STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Sustainable Buildings**		Code **1010115121010105024**
Field of study **Civil Engineering Extramural Second-cycle**	Profile of study (general academic, practical) **(brak)**	Year /Semester **1 / 2**
Elective path/specialty **Construction Engineering and Management**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **part-time**	
No. of hours Lecture: **10** Classes: **18** Laboratory: **-** Project/seminars: **-**		No. of credits **3**
Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**	
Education areas and fields of science and art **technical sciences**		ECTS distribution (number and %) **3 100%**

Responsible for subject / lecturer:

dr inz.Barbara Ksit
email: barbara.ksiti@put.poznan.ptl
tel. 61 6652864
Wydział Budownictwa i Inżynierii Środowiska
ul. Piotrowo 5, 60-965 Poznań

Responsible for subject / lecturer:

prof. nadzw. dr hab. Inż. Tomasz Z. Błaszczyńsk
email: tomasz.blaszczynski@put.poznan.pl
tel. 61 665 28 61
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 sustanable 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. - [-K_U08]
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]

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 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.
Enrgy saving and passive construction.
Zero-energetic and plus-energetic construction.
Green walls and roofs.
Modern elevations.
Nanotechnology in construction.
Concrete wonders.

Teaching methods:
Lecture / problem lecture / lectures with multimedia presentation
Exercises / exercises involving the use of professional literature - standards. Building Acts
Arboral structures.
Forensic engineering.
Engineers versus terrorists.

Basic bibliography:

1. Praca Zbiorowa, Budynki pasywne mistrzowie oszczędzania energii. Rozwiązania i przykłady obliczeń, KRES, 2006
2. T. Błaszczyński, B. Ksit, B. Dyzman, Podstawy budownictwa zrównoważonego z elementami certyfikacji energetycznej, DWE, Wrocław, 2012
3. T.Błaszczyński B.Ksit L.Grzegorczyk, Nowa certyfikacja Energetyczna Budynków jako element budownictwa zrównowazonego PP, Poznań2018
4. Sylvia Leydecker, Nano Materials In Architecture and Interior Architecture and Design, Birkhauser Verlag AG, 2008
5. Pakiet do projektowania budynków pasywnych PHPP, PIBP, 2006

Additional bibliography:

1. praca zbiorowa pod red. J.Karyś,Ochrona przed wilgocią i korozją biologiczna w budownictwieMedium Warszawa 2014
2. F.Frossel, Osuszanie murów i renowacja piwnic Polceon.Warszawa 2007
3. praca zbiorowa pod red. L.Runkiewicz,T.Błaszczyński Ekologia a budownictwo, Dolnosląskie wydawnictwo edukacyjne Wrocław 2016
4. J.Nurzyński, Akustyka w budownictwie, Wydawnictwo Naukowe PWN 2018

Result of average student's workload

Activity	Time (working hours)
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

Student's workload

Source of workload	hours	ECTS
Total workload	50	3
Contact hours	40	1
Practical activities	40	1