



Course syllabus

Faculty of Technology

Kalmar Maritime Academy

1SÄ80S Sjöfart och miljö, 7,5 högskolepoäng

1SÄ80S Shipping and the Environment, 7.5 credits

STCW reference

Sektion A-II/1, A-II/2, A-III/1, A-III/2 samt A-V/1-1

Subject Group

Other Subjects within Technology

Level of classification

First Level

Progression

G1N

Date of Ratification

Approved by Faculty of Technology 2018-01-08

The course syllabus is valid from autumn semester 2018

Prerequisites

General entry requirements and Mathematics 2a / 2b / 2c, Physics 1b1 / 1a or Mathematics B, Physics A (Field-specific entry requirements 7/A7). Physics A, Physics 1b1 / 1a can be replaced by Natural Science 2 or Deck Officer Training Course, Class VII 40 credits.

Objectives

Proficiency and comprehension

By the end of this course, students will be able to:

- describe the most important environmental problems in marine environments and the environmental effects of shipping,
- discuss various technical and other solutions to reduce the environmental effects of shipping,
- compare environmental effects of shipping with environmental effects of other activities,
- describe maritime-related national and international regulations for the protection of the marine environment,
- account for physical, psychological and chemical hazards in the working environment on board.

Skills and abilities

By the end of this course, students will be able to:

- apply methods and techniques to ensure a physical, psychological and chemical good working environment on board,
- perform measurements of factors affecting the work environment,
- perform measurements of different compositions of air,
- handle personal protective equipment.

Evaluation skills and Approach

By the end of this course, students will be able to:

- relate environmental effects of shipping to global sustainable development goals,
- assess risks in the work environment through a systematic assessment of occupational health and safety.

Content

The main course contents are divided into the following areas:

- environmental problems in marine environments
- effects of discharges of oil and chemicals to water
- effects of CO₂, NO_x, SO_x, PM emissions and other substances to air
- effects of ballast water discharges and the spread of invasive species
- effects of toxins from antifouling paints
- effects of discharges of sewage
- effects of other maritime activities
- weighing various environmental effects against each other
- methods and equipment to reduce environmental effects of shipping
- decontamination and methods to recover environmental values
- solid waste management on board and in port as well as its documentation
- maritime-related national and international regulations for the protection of the marine environment
- occupational safety regulations on board ships
- the ISM-Code
- systematic assessment of occupational health and safety
- risk assessment of working environment
- protective activities, incident reporting of occupational injury
- physical, psychological and chemical health risks including limit-values
- personal protective equipment, operation, function and maintenance
- exercises in order to examining the physical working environment
- access permit and rescue of persons from enclosed spaces
- work permit for cold and hot works
- gas instruments, calibration, principles of measurement and methods for measuring gas
- reference values such as flammability-limits and limit-values
- measurements of different compositions of air

Type of Instruction

Instruction consists of lectures, seminars and exercises. Attendance is mandatory at all seminars and exercises.

Examination

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

Knowledge assessment takes place through seminars, obligatory exercises, and

individual written exam. For the grade Pass with distinction on the course, the student must receive Pass with Distinction on the written exam.

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 the Faculty and at the Kalmar Maritime Academy.

Required Reading and Additional Study Material

Andersson, Karin, Brynolf, Selma, Lindgren, J.Fredrik and Wilewska Bien, Magda 2016. *Shipping and the Environment– Improving Environmental Performance in Marine Transportations*. Springer. Berlin Heidelberg. ISBN 9783662490433. ISBN 9783662490457 (eBook).

Sjöfartens arbetsmiljöhandbok, SAN, latest edition, www.san-nytt.se

Scientific articles and reports, and texts from websites of various national and international authorities and organisations.

Reference Literature

Title: ISGOTT, 5th Edition International Safety Guide for Oil Tankers and Terminals
Number of Volumes: 1
Edition: Fifth Edition
ISBN: ISBN 13: 978-1-85609-291-3 (9781856092913), ISBN 10: 1-85609-291-7 (1856092917)
Published Date: June 2006