



## COURSE SPECIFICATION

Course code	full-time programme:	<b>M#2-S2-ME-108</b>
	part-time programme:	
Course title in Polish	<b>Konstrukcje cienkościenne</b>	
Course title in English	<b>Thin-Walled Structures</b>	
Valid from (academic year)	<b>2024/2025</b>	

## GENERAL INFORMATION

Programme of study	<b>MECHANICAL ENGINEERING</b>
Level of qualification	<b>second-cycle</b>
Type of education	<b>academic</b>
Mode of study	<b>full-time programme</b>
Specialism	<b>all</b>
Department responsible	<b>Department of Mechanics and Heat Transfer</b>
Course leader	<b>dr inż. Ireneusz Markiewicz</b>
Approved by	<b>dr hab. Jakub Takosoglu, prof. PŚk, Dean of the Faculty of Mechatronics and Mechanical Engineering</b>

## COURSE OVERVIEW

Course type	<b>programme-specific</b>	
Course status	<b>compulsory</b>	
Language of instruction	<b>English</b>	
Semester of delivery	full-time programme	<b>Semester I</b>
	part-time programme	<b>Semester I</b>
Pre-requisites		
Examination required (YES/NO)	<b>NO</b>	
ECTS value	<b>1</b>	

Mode of instruction		lecture	class	laboratory	project	seminar
No. of hours per semester	full-time programme	<b>15</b>				
	part-time programme					

## LEARNING OUTCOMES





Category of outcome	Outcome code	Course learning outcomes	Corresponding programme outcome code
Knowledge	W01	The student has knowledge of static analysis and design of structures of thin-walled structures built from flat elements, which are widely used in practically all fields of technology.	MiBM2_W01 MiBM2_W03 MiBM2_W07
Skills	U01	The student is able to perform static analyses and design the structures of thin-walled structures, which often allows for radical improvement of their strength properties.	MiBM2_U01 MiBM2_U02 MiBM2_U11
Competence	K01	The student is ready to critically evaluate his knowledge and the need to improve his professional qualifications.	MiBM2_K01

**COURSE CONTENT**

Mode of instruction	Topics covered
lecture	Description of internal forces in flat thin-walled elements. Basic assumptions and equations for membranes, basics of plate theory. Membrane and bending stress state in shells. Membrane state in cylindrical shells. Static analysis and design of structures of thin-walled structures composed of flat elements.

**ASSESSMENT METHODS**

Outcome code	Methods of assessment					
	Oral examination	Written examination	Test	Project	Report	Other
W01			X			
U01			X	X		
K01						X

**ASSESSMENT TYPE AND CRITERIA**

Mode of instruction	Assessment type	Assessment criteria
lecture	non-examination assessment	Successful completion of the final paper on performing static analyses of the joint of a thin-walled structure. The pass mark is a minimum of 50% for all the in-class tests.

**OVERALL STUDENT WORKLOAD**

ECTS weighting												
No.	Activity type	Student workload										Unit
		full-time programme					part-time programme					
		L	C	Lb	P	S	L	C	Lb	P	S	
1.	Scheduled contact hours	15										h
2.	Other contact hours (office hours, examination)	2										h
3.	<b>Total number of contact hours</b>	<b>17</b>										h





4.	Number of ECTS credits for contact hours	0,7		ECTS
5.	Number of independent study hours	8		h
6.	Number of ECTS credits for independent study hours	0,3		ECTS
7.	Number of practical hours	0		h
8.	Number of ECTS credits for practical hours	0,0		ECTS
9.	Total study time	25		h
10.	ECTS credits for the course <i>1 ECTS credit = 25-30 hours of study time</i>	1		ECTS

### READING LIST

1. W. Bodaszewski: *Analizy statyczne i kształtowanie brył cienkościennych*, Bel Studio, Warszawa 2013.
2. W. Bodaszewski: *Wytrzymałość materiałów z elementami mechaniki konstrukcji*, tom 1: *Podstawy i zastosowania - kurs klasyczny*, Wyd. Politechniki Świętokrzyskiej, 2005.
3. W. Bodaszewski: *Wytrzymałość materiałów z elementami mechaniki konstrukcji*, tom 2: *Zbiór zadań*, Wydawnictwo Bel Studio, Warszawa, 2007.
4. Z. Brzoska: *Statyka i stateczność konstrukcji prętowych i cienkościennych*, PWN, 1967.
5. H. Frąckiewicz, W. Szczepiński, J. Szlagowski, W. Bodaszewski i inni, *Węzły i połączenia konstrukcyjne*, WNT, Warszawa 1986.

