Experimental Physics

Programme course

6 credits

Experimentell fysik

TFFM08

Valid from: 2017 Spring semester

Determined by
Board of Studies for Electrical Engineering, Physics and Mathematics

Date determined
2017-01-25

Main field of study
Applied Physics, Physics

Course level
Second cycle

Advancement level
A1X

Course offered for
- Physics and Nanoscience, Master's Programme
- Materials Science and Nanotechnology, Master's Programme
- Applied Physics and Electrical Engineering - International, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering
-

Specific information
Exchange students may apply for the course after arrival to LiTH but before it starts. The international officer for exchange studies must be contacted before applying.

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites
Modern Physics, Wave Motion and Thermodynamics and Statistical Mechanics, are desirable.

Intended learning outcomes
The overall goal with the course is to provide the student a deeper knowledge and understanding of some modern physics measurement- and analysis-methods. The course should also develop and secure the students ability to:

- Perform physics experiments
- Apply knowledge from earlier courses
- Analyze and compile experimental and calculated results
- Account for results obtained in writing
- Actively contribute to create a well functioning project group

Course content

The introductory lectures treat subjects such as crystal structure and diffraction, radioactivity, the interaction of ionized radiation with matter and radiation detection. The series of laboratory exercises include primarily subjects from the courses Modern Physics, Wave Motion and Thermodynamics and Statistical Mechanics. It also contains subjects that are treated in the courses Quantum Mechanics and Physics of Condensed Matter. Examples of laboratory exercises included are: Holography, Emission-spectrometry, Zeeman effect, X-Ray Spectroscopy, Optical pumping, Laue camera, Vacuum-technology, Mass-Spectroscopy, Analysis of gamma-spectrum, Curie and Ising model, Fiber optics and Scanning Tunneling Microscopy.

Teaching and working methods

The course consists of a series of laboratory exercises and is introduced by a short series of lectures.
The course runs over the entire autumn semester.

Examination

LAB1	Examination	6 credits	U, G

Grades are given as ”Fail” or ”Pass”.

Grades

Two-grade scale, U, G

Other information

Supplementary courses: Physics of Condensed Matter, part 1, and Analytical Methods in Material Science

Department

Institutionen för fysik, kemi och biologi

Director of Studies or equivalent

Magnus Johansson

Examiner

Nguyen Son

Course website and other links

http://www.ifm.liu.se/undergrad/fysikgtu/coursepage.html?selection=all&sort=kk

Education components

Preliminary scheduled hours: 84 h
Recommended self-study hours: 76 h

Course literature

Additional literature

Other

Lab instructions and some additional material

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.