

Course title: Coating materials in construction chemicals – selectable / ~~regular~~ course

Number of contact hours: 15 hours (seminar)

ETCS credits: 1

Course description: The lecture reviews the construction coatings diversity, their properties and application. The background of thin films and nanostructured coatings for construction materials will be provided. The role of coatings in construction systems will be discussed, in particular their impact on final material properties, their effect on economic balance, as well as their influence on improving the quality of live. Some thin film technologies along with illustrative examples will be discussed. Examples of obtaining and application of nano-based coatings will be reviewed. Also, safety issues relating to modern coatings for construction applications will be given. Perspectives for future development of coatings for construction industry will be discussed.

Education effects (P7S_UW, P7S_WG):

- **knowledge:** student knows the most important types of coatings used in construction industry; knows their properties and impact on economic and environmental issues; recognizes the critical aspects of their use; is familiar with basic technologies of their production, knows nano-based coatings
- **skills:** student can select the proper coating to the material with desired properties; is able to predict the characteristic features of so-obtained products
- **social:** student is able to work independently and in the group at preparing basic reports on application of coatings in construction industry; understands the reason of their using

Literature:

1. A. Tracton, Coatings Materials and Surface Coatings, 2006, CRC Press
2. F. Pacheco-Torgal, M.V. Diamanti, A. Nazari and C. Goran-Granqvist (Ed.), Nanotechnology in Eco-Efficient Construction, 2013, Woodhead Publishing
3. A.S. Hamdy Makhoul, Handbook of Smart Coatings for Materials Protection, 2014, Woodhead Publishing

Assessment method: Final test, attendance and active participation in conversations,

Prerequisites: Basic knowledge in chemical technology and engineering

Primary target group: All specialties students

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