MATM12

# Syllabus for Analytic Functions, 15 higher education credits

**1. Course details**
Approved by the Education Committee of the Faculty of Science 16-01-2012. The syllabus is valid from 16-01-2012. The course is at advanced level, A1N.

**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 advanced level in a Master's degree in Mathematics. 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:

- be familiar with the theory and applications of analytic functions of one variable,
- have acquired basic knowledge for further studies in mathematics,
- have developed the ability for mathematical communication orally and in writing.

**4. Course content**
Basic theory for analytic functions. Cauchy's integral theorem and power series expansion. The argument principle, calculus of residues. Moebius mappings. Normal families. The Riemann mapping theorem. Poisson integrals and harmonic functions. Laurent series expansion. Factorisation.

**5. Teaching and assessment**
Teaching consists of seminars and lectures. 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. The 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 and Fail.

**7. Admission requirements**
To be eligible for the course, at least 90 higher education credits of which at least 60 credits in mathematics are required.

**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 MAT331 Analytic functions, 10 credits or with MATC11 Analytic functions, 15 credits.

**10. Registration number** N 2012/24