

Faculty of Chemistry					
SUBJECT CARD					
Name of subject in Polish	Informatyka stosowana				
Name of subject in English	Applied informatics				
Main field of study (if applicable):	Biotechnology				
Specialization (if applicable):	Bioinformatics				
Profile:	academic				
Level and form of studies:	2nd level, full-time				
Kind of subject:	obligatory				
Subject code	INC024006				
Group of courses	NO				
	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)			60		
Number of hours of total student workload (CNPS)			120		
Form of crediting			crediting with grade		
For group of courses mark (X) final course					
Number of ECTS points			4		
including number of ECTS points for practical (P) classes			4		
including number of ECTS points for direct teacher-student contact (BK) classes			2		
PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES					
1. None					
SUBJECT OBJECTIVES					
C1 Familiarizing students with basics of Unix environment					
C2 Teaching students the basic algorithms and numerical methods					
C3 Familiarizing students with concepts of procedural and object-oriented programming					
SUBJECT EDUCATIONAL EFFECTS					
relating to knowledge:					
PEK_W01 Student is familiar with basic commands of the Unix system					
PEK_W02 Student knows the basic concepts of developing a computer program					
PEK_W03 Student knows the commonly used numerical algorithms					
PEK_W04					
relating to skills:					
PEK_U01 Student is able to use a programming environment to develop a program					
PEK_U02 Student is able to design and implement an algorithm for the common numerical methods					
PEK_U03 Student is able to effectively use the procedural and object-oriented methods in programming					

PROGRAMME CONTENT		
Laboratory		Number of hours
Lab 1	Organization of course and conditions for passing the course. Basic Unix commands.	4
Lab 2	Using the programming environment. Writing and executing programs. Conditional expressions. Loops.	4
Lab 3	Simple and complex types of data. Objects. Functions and methods.	4
Lab 4	Design and implementation of algorithms.	12
Lab 5	Commonly used numerical algorithms.	16
Lab 6	Applications of programming in biochemistry and biotechnology	16
Lab 7	End credit	4
	Total hours	60
TEACHING TOOLS USED		
N1. Multimedia presentation N2. Specialized computer software N3. Gamification		
EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT		
Evaluation (F – forming (during semester), P – concluding (at semester end))	Educational effect number	Way of evaluating educational effect achievement
F1 (laboratory)	PEK_W01-PEK_W03	Partial tests (max 30 pts)
F2 (projects assessment)	PEK_U01-PEK_U03	Evaluation of the projects (max 30 pts)
P1 (final assignment)	PEK_U01-PEK_U03	Final assignment (max 40 pts)
P (F1+F2+P1) 2,0, when (F1+F2) < 50% points 3,0, when (F1+F2) = 51-59% points 3,5, when (F1+F2) = 60-69% points 4,0, when (F1+F2) = 70-79% points 4,5, when (F1+F2) = 80-89% points 5,0, when (F1+F2) = 90-99% points 5,5, when (F1+F2) = 100% points		
PRIMARY AND SECONDARY LITERATURE		
PRIMARY LITERATURE: [1] “Python Programming for Biology: Bioinformatics and Beyond”, Tim J. Stevens, Wayne Boucher, Cambridge University Press; 1 edition (April 6, 2015) ISBN-13: 978-0521720090		
SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)		
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