



MODULE SPECIFICATION

Module code	
Module name	Informatyczne podstawy projektowania 2
Module name in English	Principles of Computer-Aided Design 2
Valid from academic year	2016/2017

A. MODULE PLACEMENT IN THE SYLLABUS

Subject	Environmental Engineering
Level of education	first cycle (first cycle, second cycle)
Studies profile	academic (academic / practical)
Form and method of conducting classes	Full-time (full-time / part-time)
Specialisation	
Organisational unit responsible for module delivery	Computer Laboratory
Module co-ordinator	Robert Piekoszewski, MSc, Eng.
Approved by:	Lidia Dąbek, PhD hab., Professor of the University

B. MODULE OVERVIEW

Module type	core module (core / programme - specific/elective HES*)
Module status	compulsory module (compulsory // optional)
Language of module delivery	Polish/English
Semester in the programme of study in which the module is taught	Semester 3
Semester in the academic year in which the module is taught	winter semester (winter semester/summer semester)
Pre-requisites	None (module code/module title, where appropriate)
Examination	No (yes / no)
Number of ECTS credit points	1

* elective HES – elective modules in the Humanities and Economic and Social Sciences

Mode of instruction	lecture	classes	laboratories	project	other
Total hours per semester			15		

C. LEARNING OUTCOMES AND ASSESSMENT METHODS



<p>Module aims</p>	<p>The aim of the module is to broaden students' knowledge on modern computer techniques used in the design process on the basis of AutoCAD, in engineering calculations with the use of Excel and MathCAD as well as in processing digital, vector, and raster images in the Corel package.</p>			
Module outcome code	Module learning outcomes	Mode of instruction (l/c/lab/p/ others)	Corresponding programme outcome code	Corresponding discipline-specific outcome code
W_01	A student is familiar with advanced edition functions; a student is knowledgeable about blocks, attributes, calculating surface areas and volumes, drawing in space in the AutoCAD.		IS_W02 IS_W05	T1A_W02 T1A_W05 T1A_W07
W_02	A student is familiar with applications supporting calculations and designing: data import, solving systems of equations, creating diagrams on the basis of Excel and MathCAD.		IS_W05	T1A_W05 T1A_W07
W_03	A student knows the principles of work with the package to create and process Corel graphics (as well as with the advances functions, conversion, and the utilization of graphical files in other multimedia applications.		IS_W17 IS_W05	T1A_W02 T1A_W05 T1A_W07
U_01	A student can independently make drawing documentation with the use of advanced edition tools; a student can also import and export data; in addition, a student can also model in 3D with the use of AutoCAD.		IS_U10 IS_U03 IS_U04 IS_U12	T1A_U02 T1A_U03 T1A_U05 T1A_U07 T1A_U08 T1A_U09 T1A_U15
U_02	A student is capable is solving engineering tasks with the use of the MathCAD and Excel functions; moreover, a student can solve non-linear equations, make trend analysis and present the results in the form of diagrams.		IS_U01 IS_U12	T1A_U08 T1A_U09
U_03	A student can independently create and process images in Corel program as well as make graphics migration between applications.		IS_U03 IS_U07 IS_U12	T1A_U02 T1A_U05 T1A_U08 T1A_U09 T1A_U15
K_01	A student can independently and responsibly work on drawing documentation or a solution of an engineering assignment.		IS_K01 IS_K02	T1A_K02 T1A_K03 T1A_K04 T1A_K05
K_02	A student understands the necessity of self-education as regards modern graphical program supporting designing and engineering calculations.		IS_K03 IS_K09	T1A_K01 T1A_K02 T1A_K04



Module content:

1. Topics to be covered in the lectures
2. Topics to be covered in the classes
3. Topics to be covered in the laboratories

No.	Topics	Module outcome code
1	Information functions of CAD programs. Calculating surface area of plane figures and the volume of 3D objects; displaying the list of objects with their characteristics; dividing, dimensioning and extending objects; changing the features of the selected objects.	W_01 U_01 K_01
2	AutoCAD (operations on blocks, cont.). Blocks in relation to attributes; defining and inserting blocks with attributes; extracting attributes; writing templates for attribute extraction; importing extracted attributes to other programs.	W_01 U_01 K_01
3	3D modelling in AutoCAD (edge, surface, and solid); obtaining common parts of solids; adding and subtracting solids; setting printing parameters; printing 3D drawings.	W_01 U_01 K_01 K_02
4	Processing data in spreadsheets. Importing data to a spreadsheet; graphical data interpretation; making basic statistical data.	W_02 U_02 K_01 K_02
5	Programming in MathCAD. Basic calculation operations; engineering calculations; solving non-linear nth-order equations; making function diagrams.	W_02 U_02 K_01 K_02
6	Processing digital images. The types of digital graphics; programs for vector and raster graphics; processing raster images (improving image quality and preparing files for sending).	W_03 U_03 K_01 K_02

Assessment methods

Module outcome code	Assessment methods <i>(Method of assessment; for module skills – reference to specific project, laboratory and similar tasks)</i>
W_01	A report on laboratory classes
W_02	A report on laboratory classes
W_03	A report on laboratory classes
W_04	A report on laboratory classes
U_01	A report on laboratory classes and a test



U_02	A report on laboratory classes and a test
U_03	A report on laboratory classes
U_04	A report on laboratory classes and a test
U_05	A report on laboratory classes
U_06	A report on laboratory classes and a test
K_01	A test
K_02	A test
K_03	A test
K_04	A test
K_05	A test

D. STUDENT LEARNING ACTIVITIES

ECTS credit points		
	Type of student's activity	Student's workload
1	Contact hours: participation in lectures	
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	15
4	Contact hours: attendance at office hours (2-3 appointments per semester)	2
5	Contact hours: participation in project-based classes	
6	Contact hours: meetings with a project module leader	
7	Contact hours: attendance at an examination	



8		
9	Number of contact hours	17 <i>(sum)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit =25-30 hours of study time)</i>	0.68
11	Private study hours: background reading for lectures	
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	
14	Private study hours: preparation for laboratories	2
15	Private study hours: writing reports	4
16	Private study hours: preparation for a final test in laboratories	2
17	Private study hours: preparation of a project/a design specification	
18	Private study hours: preparation for an examination	
19		
20	Number of private study hours	8 <i>(sum)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit =25-30 hours of study time)</i>	0.32
22	Total study time	25
23	Total ECTS credits for the module <i>(1 ECTS credit =25-30 hours of study time)</i>	1
24	Number of practice-based hours <i>Total practice-based hours</i>	25
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit =25-30 hours of study time)</i>	1

E. READING LIST

References	1. Andrzej Jaskulski „AutoCad 2017/ LT2017 / 360+. Kurs projektowania parametrycznego i nieparametrycznego 2D i 3D, PL/ENG” 2. Andrzej Pikoń „AutoCAD 2016 PL/ENG. Pierwsze kroki”
Module website	