



Power Engineering Design Project (EEK 150), study period 2, 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.

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. 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
3. Identify, select, and use different tools for analysis of the problem
4. 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
5. Elaborate a technical report in which the chosen solution is motivated
6. 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	sonja.lundmark@chalmers.se
Project supervisors:			
Project 3	Torbjörn Thiringer	772 16 44	torbjorn.thiringer@chalmers.se
	Fredrik Larsson		frlar@chalmers.se
	Robert Karlsson	772 16 46	robert.karlsson@chalmers.se
Project 8	Ola Carlson	772 16 37	ola.carlson@chalmers.se
Technical communication workshop and Group Diversity workshop teacher:	Rebecca Bergman	772 26 44	rebecca.bergman@chalmers.se
Sustainable aspects workshop teacher:	Jimmy Ehnberg	772 16 56	jimmy.ehnberg@chalmers.se
Code of ethics and Writing modules teacher:	Sonja Tidblad Lundmark	772 16 51	sonja.lundmark@chalmers.se



Project groups:

Project 3. High energy efficiency dc/dc converter using planar transformer

Adarsh Bandi	bandi@student.chalmers.se
Nagendra Ramamurthy Gouthamas	nagrama@student.chalmers.se
Vaghul Kramadhati Venkatagiri	vaghul@student.chalmers.se
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Martin Ferm	mferm@student.chalmers.se

Project 8. Frequency regulation by wind power

Niharika Sharma	niharika@student.chalmers.se
Janarthanan Veerasamy	janvee@student.chalmers.se
Kishore Balachandar	kisbal@student.chalmers.se
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Planning report reviewing, report reviewing and opponent groups

Project 3 and project 8 review and are opponents on each other

15 HEC project that run over both study periods in the course EEN045:

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

Erik Benjaminsson	benerik@student.chalmers.se
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Auss Ayyoub	auss@student.chalmers.se

Project supervisors Project 11:

Jimmy Ehnberg	772 16 56	jimmy.ehnberg@chalmers.se
Sonja Tidblad Lundmark	772 16 51	sonja.lundmark@chalmers.se



Week, Date, Time	Course plan:
1 (44) Tue 2/11 13:15-15:00	Compulsory introduction lecture in EL43 and project introductions. Sonja and supervisors
1 (44) Thu 4/11 13:15-15:00	Compulsory Technical communication workshop 1 in ES52. OBSERVE the preparation tasks needs to be done before the workshop. Becky
2 (45) Thu 9/11 13:15-15:00	Compulsory Group Diversity workshop 1 in EL42. OBSERVE the preparation tasks needs to be done before the workshop. Becky
2 (45) Thu 11/11 before 17:00	Deadline planning report. One person per group should upload the planning report on Canvas under Assignments, Deadline planning report, version 1. Also, send the planning report to the examiner, supervisor, and the reviewing group (see above).
2 (45) Thu 11/11	Deadline group contract. One person per group should upload the group contract on Canvas under Assignments, Group contract
3 (46) Thu 18/11 13:15-15:00	Compulsory workshop 1 on sustainable aspects in ES52 Jimmy
3 (46) Thu 18/11 15:15-17:00	Feedback from supervisor and reviewing group on the planning report. ES52 supervisors
3 (46) Fri 19/11 before 17:00	Deadline Individual group assessment. Each person in the group should upload their own individual group assessment on Canvas under Assignments, Individual team member assessment
4 (47) Mon 22/11 to Fri 26/11	Compulsory group individual workshop on diversity, 1 hour per group. The groups book time on choodle, see link on Canvas under Modules/Group diversity Becky
4 (47) Tue 23/11 before 08:00	Deadline updated planning report with a report outline for the final report. One person per group should upload the report on Canvas under Assignments, Deadline planning report, version 2
4 (47) Thu 25/11 13:15-15:00	Compulsory workshop 2 on sustainable aspects in ES52 Jimmy
4 (47) Wed 24/11 to Fri 26/11	Feedback on the report outline. supervisors
5 (48) Mon 29/11 to Mon 7/12	Chalmers Writing Centre (CWC) tutoring sessions can be booked by the groups
6 (49) Tue 7/12 before 13:00	Deadline version 1 of the project report. One person per group should upload the report on Canvas under Assignments, Deadline project report, version 1.
6 (49) Thu 9/12 13:15-15:00	Compulsory Technical communication workshop 2 in EL41. Peer review workshop. OBSERVE the preparation tasks needs to be done before the workshop. Becky
7 (50) latest Mon 13/12	Feedback from supervisor on the project report. supervisors
7 (50) Thu 16/12 13:15-17:00	Compulsory oral presentations of project results and oppositions in EL41 Sonja and supervisors
7 (50) Fri 17/12 before 12:00	Deadline version 2 of the project report. One person per group should upload the report on Canvas under Assignments, Deadline project report, version 2.
9 (2) latest Tue 11/1	Feedback from supervisor on the project report. supervisors
9 (2) Sun 16/1	Deadline final version of the project report. One person per group should upload the report on Canvas under Assignments, Deadline project report, Final.