



Course syllabus

Faculty Board of Science and Engineering

School of Computer Science, Physics and Mathematics

OMA403 Matematik-Fysik Bas Breddning, 4,5 högskolepoäng

OMA403 Applied Mathematics, Preparatory Course, 4.5 credits

Subject Group

Mathematics

Level of classification

Pre-university level

Progression

G1N

Date of Ratification

Approved 2009-08-19

Revised 2010-08-20 by School of Computer Science, Physics and Mathematics.
Revision made for English translation of the syllabus, prerequisites and course evaluation.

The course syllabus is valid from spring semester 2011

Prerequisites

General entry requirements and Physics B, Mathematics D. (Field-specific entry requirement 8 with the exception of Chemistry A).

Objectives

After completing the course the student should be able to:

- explain the key concepts in the vector theory and be able to describe, analyze and mathematically treat some physical problems in mechanics by means of scalar and vector product
- describe, analyze and arithmetically treat the motion of charged particles in an electric and magnetic field using the vector product
- perform mathematical rules - addition, subtraction, multiplication by scalar, scalar product, vector product - with vectors.

Content

Vector theory: Orientated legs and vectors, addition, subtraction and multiplication by a scalar, the angle between two vectors, parallel vectors, vector components, base vectors and coordinate system, scalar and vector product.

Work and torque. Motion of charged particles in electric and magnetic fields.

Type of Instruction

Teaching is conducted through lectures, seminars and exercises. Active participation in seminars and exercises is required.

Examination

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

The course is examined continuously during the course or by final written and/or oral examination or a combination of these forms. The assessment criteria for Pass are clear from the expected learning outcomes (see above). For students who have not been approved at the regular examination are offered the opportunity to re-examination within six weeks during the term time. Numbers of exam dates are limited to five times. Points obtained in fruitful qualification rates (base year courses) may not count as credits in further education at college/university level.

Course Evaluation

A course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The result of the course evaluation will be filed at the department.

Required Reading and Additional Study Material

Required reading

Kontkanen m.fl. 2006. Ellips 5, Vektorer. Schildts. ISBN-13: 978-951-50-1585-3.

Reference literature

Pålsgård m.fl. Ergo Fysik B. Liber. ISBN 978-91-47-01847-5.

Björk m.fl. 1998. Formler och tabeller. Natura Kultur. ISBN 978-91-27-72279-8, or other formulary in mathematics/physics for secondary schools.