1.	Field of study	Computer Science
2.	Academic year of entry	2016/2017 (summer term)
3.	Level of qualifications/degree	second-cycle studies
4.	Degree profile	general academic
5.	Mode of study	full-time

Module: Advanced object programming

Module code: 08-IN-IJO-S2-ZPO

1. Number of the ECTS credits: 2

2. Learning outcomes of the module

code	description	learning outcomes of the programme	level of competence (scale 1-5)
ZPO -K_7	Can work in team of two and executes proper work division.	K_2_A_I_K03	1
ZPO -U_4	Can create application according to pattern “model-view=controller” and its variations.	K_2_A_I_U13 K_2_A_I_U16	2 1
ZPO -U_5	Knows principles concerning software testing and can use automated mechanisms of testing in the process of software developing.	K_2_A_I_U02 K_2_A_I_U03 K_2_A_I_U15 K_2_A_I_U20	2 1 1 1
ZPO -U_6	Has knowledge about ways of dependency injection and is able to use them in the developed software.	K_2_A_I_U13	1
ZPO -W_1	Has knowledge about parameterized types and reflection mechanisms in the chosen programming languages.	K_2_A_I_U14 K_2_A_I_W06	1 2
ZPO -W_2	Can indicate advantages and disadvantages of inheritance in object programming as well as advantages and disadvantages of composition as alternative to inheritance.	K_2_A_I_W06 K_2_A_I_W10	3 1
ZPO -W_3	Has knowledge about basic design patterns and their use in the created software.	K_2_A_I_W06 K_2_A_I_W10	2 1

3. Module description

Description	The aim is to present the students with the chosen issues concerning object programming at advanced level. Especially, the presented methods aim at

	facilitating designing and implementation of complex IT systems thanks to modern object programming languages.
Prerequisites	

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
ZPO_w_1	Control tests	Test checking level of knowledge referring to content presented during lectures and laboratory classes.	ZPO -U_4, ZPO -U_5, ZPO -U_6, ZPO -W_1, ZPO -W_2, ZPO -W_3
ZPO_w_2	Design implementation	Evaluation of the completed application design executed in object technology, especially with use of design patterns. The grade takes into account correctness and level of developed software complexity.	ZPO -K_7, ZPO -U_5, ZPO -U_6

5. Forms of teaching

code	form of teaching			required hours of student's own work		assessment of the learning outcomes of the module
	type	description (including teaching methods)	number of hours	description	number of hours	
ZPO_fs_1	lecture	Presenting educational content in verbal form, with use of content visualization. Discussing the chosen theoretical issues concerning object programming at advanced level.	15	Familiarizing with content presented during lectures and preparing for laboratory classes connected with the lectures.	2	ZPO_w_1
ZPO_fs_2	laboratory classes	Preparing the students for practical use of the presented issues concerning object programming.	30	Solving tasks of subsequent topics together with analysis of the already existing solutions. Executing programming project using methods presented during lectures.	13	ZPO_w_1, ZPO_w_2