

MSE-669

Thin film and small scale mechanics

Michler Johann, Schwiedrzik Johann Jakob

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 participants 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, continuum 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/>