



Course syllabus

Faculty of Technology
Kalmar Maritime Academy

2FF32I Tillämpad elteknik, 15 högskolepoäng
Applied Electrical Technique, 15 credits

STCW reference

Sektion AIII/1 och AIII/2

Subject Group

Other Subjects within Technology

Level of classification

First Level

Progression

G2F

Date of Ratification

Approved 2015-01-13

Revised 2019-03-13 by Faculty of Technology. Prerequisites, objectives and content is revised.

The course syllabus is valid from autumn semester 2019

Prerequisites

Four months before course start, the student must have 65 credits out of the 180 credits within the Marine Engineering Programme as well as approved in the programme courses Faultfinding and electrical systems or Marine Electrical Power. Students accepted on the four year Marine Engineering Programme have highest priority. Admission is made in terms of maximum number of students.

Objectives

After completing the course the student should be able to:

- with certainty perform on board commonly performed electrical work
- apply safety instructions, laws and regulations when working with electricity
- chose correct measuring and testing equipment
- chose suitable method for repair and maintenance
- apply electrical schematic
- perform troubleshooting and reparation in on board commonly used monitor systems.
- perform earth fault troubleshooting in isolated power systems
- perform work in electrical systems consisting of motor, generators, inverters with associated protection, synchronization equipment, controls, governs and monitoring systems.
- describe components in an electrical system such as: contactors, relays, breakers cables, PLC systems, inverters, protection equipment (circuit breakers, generator protection etc.) asynchronous motors and synchronous generators.

- Work with commonly used tools and installation materials for electrical work

Content

- design, documentation and installation with commonly used electrical equipment as well as troubleshooting electrical power systems
- installation of switchboards, earth fault breaker, one and three phase power outlets, breakers and cabling in electrical pipes and fittings
- operation of asynchronous motors of type DOL, Star/Delta, softstarters and frequency inverters with associated protection and control systems
- installation of generators with associated protection (reverse power, frequency, voltage and current protection), synchronization equipment, active and reactive power share
- control of motor/generator operations, as above, with PLC-systems
- electrical safety education
- EMC in ship installations
- applied electronics/measurements
- cabling and sealing
- design, installation, documentation and troubleshooting oriented projects including generating, protection, earth fault monitoring, control, operating, sharing and consumption
- ATEX
- IoT

Type of Instruction

Instruction consists of lectures, graded exercises and assignments separately and in groups.

Examination

The course is assessed with the grades Fail (U) or Pass (G).

The objectives must be achieved in order to pass the course.

Knowledge assessment takes place as follows:

- by observations of accomplishments
- by project works and assignments
- by graded exercises

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.

Other

The course provides a qualification-based electrical internship that is required for engineer officer class V qualification according to the Swedish Transport Agency's regulations on shipboard personnel requirements.

The course is covered by Linnaeus University's guidelines for drug and alcohol use and the University's work environment system. Students undertake to follow the guidelines in conjunction with course taking. Violations against these guidelines may result in disciplinary action.

Required Reading and Additional Study Material

Course materials, Kalmar Maritime Academy