

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Civil Engineering		Code 1010101131010110063
Field of study Sustainable Building Engineering First-cycle	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 3
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 30 Classes: - Laboratory: - Project/seminars: 30		No. of credits 4
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 Technical sciences		ECTS distribution (number and %) 4 100% 4 100%
Responsible for subject / lecturer: dr inż. MARLENA KUCZ email: marlena.kucz@put.poznan.pl tel. 616652864 Wydział Budownictwa i Inżynierii Środowiska Politechniki Poznańskiej Piotrowo 5, Poznań		Responsible for subject / lecturer: dr inż. Monika Siewczyńska email: monika.siewczynska@put.poznan.pl tel. 616652864 Wydział Budownictwa i Inżynierii Środowiska Politechniki Poznańskiej Piotrowo 5, Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of building materials, physics and basic methods of mathematical analysis, strength of materials, structural mechanics
2	Skills	using available sources of information- Student is able to obtain technical information from literature, databases and other sources, make their interpretation, formulate and justify opinions
3	Social competencies	awareness of self-supplementing and expanding knowledge in the field of modern techniques, processes and technologies - ability to cooperate with the teacher and work independently on the assigned task - the student is able to organize his own work, collect and analyze information
Assumptions and objectives of the course: -The aim of the course is to provide knowledge about the systems in construction and the ability to apply technical regulations (Technical conditions) and criteria for the selection of construction elements and insulation in buildings. Maximum knowledge transfer of construction engineering bases.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. is familiar with building code, national standards (PN) and European standards (EN) as well as technical conditions for construction works and low- energy buildings - [KSB_W07]		
2. knows the basics of geology, has knowledge in soil mechanics and foundation engineering of construction works - [KSB_W09]		
3. is familiar with the principles of construction and analysis of construction works in general civil, low-energy, passive and sustainable, industrial, road, bridges and railway engineering - [KSB_W10]		
4. is familiar with select computer software packages (including those using BIM technology) assisting in calculation and design of construction, building work organisation, cost estimation and technical amenities in buildings and software packages for assessment and design of low-energy buildings - [KSB_W12]		
Skills:		

<p>1. knows how to retrieve information from literature, databases and other properly selected sources; knows how to integrate the information thus retrieved, how to interpret it and how to draw conclusions and formulate and justify opinions. - [KSB_U01]</p> <p>2. knows how to classify construction works and elements of technical amenities in buildings - [KSB_U05]</p> <p>3. can list load combinations acting on construction works and carry out static analysis of rod constructions statically determinate and indeterminate; knows how to determine eigenmodes for simple rod constructions - [KSB_U06]</p> <p>4. knows how to design select elements and simple constructions on metal, concrete, wood and masonry - [KSB_U10]</p> <p>5. knows how to read architectural, plan, installation and geodesic drawings and to draw up graphic documentation in a conventional fashion and in BIM environment - [KSB_U15]</p> <p>6. knows how to apply regulations of building code and legal acts regulating construction works - [KSB_U20]</p>
<p>Social competencies:</p> <p>1. takes responsibility for reliability of results and their interpretation - [KSB_K02]</p> <p>2. individually catches up on and expands his knowledge about modern techniques, processes and technologies - [KSB_K03]</p> <p>3. understands the necessity to protect copyright laws and is aware of principles of professional ethics - [KSB_K09]</p>

<p>Assessment methods of study outcomes</p>
<p>Evaluation of lectures - Written exam open-ended questions (about 10 questions), minimum 50% for credit</p> <p>Scale of marks: 100-91% - 5,0; 90-81% - 4,5; 80-71% - 4,0; 70-61% - 3,5; 60-50% - 3,0; ?49% - 2,0</p> <p>Evaluation of projects</p> <p>R - Drawing part + technical description (60%) K - Colloquium on knowledge about Technical conditions (40%)</p> <p>Mark = 0,6 R + 0,4K</p> <p>Scale of marks: 100-91% - 5,0; 90-81% - 4,5; 80-71% - 4,0; 70-61% - 3,5; 60-50% - 3,0; ?49% - 2,0</p>
<p>Course description</p>
<p>Describe the composition, production and characteristics of the most common building materials with a main focus on concrete, wood and steel</p> <p>Describe different structural bearing systems, their design and primary functions.</p> <p>Identify the building's structural bearing framework, the non structural parts, coverings, fittings and equipment and related functions.</p> <p>Account for soil work and different foundation methods and design various types of ground, wall, ceiling and slabs and floor structures.</p> <p>Account for the effect of moisture and water in different phases on building materials and construction parts.</p> <p>Account for requirements on sound isolation and fire protection.</p> <p>Carry out simple sketches for designs, facades, sections and detail drawings.</p> <p>Carry out simple calculations for thermal insulation.</p> <p>Soil work and foundation methods.</p> <p>Heat and sound insulation as well as moisture and fire protections.</p> <p>General concepts about residential buildings' components and the design of a thermal envelope.</p> <p>Project;</p> <p>The building project prepared as part of the course will be used from Architectural designing with elements of BIM I</p> <p>A study containing:</p> <p>Technical construction description</p> <p>Calculation of the heat transfer coefficient for the external wall, roof and floor on the ground</p> <p>Structural calculations of a ribbed beam ceiling</p> <p>Drawings of the ceiling structure, rafter framing and foundations as well as the detail of the structural connection of the selected element</p> <p>Teaching methods</p> <p>lectures: information lecture, lecture with multimedia presentation</p> <p>Design: project method, workshop method</p>

