

Course title Programowanie II / Programming II		ECTS code 13.3.0984	
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 h lecture, 30 h laboratory class)			
The academic cycle 2019/20 summer semester			
Type of course obligatory		Language of instruction Polish	
Teaching methods Exercises in a computer lab Lecture with multimedia presentation		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 FORTRAN 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 using available library procedures and procedures written by other programmers, introduction to programming in Fortran.			
Course contents Hierarchical and modular programming languages. History of FORTRAN language from FORTRAN I to FORTRAN 2000. FORTRAN 77. Structure of the program in FORTRAN 77 language. Compilation of the program. Source modules, half-compiled modules and executable module. Structure of the program source in FORTRAN: fixed format and free format. Instructions and directives. Basic data types in FORTRAN. Constants and variables. Type declarations (extension of FORTRAN 77). Assigning the initial values of variables at the stage of their declaration. Basic input/output instructions. FORMAT directive. Expressions in FORTRAN. Assignment instruction. Conditional instructions (simple, arithmetic, complex). Jump instructions (simple, calculated			

and designated). Loop instructions. FORTRAN 77 extensions: CASE statement, FORALL statement and WHERE statement. Advanced I / O operations and file operations. Preprocessor directives. Using make to assemble an executable program from modules. Using the debugger to start the program. Programs in mixed languages; attaching procedures written in C to the program in FORTRAN and vice versa.

Bibliography of literature

A. Literature required to pass the course

Fortran 77. Podręczna pamięć programisty, Ryszard Kott, WNT 1989

Programowanie w języku FORTRAN 77, Ryszard Kott, Krzysztof Walczak, WNT 1991

B. Extracurricular readings

Knowledge

The student names and describes data types based on the programming language FORTRAN 77. Distinguishes between the control instructions of the language FORTRAN 77 and its extensions. Lists the available library procedures

Skills

Student designs simple algorithms, writes them using FORTRAN 77 language, and then compiles and tests the obtained programs. He uses available library procedures and procedures written by other programmers in his 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.