STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Mathematical Analysis	**1010534111010340586**

Field of study	Profile of study (general academic, practical)	Year /Semester
Automatic Control and Robotics	**general academic**	**1 / 1**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**Polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
First-cycle studies	**part-time**

No. of hours	No. of credits
Lecture: **22** Classes: **22** Laboratory: **-** Project/seminars: **-**	**6**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
basic	**university-wide**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**6 100%**
Technical sciences	**6 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knowledge of mathematics with range of secondary school at advanced level.
2	**Skills**	Student should have the ability to use algebraic expressions, to solve equations and inequalities(algebraic, exponential, logarithmic and trigonometric), to use properties of elementary functions and the ability to acquire information from the indicated sources.
3	**Social competencies**	Student understands the need and knows the possibility of studying and expanding his competences. He should be ready to cooperate within the team.

Assumptions and objectives of the course:

1. The recognizing methods and applications of differential and integral calculus of functions of single variable.
2. Forming the ability of using concepts from differential and integral calculus in engineering practice.
3. Forming teamwork skills.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Student has a basic knowledge of mathematics, including algebra, calculus, logic, probability and elements of discrete mathematics and applied mathematics - [K_W1+++]

Skills:

1. Student is able to get information from the literature, databases and other sources also in a foreign language - [K_U1+]

Social competencies:

1. Student understands the necesity and knows the possibility of studying (postgraduate courses, second-degree studies), improving language, professional, personal and social skills - [K_K1+]
2. The student is aware of the responsibility for his own work and ready to comply with the rules of working in a team and taking responsibility for the tasks he has carried out jointly - [K_K3+]

Assessment methods of study outcomes

Lectures: written exam checking theoretic knowledge and ability it application in practical exercises.
Classes: tests during the semester and colloquium

Course description

Differential and integral calculus of functions of single variable. Applications of integrals. Infinite series and power series.

Update 2018.
Applied methods of education:

I Lectures
1. Interactive lecture with questions to the group of students
2. Discussions

II Classes
1. Solving illustrative tasks on board
2. Teacher?s detailed assessment of students? solutions followed by discussion and comments

Basic bibliography:

1. G. Decewicz, W. Żakowski, Matematyka : analiza matematyczna. Cz. 1, WNT, Warszawa, 2009.
2. F. Leja, Rachunek różniczkowy i całkowy, PWN, Warszawa, 2008.
3. I. Foltyńska, Z. Ratajczak, Z. Szafrański, Matematyka, cz. I, II, III, Wyd. Politechniki Poznańskiej, Poznań, 2004.
4. M. Gewert, Z. Skoczylas, Analiza matematyczna 1 i 2, Oficyna Wyd. GiS, Wrocław, 2012.

Additional bibliography:

1. Krysicki W., Włodarski L.: Analiza matematyczna w zadaniach. Część I, II, PWN, Warszawa, 2013.
2. Stankiewicz W.: Zadania z matematyki dla wyższych uczelni technicznych. Część I, II, PWN, Warszawa, 2012.

Result of average student's workload

Activity	Time (working hours)
1. Classes	22
2. Preparation for classes	22
3. Preparation for tests	20
4. Lectures	22
5. Reading literature	26
6. Consultations	10
7. Preparation for exam and exam 24h + 2h	26

Student’s workload

Source of workload	hours	ECTS
Total workload	148	6
Contact hours	44	2
Practical activities	66	2