Surface Science

Programme course

6 credits

Ytvetenskap

TFTB35

Valid from: 2017 Spring semester

Determined by
Board of Studies for Chemistry, Biology and Biotechnology

Date determined
2017-01-25

Main field of study
Engineering Biology

Course level
Second cycle

Advancement level
A1X

Course offered for
- Chemical Biology
- Engineering Biology, M Sc in Engineering

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
General Chemistry, Molecular Physics, Surface Physics

Intended learning outcomes
The course aims to provide theoretical and practical knowledge of molecular systems in the form of thin organic and biological layers on solid surfaces. The course contains a theoretical part where the methods for describing adsorption to solid surfaces treated. The student is also given an introduction to surface analytical methods, including among others infrared and photoelectron spectroscopy. Laboratory classes in which students may take advantage of advanced surface analytical equipment to study adsorption phenomenon are also included.

Course content
Adsorption dynamic, adsorption from complex biological solutions, self-assembly, surface modification. Surface analysis: infrared and Raman spectroscopy, photoelectron spectroscopy, electrochemical analysis, surface energy messurements, ellipsometry.
Theme for the individual work (varies from year to year).

Teaching and working methods
Lectures and laboratory work.

Examination

LAB1	Laboratory work	2.5 credits	U, G
ANN1	Presentation of mini project	1 credits	U, G
TEN1	Written examination	2.5 credits	U, 3, 4, 5

Grades
Four-grade scale, LiU, U, 3, 4, 5

Department
Institutionen för fysik, kemi och biologi

Director of Studies or equivalent
Magnus Boman

Examiner
Kajsa Uvdal

Education components
Preliminary scheduled hours: 68 h
Recommended self-study hours: 92 h

Course literature
Utdelade vetenskapliga artiklar.

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.