MSE-669

Thin film and small scale mechanics

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Cursus	Sem.	Type
Materials Science and Engineering		Opt.
Microsystems and Microelectronics		Opt.

Language of teaching	English
Credits	2
Session	
Exam	Written
Workload	60h
Hours	**32**
Lecture	28
Exercises	4
Number of positions	**24**

Frequency

Every 2 years

Remark

Next time: November 7-10, 2023

Summary

The course focuses on mechanics of solid thin films and small scale structures and on state-of-the-art experimental techniques employed for evaluation and extraction of thin films and small scale structures mechanical properties. Lectures are example intensive, with in depth theoretical analysis.

Content

https://www.epfl.ch/research/domains/ccmx/courses-and-events/mse-637-thin-film-and-small-scale-mechanics/

Note

Textbook: L.B. Freund and S. Suresh, Thin Film Materials, Cambridge Univ. Press 2004 (textbook is not necessary for course participation, handouts and lecture notes will provide sufficient information but the textbook is a valuable reference for anyone working in the field). The course will be held throughout 22.11.22 through 25.11.22 at EMPA in Thun so that partic-ipants can witness and take part in actual experimental evaluations and testing of thin films.

Keywords

Small scale mechanics, thin film mechanics

Learning Prerequisites

Required courses

Basic knowledge of solid mechanics and materials (e.g. elasticity, strength of materials, con-tinuum mechanics, microstructure and chemistry of materials)

Assessment methods

Written

Resources

Bibliography

https://www.empa.ch/web/s206/johann-michler

https://www.empa.ch/web/s206/jakob-schwiedrzik

Websites

- https://www.epfl.ch/research/domains/ccmx/courses-and-events/mse-637-thin-film-and-small-scale-mechanics/