



DEPARTMENT OF PHYSICS

FIM405 Electrodynamics, 7.5 credits

Elektrodynamik, 7,5 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Department of Physics on 2011-08-22 and was last revised on 2018-08-16 to be valid from 2018-08-16, autumn semester of 2018.

Field of education: Science 100%

Department: Department of Physics

Position in the educational system

The course can be part of the following programmes: 1) Physics and learning, Master's Programme (N2FOL), 2) Complex Adaptive Systems, Master's Programme (N2CAS), 3) Physics of Materials and Biological Systems, Master's Programme (N2PMB) and 4) Physics, Master's Programme (N2PHY)

Main field of studies

Physics

Specialization

A1N, Second cycle, has only first-cycle course/s as entry requirements

Entry requirements

Mathematics 30 c (including Linear algebra, Multivariable calculus, Fourier analysis), Mechanics, Electromagnetism, and Quantum physics.

Learning outcomes

After completion of the course the student should have ability to independently analyze problems in different scientific areas involving electrodynamics.

Course content

- * Introduction to Electrostatics
- * Multipoles, Electrostatics of Macroscopic Media, Dielectrics
- * Magnetostatics, Faraday's Law, Quasi-Static Fields
- * Maxwell Equations, Macroscopic Electromagnetism, Conservation Laws
- * Plane Electromagnetic Waves and Wave Propagation
- * Radiating Systems, Multipole Fields and Radiation
- * Scattering and Diffraction
- * Dynamics of Relativistic Particles and Electromagnetic Fields

Form of teaching

The course is given as a series of lectures.

Examination includes hand-in problems and an oral exam.

Language of instruction: English

Assessment**Grades**

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

Course evaluation

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