



MODULE DESCRIPTION

Module code	full-time studies:	Z-ZIP1-E-634
	part-time studies:	Z-ZIPN1-E-634
Module name	Computer Aided Production Management	
Module name in Polish	Komputerowe wspomaganie zarządzania produkcją	
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	Production and Innovation Management
Unit conducting the module	Department of Production Engineering
Module co-ordinator	Sławomir Luściński, PhD
Approved by:	Dariusz Bojczuk, PhD, DSc

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	Production Management
Examination (YES/NO)	NO
Number of ECTS credit points	2

Method of conducting classes		Lecture	Classes	Laboratory	Project	Other
Per semester	full-time studies:	10		20		
	part-time studies:	6		12		

TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Category	Symbol	Learning outcomes	Assignations to the directional learning outcomes
Knowledge	W01	Has a knowledge of the life cycle of simulation modeling and analysis, knows the notations for creating conceptual models.	K_W01
	W02	Has an advanced knowledge of the tools used in simulation modeling of the logistics of production processes and the criteria for their selection.	K_W04
Skills	U01	He is able to build a model of the production process according to the given specification using the FlexSim software.	K_U18 K_U19
	U02	He can plan and carry out simulation experiments of production processes, interpret and critically evaluate the obtained results and formulate conclusions and conclusions.	K_U14
	U03	He can document the implementation of the simulation modeling task.	K_U03
Social competences	K01	Understands the need for continuous improvement and raising competences in the use of simulation modeling to solve organization problems and manage production processes.	K_K01
	K02	Is aware of taking responsibility for their own work and jointly performed tasks, and is ready to submit to the rules of working in a team, assuming various roles in it.	K_K04

TEACHING CONTENTS

Method of conducting classes	Teaching contents
Lecture	Production management, production processes, operational management and logistic aspects in production management. Simulation modeling in solving decision problems. Life cycle of simulation modeling and analysis. Managing the simulation project. Introduction to modeling with the use of FlexSim software (basic terminology, interface, object libraries, navigation, object model). Parameters of the production process, randomness modeling.
Laboratory	Building models of selected production processes in the FlexSim environment. Analysis and evaluation of conducted simulation experiments (reporting, compilation of statistics, global tables, global variables). Parametric optimization of processes.

METHODS OF ASSESSING TEACHING RESULTS

Symbol	Methods of checking the learning outcomes <i>(select X)</i>					
	Oral exam	Written exam	Test	Project	Statement	Other
W01			X			
W02			X			
U01					X	
U02					X	
U03					X	
K01					X	
K02					X	

FORM AND CONDITIONS OF PASSING

Form of classes	Form of credit	Passing conditions
Lecture	Credit with grade	Obtaining 50% of the points on the final test.
Laboratory	Credit with grade	The final grade is calculated as the arithmetic mean of the positive grades obtained during the laboratory exercises and the implementation of the individual final task.

STUDENT WORKLOAD

Balance of ECTS points												
No.	Type of student's activity	Student's workload										Unit
		full-time					part-time					
		Lc	C	Lb	P	O	Lc	C	Lb	P	O	
1.	Participation in the activities	10		20			6		12			h
2.	Other (consultation, exam)	2		2			2		2			h
3.	Number of hours of a student's as- sisted work	34					22					h
4.	Number of ECTS credit points which are allocated for assisted work	1,4					0,9					ECTS
5.	Number of hours of a student's un- assisted work	16					28					h
6.	Number of ECTS credit points which a student receives for unassisted work	0,6					1,1					ECTS
7.	Work input connected with practical classes	33					33					h
8.	Number of ECTS credit points which a student receives for practical classes	1,3					1,3					ECTS
9.	Total number of hours of a stu- dent's work	50					50					h
10.	Punkty ECTS za modul <i>1 ECTS=25 hours</i>	2										ECTS

LITERATURE

1. Beaverstock M., Greenwood A., Lavery E., Nordgen W. (2018), *Applied Simulation: Modeling and Analysis Using Flexsim*, Fifth Ed., Bookbaby. ISBN 978-0983231974
2. Law A.M. (2024), *Simulation Modeling and Analysis*, Sixth Edition, McGraw-Hill Education Ltd. ISBN 978-1264268245.
3. Garcia J.G. (2023), *Theory and Practical Exercises of System Dynamics: Guide of Modeling for Simulation, Optimization, Research and Analysis for Beginners*, Independently published. ISBN 979-8655660458.
4. Ören T., Zeigler B.P., Tolk A. (eds.) (2023), *Body of Knowledge for Modeling and Simulation: A Handbook by the Society for Modeling and Simulation International* (Simulation Foundations, Methods and Applications) 1st ed., Springer. ISBN 978-3031110849