1.	Field of study	Computer Science
2.	Academic year of entry	2017/2018 (summer term), 2018/2019 (summer term)
3.	Level of qualifications/degree	second-cycle studies
4.	Degree profile	general academic
5.	Mode of study	full-time

Module: Monographic's lecture

Module code: 08-IN-GWK-S2-WM

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)
WM -K_7	Can work individually or in a team.	K_2_A_I_K03	1
WM -K_8	Can think and act creatively.	K_2_A_I_K05	1
WM -U_4	Can create mathematical model of graphic system, verify it of simulate its operation.	K_2_A_I_U07 K_2_A_I_U08 K_2_A_I_U13	1 1 1
WM -U_5	Can implement known algorithms in the chosen programming language or in MAPLE system.	K_2_A_I_U02 K_2_A_I_U03 K_2_A_I_U04 K_2_A_I_U05 K_2_A_I_U13 K_2_A_I_U14 K_2_A_I_U15	1 1 1 1 1 1 1
WM -U_6	Can acquire information about geometrical algorithms, fractal modeling, root-finding, biomorphs, dynamic systems and their visualization and other connected issues from literature, databases and other sources including in English.	K_2_A_I_U01 K_2_A_I_U04 K_2_A_I_U05 K_2_A_I_U06	1 1 1 1
WM -W_2	Knows and understands basic iterative algorithms to generate esthetic patterns, knows issues of image analysis, construction and verification of mathematical models.	K_2_A_I_W01 K_2_A_I_W03	1 1

WM -W_3	Knows and understands issues connected with MAPLE system programming, knows the basics of visualization.	K_2_A_I_W01 K_2_A_I_W03 K_2_A_I_W06 K_2_A_I_W08	1 1 1 1
WM-W_1	Knows and understands mathematical notions used in geometric modeling, understands the issues connected with iterative processing system, fractal modeling, root-finding, biomorphs, dynamic systems and chaos.	K_2_A_I_W01 K_2_A_I_W03 K_2_A_I_W15	1 1 1

3. Module description	
Description	Aim of the lecture is familiarizing the students with issues connected with computer graphics in the aspect of mathematical formalism, among others, geometric algorithms, fractal modeling, evolutionary generating of utility models, root-finding, iterative processing systems, convergent sequences and basins of attraction visualization, image recognition, creating and verification of mathematical models. Lecture content will be implemented in environment of computation system MAPLE.
Prerequisites	

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
WM _w_1	Credit	Lecture credit is gained on the basis of a project illustrating the chosen lecture issues, executed in the chosen programming environment. The final grade results from the level of mastery in lecture content, skill of appropriate argumentation during reasoning and skill of discussing, creativity, in solving given problems individually or in a group. The grade is also influenced by make use of literature, especially in English.	WM -K_7, WM -K_8, WM -W_2, WM -W_3, WM-W_1
WM _w_2	Project	Lecture credit is gained on the basis of project illustrating the chosen lecture issues, executed in the chosen programming environment individually or in a group.	WM -K_7, WM -K_8, WM -U_4, WM -U_5, WM -U_6, WM -W_2, WM -W_3, WM-W_1
WM _w_3	Presentation	Giving an audio-visual presentation in front of the group, discussion over assumptions and accepted method of a given problem solving, analysis and evaluation of the project goal.	WM -K_7, WM -K_8

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	
WM _fs_1	lecture	Presenting educational content with use of audio-visual aids.	30	Individual preparation for lectures. Studying of the advised literature, creative searching for solutions to defined problems, individually or in a group.	30	WM _w_1, WM _w_2, WM _w_3

				Executing the semester project in the range of accepted education effects, individually or in a group. Giving audio-visual presentation in front of the group, discussion over assumptions and accepted method of solving the defined problem, analysis and evaluation of the project goal fulfillment.		