Linnæus University

Jnr: 2018/3236-3.1.2.2

Course syllabus

Faculty of Technology
Kalmar Maritime Academy

1ER56D Elkraft och elproduktion, 5 högskolepoäng
Electric Power Technology and Power Generation, 5 credits

Main field of study
Energy Technology

Subject Group
Energy Technology

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved by Faculty of Technology 2018-11-26
The course syllabus is valid from autumn semester 2019

Prerequisites
Electrical engineering (1ER03T), 5 credits or equivalent.

Objectives

After completing the course, the student should be able to:

- Perform calculations on electrical machines (transformer, induction motors, synchronous machines, frequency inverters, UPS) characteristics, function and usage including rated data
- Describe usage/function of relevant protection devices and couplers
- Perform connection of electrical machines and associated protection devices
- Trough measurements explore functions of electrical machines ?
- Calculate symmetrical three phase systems including power factor correction ?
- Discuss characteristics and requirements on electrical machines and apparatus

Content

- Wye and delta connections
- Symmetrical and unsymmetrical loads
- Transformer
- Principles of generators and electrical motors (AC and DC)
- Frequency inverters
- Rated data on electrical machines
- Couplers and relevant protection devices and fuses
- UPS
- Power factor correction
- Interaction bwtween generators, voltage regulation and synchronization
- Alternative production methods

Type of Instruction

Instructions consists of lectures and graded exercises.

Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).
In order to receive the Pass with distinction grade, a similar grade is required for the written exam.
Knowledge assessment takes place as follows:

- individual written exam
- assessment of exercise performance

Course Evaluation

During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at Kalmar Maritime Academy.

Required Reading and Additional Study Material

Required Literature
Alfredsson, Alf, Elkraft, latest issue, Liber (about 260 pp.)

Lesson materials (Electric Power Technology and Power Generation), Kalmar Maritime Academy

Technical formula handbook, Kalmar Maritime Academy