

Course title Matematyka I / Mathematics I		ECTS code 13.3.0722	
Name of unit administrating study Faculty of Chemistry			
Studies			
Field of study	Type	Form	
Chemical Business	Bachelor / Engineer	Full-time studies	
Teaching staff dr Aleksandra Nowel			
Forms of classes, the realization and number of hours		ECTS credits 5	
A. Forms of classes, in accordance with the UG Rector's regulations lecture, auditorium classes,		classes - 75 h tutorial classes – 10 h student's own work – 40 h	
B. The realization of activities in-class learning			
C. Number of hours 75 h (30 h lecture, 45 h auditorium classes)		Total: 125 h - 5 ECTS	
The academic cycle First year, winter semester			
Type of course obligatory		Language of instruction Polish	
Teaching methods Lecture Problems solving		Form and method of assessment and basic criteria for evaluation or examination requirements	
		A. Final evaluation, in accordance with the UG study regulations course completion (with a grade)	
		B. Assessment methods Lecture <ul style="list-style-type: none"> • exam with open/closed questions Auditorium classes: <ul style="list-style-type: none"> • attendance, active participation, tests and quizzes 	
		C. The basic criteria for evaluation or exam requirements Lecture: <ul style="list-style-type: none"> • pass the exam with open questions 91-100%: 5.0 81-90%: 4.5 71-80%: 4.0 61-70%: 3.5 51-60%: 3.0 Less than 51% 2.0 Auditorium classes: <ul style="list-style-type: none"> • completed all tests 91-100%: 5.0 81-90%: 4.5 71-80%: 4.0 61-70%: 3.5 51-60%: 3.0 Less than 51% 2.0	
Required courses and introductory requirements basic mathematics			

Aims of education

Introduction to differential and integral calculus of, linear algebra, in particular the mathematical tools that can be applied in describing physical and chemical processes
Teaching the ability of understanding abstract problems

Course contents

1. Elementary functions
2. Limits of functions, continuity
3. Derivative of a function of one variable
4. Applications of derivatives
5. Integral of a function of one variable
6. Elements of differential and integral calculus of several variables functions

Bibliography of literature

A. Literature required to pass the course

T. Jurlewicz, Z. Skoczylas, Algebra liniowa 1. Przykłady i zadania

M. Gewert, Z. Skoczylas, Analiza matematyczna 1. Przykłady i zadania

G. Kwiecińska: Matematyka : kurs akademicki dla studentów nauk stosowanych. Cz. 1, Wybrane zagadnienia algebry liniowej

G. Kwiecińska: Matematyka : kurs akademicki dla studentów nauk stosowanych. Cz. 2, Analiza funkcji jednej zmiennej

W. Krysiński, L. Włodarski: Analiza matematyczna w zadaniach. 1 i 2

B. Extracurricular readings

Erich Steiner : „Matematyka dla chemików”, Warszawa, Wydaw. Naukowe PWN, 2001.

Halina Pidek-Łopuszańska: „Matematyka dla chemików”, Wiedza Powszechna, Warszawa 1974.

Knowledge

Classification of elementary functions, their properties

application of main tools of differential and integral calculus to problems solving

verifying properties of one and several variables functions by using main tools of differential

and integral calculus

Skills

ability of solving problems from differential and integral calculus and applications,

connecting these problems with suitable theory,

using main tools of differential and integral calculus to describe associations between different variables

Social competence

presentation of a solution of a problem, explaining the details to the other students

working alone and together with other students to understand the theory presented during the lecture and to solve problems during the classes

responsibility for oneself's work as well as for the work of the group, keeping the rules of working together in a team