COURSE SPECIFICATION

Course code	full-time programme:	**M#2-S1-ME-210**
	part-time programme:	
Course title in Polish	**Rysunek Techniczny Maszynowy**	
Course title in English	**Engineering Drawing**	
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 Machine Design and Machining**
Course leader	**dr inż. Robert Molasy**
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 delivery	full-time programme	**Semester II**
	part-time programme	
Pre-requisites		
Examination required (YES/NO)		**NO**
ECTS value		**3**

Mode of instruction		**lecture**	**class**	**laboratory**	**project**	**seminar**
No. of hours per semester	full-time programme	**15**			**30**	
	part-time programme					

LEARNING OUTCOMES

Category of outcome	Outcome code	Course learning outcomes	Corresponding programme outcome code
Knowledge	W01	Has advanced, structured knowledge of concepts and procedures in the field of national, European and international standardization	MiBM1_W05 MiBM1_W06 MiBM1_W07
	W02	Knows, at an advanced level, the principles, methods, methods and purposes of creating and analyzing technical documentation of mechanical structures.	MiBM1_W05 MiBM1_W09 MiBM1_W15
	W03	Has structured knowledge of the principles of designing machine parts and mechanical structures used in mechanics and machines, and also knows the principles of their selection and assessment of durability.	MiBM1_W05 MiBM1_W09 MiBM1_W15
Skills	U01	Is able to use knowledge from the area of basic sciences to formulate and solve engineering tasks in various areas of mechanics and machine, at the stage of design, construction and selection of materials	MiBM1_U01
	U02	Is able to obtain information from literature, databases and other sources in various languages regarding mechanics and machine when designing machine structures	MiBM1_U01 MiBM1_U03
Competence	K01	Is aware of the need to independently supplement and expand knowledge in the field of mechanics and machine	MiBM1_K02
	K02	Independently supplements and expands knowledge in the field of mechanics and machine construction, critically approaches the acquired knowledge during the implementation of a mechanical project.	MiBM1_K02 MiBM1_K03

COURSE CONTENT

Type of instruction lecture	Topics covered

lecture	Technical product documentation - general instructions. Stages of making an executive drawing. Limit the number of views (and cuts and sections), choice of views depending on the level of complexity, number of views, including dimensioning. Selection of standardized machine parts and dimensions for sample machine parts (e.g. gear wheel, machine shaft, keyways, bearings, snap rings). Geometrical product specifications in the technical product documentation. Geometrical tolerancing. Tolerances of form, orientation, location and run-out. Datums and datum systems. Presentation of dimensions and tolerances. Assembly drawing - general notes, dimensioning, part numbering, assembly drawing table. Creating technical product documentation from an assembly drawing. Drawing permanent and detachable connections used in engineering practice.
project	Before starting to creating technical product documentation, the student first draws a sketch, which consists of a limit the number of views (and cuts and sections) to show all the details of the product. Next, the dimensions selected from the standards for a given part of the machine are added to the sketch. Makes a technical product documentation, selecting the main view and auxiliary projections. Adds dimensions in accordance with the principles of technical drawing. For a given element, it selects geometrical tolerancing for cooperating surfaces, as well as selects and applies roughness and fits to appropriate surfaces. The student also prepares an assembly drawing, placing it in the working position on the sheet, adding overall dimensions and, if necessary, also characteristic dimensions (e.g. hole spacing). Next, he numbers the component parts and fills in the table for the assembly drawing, taking into account the type of material for each element. Finally, he creates a technical product documentation for one element from the assembly drawing. The student also makes drawings of permanent and detachable connections. The student learns how to create drawings from parts. Learns general information on views and determines limit the number of views (and cuts and sections) for a specific detail. It uses section/cut in one plane, section/cut in two parallel planes, section/cut in two intersecting planes. In accordance with the principle and types of dimensioning, it calculates the necessary dimensions (taking into account the simplifications used in dimensioning). Depending on the complexity of the parts, drawing simplifications are used.

ASSESSMENT METHODS

Outcome code	Methods of assessment *(Mark with an X where applicable)*					
	Oral examination	Written examination	Test	Project	Report	Other
W01			x	x		
W02			x	x		
W03			x	x		
U01			x	x		
U02				x		

K01				x		
K02				x		

ASSESSMENT TYPE AND CRITERIA

Mode of instruction	Assessment type	Assessment criteria
lecture	non-examination assessment	The pass mark is a minimum of 50% for all the in-class the final examination.
project	non-examination assessment	The pass mark is a minimum of 50% for all the in-class the developed project.

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			30							
2.	Other contact hours (office hours, examination)	2			2							h
3.	**Total number of contact hours**	**49**										h
4.	**Number of ECTS credits for contact hours**	**2,0**										ECTS
5.	**Number of independent study hours**	**26**										h
6.	**Number of ECTS credits for independent study hours**	**1,0**										ECTS
7.	**Number of practical hours**	**50**										h
8.	**Number of ECTS credits for practical hours**	**2,0**										ECTS
9.	**Total study time**	**75**										h
10.	**ECTS credits for the course** *1 ECTS credit = 25-30 hours of study time*	**3**										ECTS

READING LIST

1. PN-EN, PN-ISO, PN.
2. Molasy R. Grafika Inżynierska – zasady rzutowania i wymiarowania, PŚk, Kielce
3. Molasy R Rysunek Techniczny: chropowatość i falistość powierzchni, tolerancje geometryczne i tolerowanie wymiarów", PŚk Kielce 2016.
4. Dobrzański T - Rysunek techniczny maszynowy - wyd. 06.2021
5. Figurski J, Popis S. – Rysunek techniczny w branży mechaniczne i samochodowej. Wyd. 06.2016
6. www.pkm.edu.pl