**Institute of Building Engineering**

**Faculty of Civil Engineering, Warsaw University of Technology**

# Course: **Building Materials Engineering (in the framework of the ASK) - 2014**

|  |  |  |
| --- | --- | --- |
| Total: 30 h | Lectures: 15h | Lab: 15h |

**Lecturers:**

|  |  |
| --- | --- |
| 1. Dr hab. inż. Andrzej Garbacz – Head of course 2. Dr inż. Tomasz Piotrowski – coordinator 3. Prof. dr hab. inż. Paweł Łukowski 4. Dr inż. Wioletta Jackiewicz-Rek 5. Dr inż. Agnieszka Kaliszuk-Wietecka | 1. Dr inż. Grzegorz Adamczewski 2. Dr inż. Wioletta Barcewicz 3. Mgr inż. Kamil Załęgowski 4. Dr inż. Maciej Cwyl |

### Course schedule:

|  |  |  |
| --- | --- | --- |
| Subject | Lecturer | Date |
| 1. Introduction to Building Materials Engineering (BME). Classification of materials in the field of BME; binder types; building composite types; concrete-like composites, fiber reinforced composites , steel and metal alloy, relation: chemical composition - properties (2h) | TP  Arch.302 | 10.03  9 - 11 |
| 1. SEMINAR: dissipation of semester projects for group of students. Subject of project: selected issues of building materials engineering (2h) | TP  Arch.302 | 10.03  11 - 13 |
| 1. Sustainable buildings. Building energy performance requirements. Thermal insulation systems (2h) | AKW Arch.302 | 31.03  9 - 11 |
| 1. SEMINAR: estimation of thermal properties of selected systems. Analytical and computer approach (2h) | AKW Arch.302 | 31.03  11 - 13 |
| 1. Cement concrete as a common construction material; type of cements; hydration process; admixtures and additives (1h). 2. LAB: Computer simulation of cement hydration; role of admixtures and additives in creation of interface transit zone (1h) | PŁ IL 551 | 07.04  10-12 |
| 1. An adhesion in building structures and joints; factors influencing adhesion; measures of adhesion; definitions and theories, other types of joints - ON-LINE (2 h) | TP | 10.04  16 – 18 |
| 1. Type of joints in building structures (2h); | WB Arch.302 | 14.04 9 - 11 |
| 1. Microstructures elements, methods of microstructure characterization, application of microscopes, stereology and fractography approach, methods of image analysis in application to buildings materials; relationship microstructure – properties. Surface engineering in building industry; self-cleaning properties of building surfaces - ON-LINE (2 h) | AG | 28.04  9 – 11 |
| 1. LAB: Characterization of selected microstructure properties based on image analysis; sample preparation, image selection rules for observation  - ON -LINE (2h) | GA | 28.04  14 – 16 |
| 1. LAB: technology of self-compacting concrete as the example of architectural concrete (4h) | WJ-R  IL 548 | 12.05  10 - 14 |
| 1. Facade systems; construction and material issues- ON-LINE (2 h) | MC | 05.05  14 – 16 |
| 1. Deterioration of building structures – types and reasons. Methods of an anticorrosion protection: impregnation, injection, coatings. Selection of materials. Requirements according to European Directives and standards; Methods of concrete structures assessment; Semi- and nondestructive methods of a diagnosis - ON-LINE (2h) | TP | 26.05  10 – 12 |
| 1. SEMINAR: Presentation of the student projects (4h) | TP Arch.302 | 28.05  10 – 14 |

Kolor czerwony zajęcia z bezpośrednim kontaktem ze studentami