Kielce University of Technology

FACULTY OF MECHATRONICS AND MECHANICAL ENGINEERING

Annex 9
to the Rector's Ordinance No. 35/19
of 12 June 2019

COURSE SPECIFICATION

Course code	**M#1-S1-MiBM-404**
Course title in Polish	**Technologia Budowy Maszyn**
Course title in English	**Manufacturing Engineering**
Valid from (academic year)	**2019/2020**

GENERAL INFORMATION

Programme of study	**MECHANICAL ENGINEERING**
Level of qualification	**first-cycle**
Type of education	**academic**
Mode of study	**full-time**
Specialism	**all**
Department responsible	**Department of Manufacturing Engineering and Metrology**
Course leader	**Prof. dr hab. inż. Czesław Kundera**
Approved by	

COURSE OVERVIEW

Course type	**basic**
Course status	**compulsory**
Language of instruction	English
Semester of delivery	**semester 4**
Pre-requisites	**Machine Engineering Drawing, Material Science, Metrology**
Examination required (YES/NO)	NO
ECTS value	**2**

Mode of instruction	**lecture**	**class**	**laboratory**	**project**	**seminar**
No. of hours per semester	**15**			**15**	

LEARNING OUTCOMES

Category of outcome	Out-come code	Course learning outcomes	Corresponding programme outcome code
Knowledge	W01	Has detailed and in-depth knowledge of techniques production of machine parts, including subtractive techniques, non-waste, methods of bonding materials, taking into account additive and laser technologies, the issues of rapid prototyping and reverse engineering, also has a structured and in-depth knowledge of the construction of various types of systems for processing and shaping materials.	MiBM_W10
	W02	Has detailed knowledge related to selected issues in the field of machine construction, production technology of basic elements of machines and devices, their operation, evaluation of operational and wear properties, diagnosis of the technical condition, technology for right and safe use.	MiBM1_W15
Skills	U01	Is able to develop documentation regarding the implementation of an engineering task in the field of mechanics and machine construction, prepare a text containing a discussion of the results of this task	MiBM1_U04
	U02	He can design a simple technological process in the field of mechanics and machine construction and select appropriate machines and devices for this purpose.	MiBM1_U08
Competence	K01	Is aware of the responsibility for their own work, understands the need to submit to the rules of working in a team and be responsible for jointly performed tasks.	MiBM1_K04

COURSE CONTENT

Type of instruction*	Topics covered
lecture	1. Classification of machine parts. Production and technological process. Structure and documentation of the technological process. Documentation example. 2. Types of semi-finished products (workpiece) and their selection. Preparation of workpiece for processing. Types of allowances and factors influencing their size. Standards for allowance for machining. 3. Fixing and clamping the PO. Machining bases, selection rules. Errors in fixing workpiece. 4. Selection of technological machines. Methodology of selecting tools and machining parameters. 5. Standard of working time. General principles of designing technological processes. 6. Technological processes of axially-symmetrical parts of the shaft, sleeve, disc class. 7. Technological process of flat parts. 8. Completion of the course

project	1. Issuing a design for the technological process of a part such as a shaft or a sleeve. Discussion of the purpose and scope of the project and the rules of passing. 2. Analysis of design and technological data. Choice of processing methods. Selection of machining allowances. Selection of a workpiece product. 3. Selection of technological machines, cutting tools. 4. Forming the structure of the technological process, 5. Selection of machining parameters and calculation of the working time standard for cutting and rough turning operations. 6. Selection of machining parameters and calculation of the working time standard for final turning, milling and grinding operations. 7. Final preparation of the documentation of the process. 8. Completion of design exercises.

*) Please delete rows in the table above that are not applicable.

ASSESSMENT METHODS

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

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

ASSESSMENT TYPE AND CRITERIA

Mode of instruction*	Assessment type	Assessment criteria
lecture	**examination assessment**	Class attendance, minimum 2/3 attendance. Passing the test.
project	**examination assessment**	Class attendance, minimum 2/3 attendance. Obtaining a minimum of 50% throughout the entire semester in the "project development" part as well as submission and completion

*) Please delete rows in the table above that are not applicable.

OVERALL STUDENT WORKLOAD

ECTS weighting								
	Activity type	Student workload					Unit
1.	Scheduled contact hours	L	C	Lab	P	S	h
		15			15		
2.	Other contact hours (office hours, examination)	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**	**6**	ECTS
7.	**Number of practical hours**	**25**	h
8.	**Number of ECTS credits for practical hours**	**1**	ECTS
9.	**Total study time**	**50**	h
10.	**ECTS credits for the course** *1 ECTS credit = 25-30 hours of study time*	**2**	ECTS

READING LIST

1. Feld M.: Podstawy projektowania procesów technologicznych typowych części maszyn. WNT Warszawa 2000.
2. Kapiński S., Skawiński P., Sobieszczański J., Sobolewski J.: Projektowanie technologii maszyn. Wydawnictwo Politechniki Warszawskiej. 2002.
3. Kaczmarek J. Projektowanie z technologii maszyn. Wydawnictwo Politechnik Łódzkiej. 2001.
4. Choroszy B.: Technologia maszyn. Wrocław, Oficyna Wydaw. PWr. 2000.
5. Przybylski L.: Strategia doboru warunków obróbki współczesnymi narzędziami. Toczenie – wiercenie – frezowanie. Politechnika Krakowska, Kraków, 2000.
6. Łabędź J.: Projektowanie procesów technologicznych obróbki. Wyd. AGH, Kraków, 1996.
7. Małecki i inni: Projektowanie procesów technologicznych. Skrypt PŚk, Kielce.
8. Wołk R. Normowanie czasu pracy na obrabiarkach do obróbki skrawaniem. WNT. Wa-wa, 1997. http://fbc.pionier.net.pl
9. Katalogi firm produkujących narzędzia: Sandvik, Pafana, Seco Tools, Mitsubishi Carbide.