STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Mathematics**		Code **1010104111010340004**
Field of study **Civil Engineering First-cycle Studies**	Profile of study (general academic, practical) **(brak)**	Year /Semester **1 / 1**
Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **part-time**	
No. of hours Lecture: **26** Classes: **18** Laboratory: **-** Project/seminars: **-**		No. of credits **6**
Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**	
Education areas and fields of science and art **technical sciences** **Technical sciences**		ECTS distribution (number and %) **6 100%** **6 100%**

Responsible for subject / lecturer:

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Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Mathematical basic knowledge from High School (Advanced course) course and semester I of Mathematics
2	**Skills**	Ability of joining of facts, processing of information, reasoning, interpretations and ability for reflection
3	**Social competencies**	Awareness of requirement permanent education and consciousness of meaning of corporate work

Assumptions and objectives of the course:

- Outfit in to ability connected to application of meanings and methods for mathematical analysis to description and analysis of phenomena and problems in technical sciences.
- Deployment of ability connected with search of information given in not a simple way, -- Finding connection between different informations , concluding based on several premseds (abstract or involved).

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

Knowledge:

1. Student knows formulas, diagrams and properties of elementary functions - [K_W01]
2. Student knows the meaning of a limit of function - [K_W01]
3. Student knows: the meaning of derivative of a function and its geometric and physical interpretation, rules of derivations of functions, meaning of indefinite integral of function and basic method of integration and geometric interpretation of definite integral - [K_W01]

Skills:

1. Student uses notation of limit for study of behavior of function on ends of domain intervals - [K_U01, K_U02]
2. Student analyses properties of functions with applications of differential calculus methods - [K_U02, K_U07]
3. Student apply integral calculus in engineering practice. - [K_U02, K_U07]
4. Student builds mathematical models of simple phenomena and processes in nature - [K_U09, K_U10]

Social competencies:

1. Ability of works In a group - [K_K01, K_K03]
2. Ability for reflection and estimation of personal effecting - [K_K02, K_K06]
3. Sense of usefulness of mathematical competence in engineering practice - [K_K04]

Assessment methods of study outcomes
- Oral and written exams - Two written tests within semester, - CATs- Continuous Assessment Tests
Course description
1. Definite integral and its application : field of plane area, length of plane curve, field of lateral surface and volume of rotary space figure . 2. Elements of analytic geometry in R2 and R3. 3. Ordinary differential equations I and II order. 5. Partial derivatives and extremes of several variables functions .
Basic bibliography:
1. M. Gewert, Z. Skoczylas: Analiza I, Analiza II, Algebra liniowa, GiS, Wrocław, 2006. 2. I. Foltyńska, Z. Ratajczak, Z. Szafrański: Matematyka dla studentów uczelni technicznych, Wydawnictwo Politechniki Poznańskiej, Poznań, 2000.
Additional bibliography:
1. W. Krysicki, L. Wlodarski, Analiza matematyczna w zadaniach cz.1, Wydawnictwo Naukowe PWN, Warszawa, 2010

Result of average student's workload

Activity	Time (working hours)
1. Przygotowanie do ćwiczeń	40
2. Przygotowanie do kolokwiów	40
3. Przygotowanie do egzaminu	30

Student's workload

Source of workload	hours	ECTS
Total workload	150	6
Contact hours	44	2
Practical activities	0	0