

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Masonry		Code 1010101171010114682
Field of study Civil Engineering First-cycle Studies	Profile of study (general academic, practical) (brak)	Year /Semester 4 / 7
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) elective
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 30 Classes: - 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 inż. Monika Siewczyńska email: monika.siewczynska@put.poznan.pl tel. 6652864 Civil and Environmental Engineering ul. Piotrowo 5 Poznan		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	- basic knowledge in the field of mathematics and physics - basic knowledge of engineering graphics - basic knowledge of the strength of materials - basic knowledge of building materials - basic knowledge of general construction
2	Skills	- using available sources of information - calculations of physics tasks
3	Social competencies	- is responsible for the reliability of his calculations - is aware of raising their competences
Assumptions and objectives of the course: - Acquiring the basic knowledge of the nature of the work of masonry structures by the student.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Has knowledge of general construction shaping - [K_W04] 2. He knows the principles of construction and analysis of objects with masonry structures - [K_W09] 3. He knows the most commonly used materials in masonry structures and methods for assessing and maintaining the technical condition of a building - [K_W14]		
Skills:		
1. Is able to assess and make a statement of loads acting on building objects - [K_U02] 2. He can design selected elements and simple masonry structures - [K_U07]		
Social competencies:		
1. He can work independently and collaborate in a team over a designated task - [K_K01] 2. Is aware of the need to raise professional and personal competences - [K_K06]		
Assessment methods of study outcomes		

- Written colloquium in writing 10 open questions and assessment of written elaboration along with photographic documentation on the selected masonry building.

Rating from the colloquium? weight 0.6, evaluation for written elaboration? weight 0.4.

The final rating is a weighted average? punctuation:

4.75 - 5.0 rating 5.0

4.25 - 4.74 score 4.5

3.75 - 4.24 rating 4.0

3.25 - 3.74 score 3.5

2.75 - 3.25 rating 3.0

2.0 - 2.74 rating 2.0

To pass the colloquium, a minimum of 50% of the correct answers from 10 open questions is required. Punctuation:

100% - 91% rating 5.0

90% - 81% score 4.5

80% - 71% rating 4.0

70% - 61% rating 3.5

60% - 50% mark 3.0

49% - 0% mark 2.0

Course description

- Lecture 1

History of masonry structures

- changing the types of masonry structures from antiquity to the present day

Lecture 2

Types of masonry structures

- walls

- arches, vaults

- pole and beam

Lecture 3

Characteristics of elements of masonry structures

- masonry elements

- mortar

Lecture 4

Systems of masonry structures

- Ytong, Silka, Porotherm systems, etc.

- clinker facade systems

- reinforced concrete system

Lecture 5

Building loads according to PN and EC

- permanent and utility loads

Lecture 6

Building loads according to PN and EC

- snow and wind loads

Lecture 7

Building loads according to PN and EC

- combinatorics of loads

Lecture 8

Dimensioning of non-reinforced masonry structures according to EC

- dimensioning of structures loaded with concentrated force, horizontal load

Lecture 9

Dimensioning of unreinforced masonry structures according to EC c.d.

- dimensioning of structures mainly loaded vertically

Lecture 10

Construction requirements for masonry structures

- simplified dimensioning methods

Lecture 11

Dimensioning of reinforced structures according to EC

- dimensioning of reinforced masonry poles

<p>Lecture 12 Failures of masonry structures - rules for carrying out the expertise - diagnostic methods</p> <p>Lecture 13 Repair methods of masonry structures - eliminating the causes - changing the spatial rigidity of the building - reproducing the original technical condition - interfering with the static scheme of construction work</p> <p>Lecture 14 Historic masonry buildings - presentation of selected historic masonry structures from the area of Wielkopolska, Poland and the world</p> <p>Lecture 15 Modeling of masonry structures in BIM - architectural modeling - structural modeling</p>		
<p>Basic bibliography:</p> <ol style="list-style-type: none"> Hendry A. W., Sinha B. P., Davies S. R., Design of masonry structures Third edition of load bearing brickwork design (internet) How to design masonry structures using Eurocode 6 (pdf) Siewczynska M., Kucz M., SINGLE FAMILY HOUSE Guide to project exercises of building construction, Wyd. Politechniki Poznańskiej 2018, w przygotowaniu 		
<p>Additional bibliography:</p> <ol style="list-style-type: none"> Hall Loretta, Historic bricks, rap air or replace, Concrete Decor and PaintPRO Magazines Penazzi D., Valluzzi M.R., Saisi A., Binda I., Modena C., Repair and strengthening of historic masonry buildings in seismic areas 		
<p>Result of average student's workload</p>		
<p>Activity</p>		<p>Time (working hours)</p>
<p>1. Direct participation of the student at lectures.</p>		<p>32</p>
<p>2. Learning a student to prepare for a written exam.</p>		<p>43</p>
<p>3. Direct participation of the student in written exam.</p>		<p>1</p>
<p>Student's workload</p>		
<p>Source of workload</p>	<p>hours</p>	<p>ECTS</p>
<p>Total workload</p>	<p>75</p>	<p>3</p>
<p>Contact hours</p>	<p>32</p>	<p>1</p>
<p>Practical activities</p>	<p>0</p>	<p>0</p>