Welding Metallurgy, 7.5 HE credits
Svetsmetallurgi, 7.5 hp

Established: 2018-10-29
Established by: Department of Engineering Science
Applies from: V19

Learning outcomes
After completion of the course, the students are expected to be able to show:

Knowledge and understanding in
- Fundamental concepts of welding metallurgy
- Physical metallurgy and welding metallurgy of metal alloys
- Cracking phenomena and associated testing
- Influence of thermal cycles on resulting microstructure and properties

Skills and abilities in
- Searching for appropriate references in the literature
- Analysing the content of scientific documents
- Establishing relations between the experimental results in the lab and the theoretical framework

Values and attitudes
A deep learning approach towards the subject, making comparisons, analyzing and getting conclusions independently.

Entry requirements
Welding Processes - K0002925 or equivalent.

The forms of assessment of student performance
Individual written exams and individual laboratory reports.

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: 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
COURSE SYLLABUS

Course code: **SVM700**

**Progressive specialization**
A1F - second cycle, has second-cycle course/s as entry requirements

**Main field of study**
Mechanical Engineering
Course contents

- Welding metallurgy principles
- Defects and discontinuities in welding
- Process physics
- Diagrams: Phase diagrams, CCT and TTT
- Computational thermodynamics
- Residual stresses, distortion and fatigue in welds
- Welding metallurgy of carbon steels
- Welding metallurgy of stainless steels
- Welding metallurgy of Ni-alloys
- Welding metallurgy of Al-alloys
- Welding metallurgy of Ti-alloys
- Surfacing and dissimilar welding
- Welding consumables vs. welding processes
- Analysis of real welding failures