

Syllabus for Vector Analysis 7.5 ECTS credits**1. Course details**

Approved by the Education Committee of the Faculty of Science 01-03-2007 with a decision about amendment 19-11-2007 (2nd version). The syllabus is valid from 01-01-2008. The course is at the First cycle.

2. General information

The course is part of the main field of study in Mathematics at the Faculty of Science. The course is optional at the First cycle in a Bachelor's degree in Science. The course is also offered as a single subject course. The language of instruction is contingently English.

3. Learning outcomes

On completion of the course, the students shall:

- have developed the ability for mathematical communication orally and in writing,
- be familiar with the theory and applications of vector analysis,
- have acquired basic knowledge for further studies in mathematics and physics.

4. Course content

Variable vectors and vector fields. Curvilinear coordinate systems. The concepts potential, gradient, divergence, curl with geometrical and physical applications. The theorems of Gauss, Stokes and Green, Laplace's and Poisson's equations.

5. Teaching and assessment

Teaching consists of lectures and group exercises. An essential element of the group exercises consists of training in problem solving. Compulsory hand-in exercises might be given during the course.

Examination takes the form of a written test and, in connection with this, an oral examination. Oral examination is held only for those who passed the appurtenant written test.

Students who fail the ordinary test will have an opportunity to take another test in close proximity to the ordinary test.

6. Grades

Students are awarded one of the following grades: Distinction, Pass or Fail.

7. Admission requirements

To be eligible for the course requires: Basic eligibility and courses corresponding to MATA11 Mathematics 1 alpha, 15 ECTS credits and MATA12 Mathematics 1 beta, 15 ECTS credits.

8. Literature

According to a list established by the department, available at least five weeks before the start of the course. See the web-page for Mathematics NF.

9. Further information

The course cannot be credited as part of a degree along with MAT244 Vector Analysis, 5p.