

Course title Programowanie I / Programming I		ECTS code 13.3.0476	
Name of unit administrating study Faculty of Chemistry			
Studies			
Field of study	Type	Form	
Chemistry	Masters	Full-time studies	
Teaching staff Dr hab. Cezary Czaplewski, prof. nadzw.			
Forms of classes, the realization and number of hours		ECTS credits 4	
A. Forms of classes, in accordance with the UG Rector’s regulations lecture, laboratory class		classes - 45 h tutorial classes – 10 h student’s own work – 45 h	
B. The realization of activities in-class learning		Total: 100 h - 4 ECTS	
C. Number of hours 45 h (15 lecture, 30 laboratory class)			
The academic cycle 2019/20 winter semester			
Type of course obligatory		Language of instruction Polish	
Teaching methods work in the computer lab		Form and method of assessment and basic criteria for evaluation or examination requirements	
		A. Final evaluation, in accordance with the UG study regulations lecture – exam laboratory classes – course completion (with a grade)	
		B. Assessment methods Completion of the assigned project and reporting the results to the teacher. The final grade is based on partial grades received during the semester.	
		C. The basic criteria for evaluation or exam requirements Lab classes: the arithmetic mean of partial grades received during the semester for written reports on laboratory exercises, the main criteria for the assessment is substantive correctness of reports. Lectures: design of a project using the ANSI C language and chemistry-related algorithm indicated by the teacher. The main criterion is the correctness of the algorithm, additional originality of the proposed solutions.	
Required courses and introductory requirements Completed course on Information technology Ability to use the UNIX operation system			
Aims of education Ability to properly design basic algorithms, introduction to programming in ANSI C.			
Course contents Algorithms and data structures based on ANSI C. Overview of available C compilers: compiler options and directives, code optimization, MAKE program. Review of the most important data structures that are helpful in programming: hierarchical structures, standard types, type merging, conversions, dynamic structures, object structures, static, dynamic and polymorphic objects. The most important programming algorithms: approximate estimation of the complexity of algorithms (classes N, N2, N3, NlogN), brute-force algorithms, divide and conquer algorithms, recursion. Versions and C language extensions, implementation inaccuracies.			

Bibliography of literature**A. Literature required to pass the course**

Język ANSI C, Brian W. Kernighan, Dennis M. Ritchie, WNT 2007

Język Ansi C. Ćwiczenia i rozwiązania, Scott E. Gimpel, Clovis L. Tondo WNT 2003

B. Extracurricular readings**Knowledge**

The student defines the concept of the algorithm. Names and describes the types and the data structures of the ANSI C language. Differentiates the ANSI C control instructions. Characterizes the most important classes of algorithms.

Skills

The student designs simple algorithms, writes them using the ANSI C language and then compiles and tests the obtained programs.

Social competence

The student develops the skills of accurate and logical thinking and inference. Learns the principles of working safely, responsibly, and efficiently using the workstations connected to the Internet. Develops the responsibility for his/her personal account on the workstation. Develops the ability of working in a team.