

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Construction Engineering		Code 1010112121010105667
Field of study Civil Engineering	Profile of study (general academic, practical) general academic	Year /Semester 1 / 2
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 30 Classes: 15 Laboratory: - Project/seminars: 30		No. of credits 4
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art		ECTS distribution (number and %)
Responsible for subject / lecturer: prof. nadzw. dr hab. Inż. Tomasz Z. Błaszczczyński email: tomasz.blaszczynski@put.poznan.pl tel. 61 665 28 61 Wydział Budownictwa i Inżynierii Środowiska ul. Piotrowo 5, 60-965 Poznań		Responsible for subject / lecturer: -Dr Inż. Marlena Kucz email: -e-mail: marlena.kucz@put.poznan.pl tel. -tel. 61 665 28 64 -Wydział Budownictwa i Inżynierii Środowiska -ul. Piotrowo 5, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	The basic knowledge from the construction engineering.
2	Skills	Best to design the building.
3	Social competencies	The consciousness of the necessity of continuous updating and supplementings of the building knowledge and engineer skills.
Assumptions and objectives of the course: The delivery the maximum of the knowledge from the contemporary construction engineering.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student knows rules of the creations of the ecological and sustainable construction objects. - [-K_W16]		
2. Student knows rules of the creations of the energy-saving, passive and zeroenergeting construction objects. - [-K_W16]		
3. Student knows norms and guidelines of the designing of building objects and their elements. - [-K_W14]		
4. Student knows and applies regulations of the construction law. - [-K_W17]		
5. The student has a knowledge of the influence of construction investments realization on the environment. - [-K_W13]		
Skills:		
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. - [-K_U08]		
4. Student has a skill of communicating in English, together with the familiarity of elements of technical language from construction engineering. - [-K_U14]		
Social competencies:		

1. Student independently supplements and extends the knowledge of within the range modern processes and technologies in construction. - [-K_K03]
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. - [-K_K02]
3. Student has a consciousness of the necessity of the lifting of professional and personal competences. - [-K_K06]
4. Student has a consciousness of the need of the sustainable development in construction. - [-K_K04]
5. Student understands the need of the transfer to the society of the construction knowledge. - [-K_K08]

Assessment methods of study outcomes

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

examination,
project.

The grading scale determined from:

Points:	grade:
higher then 100	excellent (A+)
91	very good (A)
81	good plus (B)
71	good plus (C)
61	adequate plus (D)
51	adequate (E)
Lower then 50	inadequate (F)

Course description

The responsibility of civil engineer.
The learning from disasters and failures in construction.
Analysis of the disaster WCT in New York.
Forensic engineering.
Engineers versus terrorists.
Sustainable construction.
Energy saving and passive construction.
Zero-energetic and plus-energetic construction.
The advantage of renewable energy in construction.
The energy-certification of construction objects.
Green walls and roofs.
Modern elevations.
Arboreal structures.
The future of the high-rise building.
Adaptation and modernization of the listed buildings.

Basic bibliography:

1. Tomasz Błaszczyński, Durability and repair of building structures, DWE, Wrocław, 2010, s. 240.
2. Elżbieta Wdowicka, Jacek Wdowicki, Tomasz Błaszczyński, Dynamic behaviour of the "South Gate" Complex, International Summer School on Full-Scale and Model Scale Studies of Dynamic Behaviour of Large Structures, Opole-Otmuchów, 19-23.07.2004 .
3. Elżbieta Wdowicka, Jacek Wdowicki, Tomasz Błaszczyński, Seismic analysis of the "South Gate"; tall building according to Eurocode 8, The Structural Design of Tall and Special Buildings, 2005, 14, 59-67.
4. Tomasz Błaszczyński, Jacek Wdowicki, Rehabilitation of an Existing Office Block, Engineering, 3, 2011, 435-444.
5. Tomasz Błaszczyński, Przemysław Wielentejczyk, Maciej Błaszczyński, Filip Pijanowski, Renovation and modernisation of a postindustrial facility in Poznań, Civil and Environmental Engineering Reports, No 9, 2012, 5-17.
6. Tomasz Błaszczyński, Agnieszka Ślosarczyk, Maciej Morawski, Synthesis of silica aerogel by supercritical drying method, Procedia Engineering, Elsevier, 57, 2013, 200- 206.
7. Tomasz Błaszczyński, Michał Majcherek, Ecological construction and New technology. Discussion of some technological innovations while improving the building performance, Technical Transactions, Civil Engineering, 2-B, 2014, s. 173-182.
8. Tomasz Błaszczyński, Maciej Król, Geopolymers in construction, Civil and Environmental Engineering Reports, vol. 16, No 1, 2015, 25-40.
9. Tomasz Błaszczyński, Maciej Król, Usage of green concrete technology in civil engineering, Procedia Engineering 122, 2015, 296 ? 301.
10. Tomasz Błaszczyński, Marta Przybylska-Fatek, Steel fibre reinforced concrete as a structural material, Procedia Engineering 122, 2015, 282 ? 289.
11. Tomasz Błaszczyński, Maciej Król, Alkaline Activator Impact on the Geopolymer Binders, IOP Conf. Series: Materials Science and Engineering, vol. 245, 2017. 022036 doi:10.1088/1757-899X/245/2/022036.
12. Tomasz Błaszczyński, Maciej Król, Durability of cement and geopolymer, IOP Conf. Series: Materials Science and Engineering, vol. 251, 2017. 012005 doi:10.1088/1757-899X/251/1/012005.

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)	
1. participation in lectures	30	
2. participation in project classes	30	
3. participation in the consultation	10	
4. preparation to attend and pass the examination	22	
5. project realisation	20	
Student's workload		
Source of workload	hours	ECTS
Total workload	100	4
Contact hours	70	3
Practical activities	50	2