



## **Electric power engineering, extended design project (EEN045) 2021**

### **Course content:**

The projects are not fixed and may vary from year to year. A list of suitable projects will be presented before the beginning of the course on the course homepage. The different projects have different aims. The project could consist of experiments, design, construction and testing of prototypes and usage of computers for computation (design & construction) and simulation (experiments & testing). During the whole project minutes shall be kept of the continuing work. A report shall be written and finally the result shall be presented orally at a seminar.

### **Course Aim:**

The course intends to train creativity and cooperation in treating a practical problem in the field of electric power engineering, often connected to environmental technology. This shall be done by applying knowledge from earlier courses and by seeking additional information needed for the problem in question. The course shall give possibilities to solve problems where creativity is important. Teamwork and collaboration in groups with different compositions are important in the course as well as presentation of the result, both in written and oral form. The project will be carried out with an extended depth of electric power engineering and should be carried out in collaboration with students from other programs.

### **Learning outcomes (After the course the students should be able to):**

1. Work in teams and collaborate in groups with different compositions to solve practical problems in the field of electric power engineering, often connected to environmental technology
2. Work in collaboration with other disciplines, in tune with their working methods, or with extended technical depth.
3. Make sustainable choices of solutions and justifications due to relevant criteria's of the problems and opportunities associated with the use of different electric power components and systems
4. Identify, select, and use different tools for analysis of the problem
5. Demonstrate ability, at design in electric power engineering, to make assessments with regard to sustainable development and ethical aspects, by:
  - Reflect and critically evaluate various relevant dimensions of sustainable development
  - Describe and analyze possible ethical consequences and propose countermeasures
  - Perform scientific writing in an ethically justifiable manner, e.g., related to plagiarism and authorship
  - Apply ethical principles to data collection, analysis and presentation of results
6. Elaborate a technical report in which the chosen solution is motivated
7. Present and defend the chosen project solution for an audience ranging from management to engineering colleagues

### **Course organization:**

The course is basically run in project form with different supervisors in different projects. Several compulsory workshops are given in the course to facilitate the writing and other aspects covered in the course. The students may in consultation with the supervisor use the capacity (both staff and equipment) of the division. Cooperation with trade and industry may also occur and in some projects study visits will also be included. The project groups meet with their supervisors about 4 hours/week. The rest of the time is self-governed work. All students must write a personal diary and time report, this should be collected within the group and send to the supervisor once a week.



### Examination:

Written planning report, report, individual reflection, and oral presentation. Approved quiz regarding writing a technical report. Grading: UG - Fail, pass. To be approved in the course active participation (high attendance) in the project work and a satisfactory presentation of the result are required. Active participation also includes attendance at all compulsory scheduled occasions for the course and meeting the deadlines, see the course plan below.

### Course material:

The course literature will be decided by the supervisors of the separate projects.

### Changes made since the last occasion:

Self-study modules for Ethics and Writing instead of the writing lecture and the ethics workshop.

Course staff:	Name	Telephone	Email
Examiner:	Sonja Tidblad Lundmark	772 16 51	<a href="mailto:sonja.lundmark@chalmers.se">sonja.lundmark@chalmers.se</a>
Technical communication workshop and Group Diversity workshop teacher:	Rebecca Bergman	772 26 44	<a href="mailto:rebecca.bergman@chalmers.se">rebecca.bergman@chalmers.se</a>
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Code of ethics and Writing modules teacher:	Sonja Tidblad Lundmark	772 16 51	<a href="mailto:sonja.lundmark@chalmers.se">sonja.lundmark@chalmers.se</a>

### Project groups:

#### Project 11. Design of an Electric Power System on a ship

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Project supervisors Project 11:

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### Planning report reviewing, report reviewing and opponent groups

To be done together with NPNAV-students.



Week, Date, Time	Course plan EEN045-parts
2 (36) Tue 7/9 13:15-15:00	<b>Compulsory</b> workshop 1 on sustainable aspects in EL43. <i>Jimmy</i>
3 (37) <i>Tues 14/9</i> 13:15-15:00	<b>Compulsory</b> workshop 2 on sustainable aspects in <i>EL41</i> <i>Jimmy OBS: Moved from Thursday 16th to Tuesday 14th!</i>
	<b>Follow the two workshops above (SP1) or the two workshops below (SP2)</b>
3 (46) Thu 18/11 13:15-15:00	<b>Compulsory</b> workshop 1 on sustainable aspects in ES52 <i>Jimmy</i>
4 (47) Thu 25/11 13:15-15:00	<b>Compulsory</b> workshop 2 on sustainable aspects in ES52 <i>Jimmy</i>
9 (2) Sun 16/1	<b>Deadline</b> final version of the project report. Send the project report to the examiner and supervisor.