COURSE SPECIFICATION

Course code	full-time programme:	**M#2-S2-ME-304**
	part-time programme:	
Course title in Polish	**Wybitni polscy naukowcy**	
Course title in English	**Famous Polish Scientists**	
Valid from (academic year)	**2024/2025**	

GENERAL INFORMATION

Programme of study	**MECHANICAL ENGINEERING**
Level of qualification	**second-cycle**
Type of education	**academic**
Mode of study	**full-time programme**
Specialism	
Department responsible	**Department of Metrology and Modern Manufacturing**
Course leader	**dr hab. inż. Marcin Graba, prof. PŚk**
Approved by	**dr hab. Jakub Takosoglu, prof. PŚk, Dean of the Faculty of Mechatronics and Mechanical Engineering**

COURSE OVERVIEW

Course type		**basic**
Course status		**compulsory**
Language of instruction		**English**
Semester of delivery	full-time programme	**Semester III**
	part-time programme	**Semester III**
Pre-requisites		
Examination required (YES/NO)		**NO**
ECTS value		**1**

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

LEARNING OUTCOMES

Category of outcome	Outcome code	Course learning outcomes	Corresponding programme outcome code
Knowledge	W01	He possesses significant knowledge about outstanding Polish scientists, is familiar with the history of Polish inventions and various solutions in the fields of technical, mathematical, and natural sciences, including physics, chemistry, and mechanics.	MiBM2_W04
Skills	U01	He is able to gather information from literature concerning the history of Polish science in the fields of technology and mathematical-natural sciences. He can locate information about the achievements of Polish inventors from various sources.	MiBM2_U01
Competence	K01	He is aware of the need for independent learning and expanding his knowledge of the history of Polish inventions. He can critically assess his own knowledge. He possesses the ability to acquire new historical information from both literature and experts in the fields of technical, mathematical, and natural sciences. He understands the contribution of Polish science to global development.	MiBM2_K01
	K02	He is aware of the importance of non-technical aspects and the impacts of engineering activities over the years. He is also conscious of historical achievements in Polish inventions and fundamental research.	MiBM2_K02

COURSE CONTENT

Mode of instruction	Topics covered

lecture	Nicolaus Copernicus (1473–1543): The Heliocentric Revolution. The heliocentric theory as the foundation of modern astronomy. De revolutionibus orbium coelestium. Copernicus's influence on science and philosophy. Johannes Hevelius (1611–1687): The Father of Modern Observational Astronomy. Establishing an astronomical observatory in Gdańsk. Lunar maps and star cataloging. Stanisław Staszic (1755–1826): A Naturalist and Enlightenment Philosopher. Geological research and its significance for industrial development.Staszic's impact on education and science in Poland. Ignacy Łukasiewicz (1822–1882): Inventor of the Kerosene Lamp. Pioneer of the oil industry. The significance of his inventions for the economy and daily life. Zygmunt Wróblewski (1845–1888) and Karol Olszewski (1846–1915): Gas Liquefaction. The first liquefaction of oxygen, nitrogen, and carbon dioxide. The importance of their research for cryogenics and industry. Marie Skłodowska-Curie (1867–1934): Double Nobel Laureate. Discovery of polonium and radium. The development of radiotherapy and research on radioactivity. Kazimierz Funk (1884–1967): Pioneer of the Vitamin Concept. The importance of vitamin discovery for medicine and dietetics. Research on beriberi and vitamin B1. Wacław Sierpiński (1882–1969): A Genius in Number Theory and Set Theory. His work on the Sierpiński curve and prime numbers. Contributions to global mathematics. Hugo Steinhaus (1887–1972): Mathematics in Everyday Life. Contributions to mathematical analysis and probability theory. Co-founder of the Lwów School of Mathematics. Stefan Banach (1892–1945): Creator of Functional Analysis. Banach's theorem and Banach spaces. The impact of his work on modern mathematics. Jan Czochralski (1885–1953): Creator of the Crystal Growth Method. The significance of the Czochralski method in semiconductor production. Contributions to electronics development. Ludwik Hirszfeld (1884–1954): Discoverer of Blood Groups. Research in serology and immunology. The importance of his work for transfusion medicine and genetics. Andrzej Schinzel (1937–2021): A Contemporary Mathematician. Contributions to number theory and polynomials. The importance of his research for the development of cryptography. Aleksander Wolszczan (b. 1946): Discoverer of the First Exoplanets. Discovery of extrasolar planets around a pulsar. The significance of his discovery for astrophysics and space research. Summary and Contemporary Polish Scientists on the International Stage. Brief discussion of achievements by figures such as Artur Ekert (quantum cryptography) and Agnieszka Zalewska (particle physics). Debate on the future of science in Poland. Overview of Polish technical innovations not covered in textbooks.

ASSESSMENT METHODS

Outcome code	Methods of assessment					
	Oral examination	Written examination	Test	Project	Report	Other
W01			X			X
U01			X			X
K01						X
K02						X

ASSESSMENT TYPE AND CRITERIA

Mode of instruction	Assessment type	Assessment criteria

lecture	non-examination assessment	Passing the final test with at least 50%. Preparing a presentation on a topic related to the lecture (flipped classroom) and achieving a score of at least 50%. The final grade is a weighted average of the final test score (weight 0.65) and the presentation score (flipped classroom, weight 0.35).

OVERALL STUDENT WORKLOAD

ECTS weighting												
No.	**Activity type**	**Student workload**										**Unit**
		full-time programme					**part-time programme**					
1.	Scheduled contact hours	L	C	Lb	P	S	L	C	Lb	P	S	h
		15										
2.	Other contact hours (office hours, examination)	**2**										h
3.	**Total number of contact hours**	**17**										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** *1 ECTS credit = 25-30 hours of study time*	**1**										ECTS

READING LIST

1. **Andrzej Fedorowicz, Irena Fedorowicz** – *25 Polish Inventors and Discoverers Who Changed the World*
2. **Roman Kałuża** – *Stefan Banach: Life and Mathematics*
3. **Jerzy Kierul** – *Nicolaus Copernicus: The Astronomer Who Moved the Earth*
4. **Andrzej K. Wróblewski** – *History of Physics*
5. **Władysław Szulc** – *Ignacy Łukasiewicz: Creator of the Oil Industry*
6. **Michał Heller** – *Philosophy and the Universe: Nicolaus Copernicus and Other Polish Astronomers*
7. **Marek Matacz** – *Jan Czochralski: The Man Who Changed the World*
8. **Roman Duda** – *The Lwów School of Mathematics*
9. **Marie Curie** – *Autobiography and Letters to Her Family*
10. **Zbigniew Tucholski** – *Polish Inventors of the 19th and 20th Century*
11. **Wacław Sierpiński** – *Mathematical Puzzles and Problems*