MODULE DESCRIPTION

Module code	full-time studies:	**Z-ZIP1-E-623**
	part-time studies:	**Z-ZIPN1-E-623**
Module name	**Engineering modeling**	
Module name in Polish	**Modelowanie inżynierskie**	
Valid from academic year	**2019/2020**	

MODULE PLACEMENT IN THE SYLLABUS

Field of study	**MANAGEMENT AND PRODUCTION ENGINEERING**
Level of education	**1st degree**
Studies profile	**General**
Form and method of conducting classes	**Full-time and Part-time**
Specialisation	**Computer Science for Management and Modelling**
Unit conducting the module	**Department of Computer Science Technologies**
Module co-ordinator	**Paweł Stąpór, PhD**
Approved by:	

MODULE OVERVIEW

Type of subject / group of subjects	**Specialist subject**
Module status	**Non-compulsory**
Language of conducting classes	**English**
Module placement in the syllabus - semester	**Semester VI**
Initial requirements	**No requirements**
Examination (YES/NO)	**NO**
Number of ECTS credit points	**1**

Method of conducting classes		**Lecture**	**Classes**	**Laboratory**	**Project**	**Other**
Per semester	full-time studies:			**15**		
	part-time studies:			**9**		

TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Category	Symbol	Learning outcomes	Assignations to the directional learning outcomes
Skills	U01	A student is able to use modern numerical analysis tools for modelling selected engineering problems.	ZIP1_U17
	U02	A student is able to apply the rules of modeling with the use of finite element analysis.	ZIP1_U19
Social competences	K01	He understands the need and knows the possibilities of continuous improvement, which leads to increasing personal professional competences.	ZIP1_K01

TEACHING CONTENTS

Method of conducting classes	Teaching contents
Laboratory	Presentation of the FEA (Finite Element Analysis) computing environment for modeling selected engineering problems. Modeling of stationary and non-stationary heat flows using the FEA program. Static and dynamic 2 and 3-D analysis in FEA. Modeling of contact issues including non-standard material models and large displacements in FAE.

METODS OF ASSESSING TEACHING RESULTS

Symbol	Methods of checking the learning outcomes *(select X)*					
	Oral exam	Written exam	Test	Project	Statement	Other
U01					X	
U02					X	
K01						X

FORM AND CONDITIONS OF PASSING

Form of classes	Form of credit	Passing conditions
Laboratory	Credit with grade	Obtaining a positive assessment from the report covering the implementation of the selected issue.

STUDENT WORKLOAD

Balance of ECTS points												
No.	Type of student's activity	Student's workload										Unit
		full-time					part-time					
1.	Participation in the activities	Lc	C	Lb	P	O	Lc	C	Lb	P	O	h
				15					9			
2.	Other (consultation, exam)			2					2			h
3.	**Number of hours of a student's assisted work**	**17**					**11**					h
4.	**Number of ECTS credit points which are allocated for assisted work**	**0,7**					**0,4**					ECTS
5.	**Number of hours of a student's unassisted work**	**8**					**14**					h
6.	**Number of ECTS credit points which a student receives for unassisted work**	**0,3**					**0,6**					ECTS
7.	**Work input connected with practical classes**	**25**					**25**					h
8.	**Number of ECTS credit points which a student receives for practical classes**	**1,0**					**1,0**					ECTS
9.	**Total number of hours of a student's work**	**25**					**25**					h
10.	**Punkty ECTS za moduł** *1 ECTS=25 hours*	**1**										ECTS

LITERATURE

1. *Dassault Systemes Simulia Inc., Abaqus Analysis User's Guide, USA,* 2022.
2. Ryan Lee*, ABAQUS for Engineers: A Practical Tutorial Book, Independently published, 2019.*
3. Reddy J. N., *An Introduction To The Finite Element Method, 4th Edition, McGraw Hill – International edition, 2019.*
4. Terrence J. Akai, *Applied numerical methods for engineers* , John Wiley & Sons, cop., New York 1994.