

| <b>STUDY MODULE DESCRIPTION FORM</b>  |   |  |
|---|---|--|
| Name of the module/subject<br><b>Construction Engineering</b>   |   | Code<br><b>1010102111010110063</b>   |
| Field of study<br><b>Civil Engineering Second-cycle Studies</b>   | Profile of study (general academic, practical)<br><b>(brak)</b> | Year /Semester<br><b>1 / 1</b>   |
| Elective path/specialty<br><b>Structural Engineering</b>  | Subject offered in:<br><b>Polish</b>                            | Course (compulsory, elective)<br><b>obligatory</b>   |
| Cycle of study:<br><b>Second-cycle studies</b>  | Form of study (full-time, part-time)<br><b>full-time</b>        |  |
| No. of hours<br>Lecture: <b>1</b> Classes: <b>-</b> Laboratory: <b>-</b> Project/seminars: <b>1</b>   |   | No. of credits<br><b>3</b>   |
| Status of the course in the study program (Basic, major, other)<br><b>(brak)</b>  |   | (university-wide, from another field)<br><b>(brak)</b>   |
| Education areas and fields of science and art<br><b>technical sciences</b>  |   | ECTS distribution (number and %)<br><b>3 100%</b>  |
| <b>Responsible for subject / lecturer:</b><br>prof. nadzw. dr hab. Inż. Tomasz Z. Błaszczczyński<br>email: tomasz.blaszczynski@put.poznan.pl<br>tel. 61 665 28 61<br>Wydział Budownictwa i Inżynierii Środowiska<br>ul. Piotrowo 5, 60-965 Poznań |   | <b>Responsible for subject / lecturer:</b><br>Dr Inż. Marlena Kucz<br>email: marlena.kucz@put.poznan.pl<br>tel. 61 665 28 64<br>Wydział Budownictwa i Inżynierii Środowiska<br>ul. Piotrowo 5, 60-965 Poznań |
| <b>Prerequisites in terms of knowledge, skills and social competencies:</b>   |   |  |
| 1   | <b>Knowledge</b>  | The basic knowledge from the construction engineering.   |
| 2   | <b>Skills</b>   | Best to design the building.   |
| 3   | <b>Social competencies</b>                                      | The consciousness of the necessity of continuous updating and supplementings of the building knowledge and engineer skills.  |
| <b>Assumptions and objectives of the course:</b><br>The delivery the maximum of the knowledge from the contemporary construction engineering.   |   |  |
| <b>Study outcomes and reference to the educational results for a field of study</b>   |   |  |
| <b>Knowledge:</b>   |   |  |
| 1. Student knows rules of the creations of the ecological and sustainable construction objects. - [-]   |   |  |
| 2. Student knows rules of the creations of the energy-saving, passive and zeroenergeting construction objects. - [-]  |   |  |
| 3. Student knows norms and guidelines of the designing of building objects and their elements. - [-]  |   |  |
| 4. Student knows and applies regulations of the construction law. - [-]   |   |  |
| 5. The student has a knowledge of the influence of construction investments realization on the environment. - [-]   |   |  |
| <b>Skills:</b>  |   |  |
| 1. Student can select materials and technologies for the realization of the ecological and sustainable construction objects. - [-]  |   |  |
| 2. Student can select materials and technologies for the realization of the energy-saving, passive and zeroenergeting construction objects. - [-]   |   |  |
| 3. Student can prepare and analyse the energy balance of the construction object. - [-]   |   |  |
| <b>Social competencies:</b>   |   |  |

1. Student independently supplements and extends the knowledge of within the range modern processes and technologies in construction. - [-]
2. Student is responsible for the honesty of obtained results of his own works and the estimation of works of the team subjected to him. - [-]
3. Student has a consciousness of the necessity of the lifting of professional and personal competences. - [-]
4. Student has a consciousness of the need of the sustainable development in construction. - [-]
5. Student understands the need of the transfer to the society of the construction knowledge. - [-]

### Assessment methods of study outcomes

-Assessment of knowledge:  
activity during classes and a lectures  
knowledge presented during the colloquium,  
project.

colloquium,  
project.

The grading scale determined from:

| Points:         | grade:            |
|-----------------|-------------------|
| higher then 100 | excellent (A+)    |
| 91?100          | very good (A)     |
| 81? 90          | dobra plus (B)    |
| 71? 80          | good plus (C)     |
| 61? 70          | adequate plus (D) |
| 51? 60          | adequate (E)      |
| Lower then 50   | inadequate (F)    |

### Course description

Sustainable construction.  
Energy saving and passive construction.  
Zero-energetic and plus-energetic construction.  
Green walls and roofs.  
Modern elevations.  
Nanotechnology in construction.  
Concrete wonders.  
Arboral structures.  
Forensic engineering.  
Engineers versus terrorists.

#### Basic bibliography:

1. Praca Zbiorowa, Budynki pasywne mistrzowie oszczędzania energii. Rozwiązania i przykłady obliczeń, KRES, 2006
2. Tomasz Błaszczyński, Barbara Ksit, Bogdan Dyzman, Podstawy budownictwa zrównoważonego z elementami certyfikacji energetycznej, DWE, Wrocław, 2012
3. Pakiet do projektowania budynków pasywnych PHPP, PIBP, 2006
4. Sylvia Leydecker, Nano Materials In Architecture and Interior Architecture and Design, Birkhauser Verlag AG, 2008

#### Additional bibliography:

1. Mieczysław Kamiński, Józef Jasiczak, Wiesław Buczkowski, Tomasz Błaszczyński, Trwałość i skuteczność napraw obiektów budowlanych, DWE, Wrocław, 2007
2. Mieczysław Kamiński, Józef Jasiczak, Wiesław Buczkowski, Tomasz Błaszczyński, Współczesne metody naprawcze w obiektach budowlanych, DWE, Wrocław, 2009
3. Mieczysław Kamiński, Józef Jasiczak, Wiesław Buczkowski, Tomasz Błaszczyński, Trwałe rozwiązania naprawcze w obiektach budowlanych, DWE, Wrocław, 2010
4. Tomasz Błaszczyński, Jacek Wdowicki, Betonowe budynki wysokie, w: Konstrukcje budynków, Budownictwo Ogólne, tom 4, Arkady, Warszawa, 2009
5. Tomasz Błaszczyński, Trwałość budynków i budowli, DWE, Wrocław, 2012
6. Tomasz Błaszczyński, Durability and repair of building structures, DWE, Wrocław, 2010

| <b>Result of average student's workload</b>      |                             |             |
|--|-----------------------------|-------------|
| <b>Activity</b>                                  | <b>Time (working hours)</b> |             |
| 1. participation in lectures                     | 15                          |             |
| 2. participation in project classes              | 15                          |             |
| 3. participation in the consultation             | 16                          |             |
| 4. preparation to attend and pass the colloquium | 12                          |             |
| 5. project realisation                           | 26                          |             |
| <b>Student's workload</b>                        |                             |             |
| <b>Source of workload</b>                        | <b>hours</b>                | <b>ECTS</b> |
| Total workload                                   | 84                          | 3           |
| Contact hours                                    | 46                          | 2           |
| Practical activities                             | 38                          | 1           |