Nanotechnology in Energy Research

Module title

11-NTE-152-m01

Abbreviation

Managing Director of the Institute of Applied Physics

Module offered by

Faculty of Physics and Astronomy

Module coordinator

Managing Director of the Institute of Applied Physics

ECTS

6

Method of grading

numerical grade

Module offered by

Faculty of Physics and Astronomy

Duration

1 semester

Module level

graduate

Other prerequisites

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Contents

Nanotechnology is of great significance for energy research. Energy efficiency can be heightened in numerous processes or applications by using special functional materials. This module covers special materials, surfaces and structures that have optimised properties due to effects of nanotechnology. It explains the underlying physical contexts. It uses specific materials and components as examples, such as thermal insulation materials, heat accumulators, functional nanoscale layer and particle systems with spectral selective properties, nanoporous vacuum insulations and electrode materials.

Intended learning outcomes

The students have specific and advanced knowledge of the application of nanotechnology in the field of energy research. They know methods of nanotechnology to influence the properties of materials and their applications. They are able to apply their knowledge to specific questions.

Courses

(type, number of weekly contact hours, language — if other than German)

V (3) + R (1)

Module taught in: German or English

Written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or presentation/talk (approx. 30 minutes).

If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest.

Assessment offered: Once a year, summer semester

Language of assessment: German and/or English

Allocation of places

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Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Nanostructure Technology (2015)

Bachelor' degree (1 major) Nanostructure Technology (2020)

Bachelor' degree (1 major) Quantum Technology (2021)