Lecture 6 + Announcement of project groups

- 27.10.2020, 10-12, zoom: Lecture 7
- 03.11.2020, 10-12, zoom: Lecture 8
- 10.11.2020, 10-12, zoom: Lecture 9
- 17.11.2020, 10-12, zoom: Lecture 10
- 24.11.2020, 10-12, zoom: Lecture 11
- 01.12.2020, 10-12, zoom: Lecture 12

- 08.12.2020, 09-12, zoom: Workshop with project work presentations

Lecture participation grade

- 5 : max 1 missed lecture
- 4 : 2 missed lectures
- 3 : 3 missed lectures
- 2 : 4 missed lectures
- 1 : 5 missed lectures
- 0 (= course failed): 6 or more missed lectures.
- If you will be sick on leave more than one lecture, ask medical certificate for example from FSHS (Finnish Students Health Service) and contact the course personnel.

Individual learning diaries

- For each of the lectures and project work provide a description (at least 1 full page and at most 2 full pages, which corresponds to 500-1000 words) that answers the questions described below:
  - *A. Lesson learned*: How did the material relate to your prior learning and life experience? What did I learn? What was new for me? Was there something that changed my views and why? Focus on and analyze the themes important to you.
  - *B. Problems and open issues*: What did I not understand? What went against my own ideas? Why? What was less comprehensible? Why? Focus on and analyze the questions that left you puzzled.
  - *C. Relevance*: What the course has taught is likely to have some relevance for you and your studies. Can you identify what this is? How are you able to apply this knowledge in your studies? How does this support your development as a student? Make note of and reflect on the thoughts that emerge as especially important.
- Return the first part of your diary (covering the lectures in Period I) no later than **16.10.2020**
- Return the second part of your diary (covering the rest) no later than **11.12.2020**
- Learning diary grade will be decreased from 5 if (i) the diaries are submitted late, (ii) the text is hard to understand, or (iii) the text does not answer the questions listed above.
- If you miss some lectures you still have to do the corresponding lecture diary! Use lecture slides as references.
- Accepted grade from the lecture diaries is required to pass the course!

Project work

- Project work is done in random groups of 4-6 students (remotely utilizing e.g. zoom).
- Groups will be defined by the course personnel on **13.10.2020**.
- Upload your group presentation (PowerPoint or pdf) to MyCourses no later than **4.12.2020**.
- The results will be presented to the other students in Workshop on **8.12.2020**.
- Presentation time max 15 minutes including discussion.

Task:

- Each group will try to predict how world is different in year of 2030 from the communications engineering point of view. Group may choose (invent) a certain (new) service, (new) technology or (new) product(s) or concept and describe what kind of properties it will have and what kind of possibilities it offers. Groups should also define what kind of development steps (and in which research area) are needed to create service/product described.

- Grading is based on (i) how well the idea is presented and (ii) reasoning is done. The "idea" itself does not lower the grade!

- Accepted grade from the project work is required to pass the course!