



COURSE SPECIFICATION

Course code	M#1-S1-ME-601
Course title in Polish	Podstawy konstrukcji maszyn III
Course title in English	Fundamentals of Machine Design III
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 Machine Design
Course leader	Jaroslav Galkiewicz, BEng, PhD, DSc
Approved by	

COURSE OVERVIEW

Course type	basic
Course status	compulsory
Language of instruction	English
Semester of delivery	semester 6
Pre-requisites	Fundamentals of Machine Design II
Examination required (YES/NO)	YES
ECTS value	4

Mode of instruction	lecture	class	laboratory	project	seminar
No. of hours per semester	15			30	

LEARNING OUTCOMES

Category of outcome	Out-come code	Course learning outcomes	Corresponding programme outcome code
Knowledge	W01	They will have a basic knowledge of the principles of design of mechanical components and systems.	MiBM_W08
	W02	They will know how to develop and analyse technical documentation, which involves engineering design using graphics and calculation software.	MiBM1_W12
Skills	U01	They will be able to identify and define an engineering problem; they are able to develop specifications that meet the design requirements necessary to solve an engineering problem, as appropriate to their specialism field of study.	MiBM1_U19
	U02	They will be able to design a mechanical system complying with its specification using mechanical computer-aided design software.	MiBM1_U09
Competence	K01	They will be aware of the importance of professional approach complying with the principles of professional ethics and respecting the diversity of opinion, culture and religion.	MiBM1_K04

COURSE CONTENT

Type of instruction*	Topics covered
lecture	1. Gear failures and fatigue strength analysis
	2. Bevel gears
	3. Worm gears
	4. Design of worm and bevel gearboxes
	5. Belt drives
	6. Chain drives
project	1. Design of double reduction gear including V-belt drive and spur gear drive

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

ASSESSMENT METHODS

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

ASSESSMENT TYPE AND CRITERIA

Mode of instruction*	Assessment type	Assessment criteria
lecture	examination assessment	The pass mark is a minimum of 50% for the examination, in-class activity, passing grade for the project
project	non-examination assessment	The pass mark is a minimum of 50 points out of a possible 100 for the project (including calculations and drawings).

*) 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			30		
2.	Other contact hours (office hours, examination)	4			2		h
3.	Total number of contact hours	51					h
4.	Number of ECTS credits for contact hours	2.0					ECTS
5.	Number of independent study hours	49					h
6.	Number of ECTS credits for independent study hours	2.0					ECTS
7.	Number of practical hours	67					h
8.	Number of ECTS credits for practical hours	2.7					ECTS
9.	Total study time	100					h
10.	ECTS credits for the course <i>1 ECTS credit = 25-30 hours of study time</i>	4					ECTS

READING LIST

1. V. B. Bhandari, Design of Machine Elements, Tata McGraw Hill Education Private Limited, 2010
2. R. G. Budynas, J. K. Nisbett, Shigley's Mechanical Engineering Design, McGraw-Hill Education, 2015
3. J. M. Gere, B. J. Goodno, Mechanics of Materials, Eighth Edition, SI, Cengage Learning, 2013
4. Wei Jiang, Analysis and Design of Machine Elements, JohnWiley & Sons Singapore Pte. Ltd, 2019
5. L. W. Kurmaz, O. L. Kurmaz, Podstawy konstruowania węzłów i części maszyn, Wydawnictwo Politechniki Świętokrzyskiej, Kielce 2011 (in Polish)