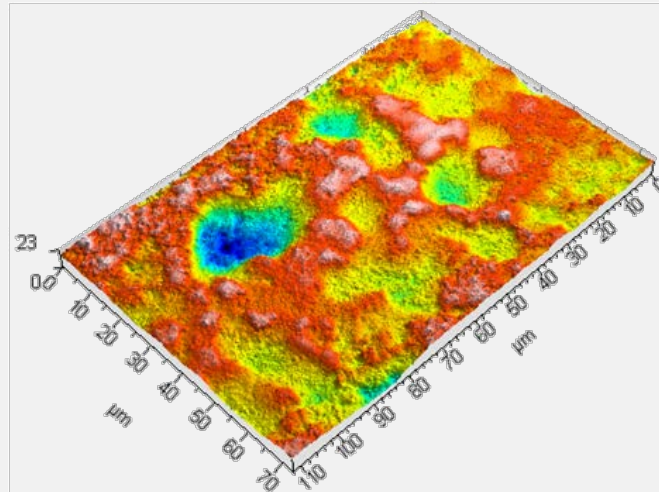




Syllabus for



P63 – Metrology and Properties of Engineering Surfaces

Credits	4 credits
Examiner	Zlate Dimkovski, Halmstad University
Contact	Zlate Dimkovski zlate.dimkovski@hh.se +46 (0) 72 977 36 56, +46 (0) 35 16 77 52
Target group	Academic/industrial researchers and other industry employees interested in the subject.
Prerequisites	Engineering Master degree, or similar. Ask if unsure.
Aim	To gain basic understanding of contact and non-contacting metrology technologies in 2D and 3D (mechanical and optical 2D- as well as 3D profilers) with main focus on characterization of surface texture including geometrical form, waviness, roughness and imperfections.
Teachers/tutors	B.-G. Rosén, Liam Blunt, Lars Bååth, Andreas Archenti, Zlate Dimkovski, Sabina Rebeggiani, Hans Löfgren, Olena Flys, Stefan Rosén, Pär-Johan Löf, Martin Bergman, Amogh

Vedantha Krishna and Vijeth Venkataram Reddy.

Learning outcomes

Upon successful completion of the course, the participants should be able to:

- understand the basics of the 2D and 3D characterisation techniques concerning pre-processing, filtration, segmentation and parameterisation of engineering surfaces.
- understand the possibilities and limitations of the current metrology framework (hardware and software) with practical applications in tribology and quality control.
- apply the surface characterisation on her/his own research.

Contents

The course focuses on metrology and characterisation of engineering surfaces at different stages of their development: testing, manufacturing and operation. Practical applications from the participants' own research projects are included.

The course will cover sensor technology: Atomic force Microscopy-AFM, Scanning Electron Microscopy-SEM, Light Optical Microscopy-LOM, Stripe projection technique, Confocal microscopy, Optical and mechanical profilers for 2D and 3D, as well as filtration, segmentation and parameterisation techniques according to the on-going ISO 3D standardisation.

Organisation

Three days of lectures and workshops including various metrology instruments and software for surface analyses. The participants are expected to have their samples of interest as measuring objects.

Literature

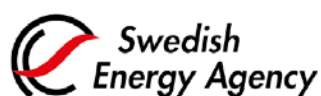
T.R. Thomas; Rough Surfaces – second edition; Imperial College Press, UK; ISBN 1-86094-100-1; (1999). –out of press but available through examiner or the author directly.

L. Blunt (editor), Advanced Techniques for Assessment Surface Topography: Development of a Basis for 3D Surface Texture Standards 'Surfstand'; pp. 197-215; London 2003, Kogan Page Science, ISBN 1- 903996-11-2 . -Available through the examiner.

Examination

Report.

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