Basic bibliography:

1. 1. Siewczyńska Monika: Domy jednorodzinne. Przewodnik do ćwiczeń projektowych z Budownictwa Ogólnego, ISBN: 978-83-0119-509-0, Wydawnictwo Naukowe PWN, 2017, Wydanie: 1
2. 2. Kotulalwona, StadnickaJustyna: How to build a house: a construction English reader, ISBN 978-83-7880-050-7, Wydawnictwo Politechniki Śląskiej, 2013
3. 3. Ewy Anna, Jarczyk Anna, Sieńko Marta: English for building materials engineering, ISBN: 978-83-7464-690-1, Wydawnictwo Akademia Górniczo ? Hutnicza, 2014
4. 4. Francis D.K. Ching: Building Construction Illustrated, ISBN13 (EAN): 978-1-118-45834-1, ISBN10: 1118458346, Wydawca: Wiley, 2014
5. 5. Francis D.K. Ching, Mark Mulville: Europeanbuildingconstructionillustrated, ISBN: 978-1-119-95317-3, Wydawca: Wiley, 2014
6. Standards and law regulation
7. 7. Rozporządzenie Ministra Infrastruktury w sprawie warunków techniczne, jakim powinny odpowiadać budynki i ich usytuowanie - tekst ujednolicony
8. 1. Siewczyńska Monika: Domy jednorodzinne. Przewodnik do ćwiczeń projektowych z Budownictwa Ogólnego, ISBN: 978-83-0119-509-0, Wydawnictwo Naukowe PWN, 2017, Wydanie: 1
9. 2. Kotulalwona, StadnickaJustyna: How to build a house: a construction English reader, ISBN 978-83-7880-050-7, Wydawnictwo Politechniki Śląskiej, 2013
10. 3. Ewy Anna, Jarczyk Anna, Sieńko Marta: English for building materials engineering, ISBN: 978-83-7464-690-1, Wydawnictwo Akademia Górniczo ? Hutnicza, 2014
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12. 5. Francis D.K. Ching, Mark Mulville: Europeanbuildingconstructionillustrated, ISBN: 978-1-119-95317-3, Wydawca: Wiley, 2014
13. Obowiązujące normy i rozporządzenia - podawane na bieżąco.
14. 7. Rozporządzenie Ministra Infrastruktury w sprawie warunków techniczne, jakim powinny odpowiadać budynki i ich usytuowanie - tekst ujednolicony
15. Siewczyńska Monika, Kucz Marlana: SINGLE FAMILY HOUSE, Student?s guides to exercises in Building Engineering, Wydawnictwo Politechniki Poznańskiej, Termin oddania do Wydawnictwa ? 09/2018 r.

Additional bibliography:

1. 1. Schabowicz Krzysztof, Gorzelańczyk Tomasz: Budownictwo ogólne Podstawy projektowania i obliczania budynków, ISBN: 978-83-7125-269-3, Wydawnictwo: Dolnośląskie Wydawnictwo Edukacyjne, 2017
2. 2. Kucz Marlana.: Język angielski zawodowy w budownictwie. Zeszyt ćwiczeń, WSIP 2013
3. 1. Schabowicz Krzysztof, Gorzelańczyk Tomasz: Budownictwo ogólne Podstawy projektowania i obliczania budynków, ISBN: 978-83-7125-269-3, Wydawnictwo: Dolnośląskie Wydawnictwo Edukacyjne, 2017
4. Kucz Marlana.: Język angielski zawodowy w budownictwie. Zeszyt ćwiczeń, WSIP 2013
5. 3. Obowiązujące normy i rozporządzenia - podawane na bieżąco.

Result of average student's workload

Activity	Time (working hours)
1. Udział w wykładach (godziny kontaktowe)	30
2. Przygotowanie do egzaminu (praca samodzielna)	10
3. Udział w egzaminie (obecność na egzaminie pisemnym) (godziny kontaktowe)	2
4. Udział w projektach (godziny kontaktowe i praktyczne)	30
5. Udział w konsultacjach związanych z realizacją procesu kształcenia (wykłady + projekt) (godziny kontaktowe)	5
6. Przygotowanie do kolokwium (praca samodzielna)	5
7. Realizacja projektu w domu (praca samodzielna, godziny praktyczne)	20

Student's workload

Source of workload	hours	ECTS
Total workload	102	4
Contact hours	67	2
Practical activities	50	2