



Dofinansowane przez Unię Europejską



COURSE SPECIFICATION

Course code	full-time programme:	M#2-S1-ME-408				
	part-time programme:					
Course title in Polish	Podstawy Odlewnictwa					
Course title in English	Fundamentals of Casting					
Valid from (academic year)	2024/2025					

GENERAL INFORMATION

Programme of study	MECHANICAL ENGINEERING
Level of qualification	first-cycle
Type of education	academic
Mode of study	full-time programme
Specialism	all
Department responsible	Department of Metal Science and Manufacturing Processes
Course leader	dr inż. Tomasz Bucki
Approved by	dr hab. Jakub Takosoglu, prof. PŚk, Dean of the Faculty of Mechatronics and Mechanical Engineering

COURSE OVERVIEW

Course type		programme-specific			
Course status		compulsory			
Language of instruction		English			
Semester of	full-time programme	Semester IV			
delivery	part-time programme				
Pre-requisites		-			
Examination required (YES/NO)		NO			
ECTS value		2			

Mode of instruction		lecture	class	laborator y	project	seminar
No. of hours	full-time programme	15		15		
per semester	part-time programme					

LEARNING OUTCOMES

Category of outcome	Category of Outcomec ode Course learning outcomes		Corresponding programme outcome code	
Knowledge	W01	On completion of this course, students will have a basic knowledge of metal casting processes.	MiBM1_W07	
Kilowiedge	W02	Student will be able to define casting alloys, and will know the methods of mould and core making.	MiBM1_W08	





Fundusz dla Rozy	e Europejskie woju Społeczne	go Rzeczpospolita Dofinansowane p Polska Unię Europe	rzez **** jską * _{**} *	
	U01	He can use the acquired knowledge to solve engineering tasks related to the production of metal products by the casting method.	MiBM1_U01	
Skills	U02 The student is able to interpret the obtained experimental results from the laboratory classes, draw conclusions and present them in the form of a report.			
Competence	K01	Is aware of the social role of a technical university graduate and understands the need to provide public opinion in an understandable way with information on achievements related to the field of mechanical angineering	MiBM1_K03	

Students will be aware of the role of a technical

university graduate; they will understand the need to

provide information related to their field of study.

mechanical engineering.

COURSE CONTENT

K02

Type of instruction lecture	Topics covered							
lecture	 Fundamentals of casting and metallurgical processes. Cast alloys, casting properties. Casting methods: die casting, centrifugal casting, continuous and semi-continuous casting. Mould materials. Patterns and cores. Methods of manufacturing sand molds and cores. Mechanised and automated casting. Types of furnaces for melting foundry alloys. Melting of cast steel, cast iron and non-ferrous metals. 							
laboratory	Technological process of casting. Moulding tools, patterns and cast alloys. Methods of testing materials for the matrix of moulding sand: determination of binder content, sieve analysis. Examination of technological properties of molding sands: examination of permeability, examination of flowability. Testing the strength properties of moulding sands. Technology of sand casting moulds. Manufacturing a sand casting mould.							

ASSESSMENT METHODS

Outcome	Methods of assessment (Mark with an X where applicable)								
code	Oral examination	Written examination	Test	Project	Report	Other			
W01			Х						
W02			Х						
U01					Х				
U02					Х				
K01						Х			
K02						Х			

ASSESSMENT TYPE AND CRITERIA

Mode of instruction	Assessment type	Assessment criteria	



Projekt "Dostosowanie kształcenia w Politechnice Świętokrzyskiej do potrzeb współczesnej gospodarki" nr FERS.01.05-IP.08-0234/23

MiBM1_K05





lecture	non-examination	Passing the final test. Obtaining at least 50% of the points.
	assessment	
laboratory	non-examination	Approval of individual laboratory reports. The final grade is
laboratory	assessment	the arithmetic average.

OVERALL STUDENT WORKLOAD

	ECTS weighting											
		Student workload								Unit		
No.	Activity type		full-time programme		part-time programme							
1		L	С	Lb	Ρ	S	L	С	Lb	Ρ	S	h
1.	Scheduled contact hours	15		15								n
2.	Other contact hours (Office hours, examination)	2	2 2							h		
3.	Total number of contact hours		34							h		
4.	Number of ECTS credits for contact hours	1,4								ECTS		
5.	Number of independent study hours		16							h		
6.	Number of ECTS credits for independent study hours		0,6						ECTS			
7.	Number of practical hours		25							h		
8.	Number of ECTS credits for practical hours	1,0							ECTS			
9.	Total study time	50					h					
10.	ECTS credits for the course 1 ECTS credit = 25-30 hours of study time					2	2					ECTS

READING LIST

- 1. P. L. Jain, (2003), Principles of Foundry Technology, McGraw-Hill Education.
- 2. C. W. Ammen, (1999), Metalcasting, McGraw-Hill Book CO.

