

Surface Engineering, 7,5 HE credits

Ytteknologi, 7,5 hp

Established: 2019-03-14

Established by: Department of Engineering Science

Applies from: H19

Learning outcomes

After completing the course the student shall have knowledge and understanding of:

- Why surface engineering is necessary
- The range of surface properties that can be engineered and benefits that can be derived in industrial and everyday environments
- The large number of surface modification techniques that are available
- The routine methods that are available to characterize engineered surfaces
- Test methods to evaluate the basic properties of the modified surface
- The broad spectrum of case studies spanning diverse surface engineering techniques / component functions / industries

After completing the course the student shall have achieved competence and skills in:

- Implementing a suitable technique to modify/improve surface properties
- Evaluating the basic properties of the modified surface

After completing the course the student shall be able to

- Judge the differences and similarities between various surface modification techniques
- Critically approach the selection of surface modification techniques for a certain application

Entry requirements

15 HP in the advanced level in the field of materials science and manufacturing

The forms of assessment of student performance

Individual written assignments, individual laboratory reports, and a group project report with description of each student's contribution and oral presentation.

Course contents

- Introduction to Surface Engineering
- Surface engineering methods
- Surface metallurgy alteration
- Surface chemistry alteration
- Thin coatings

- Thick coatings
- Characterization of engineered surfaces
- Surface degradation: Causes and mechanisms
- Study visit to a production facility

Other regulations

Course grading: F/Fx/E/D/C/B/A - Insufficient, Insufficient- more work required before the credit can be awarded, Sufficient, Satisfactory, Good, Very Good, Excellent

Course language: The teaching is conducted in English.

General rules pertaining to examination at University West are available at www.hv.se.

If the student has a decision/recommendation on special support due to disability, the examiner has the right to examine the student in a customized examination form.

Cycle

Second cycle

Progressive specialization

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

Main field of study

Mechanical Engineering