COURSE DESCRIPTION CARD

Course name	**Methodology for the design of building structures**				
Course type	**optional**	**Course code**	**SDPB0025**	**Number of ECTS credits**	**1**
Forms and number of hours of tuition	**Lecture: 10 h**	**Discipline of science**	**civil engineering and transport environmental engineering, mining and energy**		
Course objectives	The aim of the course is for the PhD student to learn how to identify and differentiate design processes related to building structures, as well as how to classify procedures and methods for evaluating building structures for safety and reliability.				
Course content	Lecture: 1. Evolution of structural design methods. 2. Procedures of probabilistic safety checking of building structures. 3. Methodological basis of limit state method and partial factors. 4. Reliability management of structures in terms of Eurocodes. 5. Examples of application of probabilistic approach in real engineering problems.				
Teaching methods	The lecture enriched with practical case studies				
Assessment method	Exam				

Symbol of learning outcome	**Learning outcomes**	**Reference to Learning Outcomes for qualifications at PQF Level 8**	**Verification methods**
LO1	The world's accomplishments in the field of design of building structures, including theoretical foundations and general and selected particular problems, are known and understood to a degree that allows current paradigms to be revised by a PhD student.	**SD_W1**	Exam
LO2	The economic, legal, ethical, and other related determinants of scientific activity are known and understood by PhD students.	**SD_W6**	Exam
LO3	can creatively define, formulate, and solve complex problems or conduct research tasks using their knowledge of building design, in particular: - formulate a research hypothesis, identify the aims and objectives of scientific research, - develop and creatively apply processes, strategies, and analysis resources, - make decisions based on the findings of scientific studies.	**SD_U1**	Exam
LO4	is capable of engaging on specialized topics related to the safety of building structures to the point that they can engage effectively in the international science community.	**SD_U4**	Exam

LO5	is capable of planning and executing individual and group study or innovative projects in the field of building construction, as well as working in an international environment.	**SD_U8**	Exam
LO6	is prepared to critically evaluate accomplishments in the scientific discipline of civil engineering, to critically evaluate his or her own contribution to the creation of methods for structural design and to consider the value of experience in solving cognitive and practical problems.	**SD_K1**	Exam

Student workload (in hours)	
Lecture	10
Consultations	1
Own work	10
Preparation for classes	5
Sum of hours	**26**
ECTS credits	**1**

Basic references	1. P. Marti *Theory of Structures: Fundamentals, Framed Structures, Plates and Shells*. Wilhelm Ernst & Sohn Verlag. 2013. 2. J. D. Todd*Structural Theory and Analysis.*Macmillan Publishers Limited. London 1974.
Supplementary references	1. J. S. C. Browne *Basic Theory of Structures. 1st Edition*, Pergamon 1966.
Lecturer	Assoc. Prof. Miroslaw Broniewicz, DSc, PhD, Eng
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