STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Mathematics**		Code **1010101121010340004**

Field of study **Civil Engineering First-cycle Studies**	Profile of study (general academic, practical) **(brak)**	Year /Semester **1 / 2**

Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**

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

No. of hours Lecture: **30** Classes: **15** Laboratory: **-** Project/seminars: **-**	No. of credits **5**

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**	ECTS distribution (number and %**)** **5 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Mathematical knowledge from the first semester.
2	**Skills**	Application of the knowledge to mathematical problems.
3	**Social competencies**	Inquisitiveness and perseverance.

Assumptions and objectives of the course:

Giving of mathematical knowledge in the range of Course description, teaching of applications and preparing to further studies.

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

Knowledge:

1. Student has knowledge in the range of Course description. - [K_W01]

2. He knows rules of drawing in space. - [K_W02]

3. He knows calculate mechanical quantities in space. - [K_W04]

Skills:

1. Student can define complex mathematical models in technical sciences. - [K_U03]

2. He can calculate static moments and moments of inertia of sets in space. - [K_U04]

3. He uses Internet to seek needed informations. - [K_U17]

Social competencies:

1. Student is able to work independently and in a team. - [K_K01]

2. He takes responsibility for his results. - [K_K02]

3. He can supplement his mathematical knowledge. - [K_K03]

Assessment methods of study outcomes

1. Sistematically, marks in solution of mathematical problems.

2. In the semester, two written tests on the basis of Classes.

3. After finishing the semester, building project using mathematical contents and written exam on the basis of Lectures.

Course description
1. Plane in space. Quadrics.
2. Differential calculus of functions of many variables.
3. Double and line integrals.
4. Number and power series.
5. Ordinary differential equations of the first and second order.
6. Calculus of probability.
7. Elements of mathematical statistics.

Basic bibliography:

1. M. Mączyński, J. Muszyński, T. Traczyk, W. Żakowski, Matematyka - podręcznik podstawowy dla WST, PWN, t.I - Warszawa 1979, t.II - Warszawa 1981.

2. J. Mikołajski, Z. Sołtysiak, Zbiór zadań z matematyki dla studentów wyższych szkół technicznych, Wydawnictwo PWSZ w Kaliszu, cz. I - Kalisz 2009, cz. II - Kalisz 2010, cz.III - Kalisz 2008, cz.IV - Kalisz 2014.

Additional bibliography:

1. C. L. Mett, J. C. Smith, Calculus with applications, McGraw-Hill Book Company, New York ... 1985.

2. W. Żakowski, Ćwiczenia problemowe dla politechnik, Wydawnictwa Naukowo - Techniczne, Warszawa 1991.

Result of average student's workload	
Activity	**Time (working hours)**
1. Active participation in meetings (lectures and classes).	45
2. Active participation in consultations with posing questions.	10
3. Solving exercises designed for independent work.	30
4. Independent studying theoretical questions (notions, algorithms, theorems, proofs).	10
5. Preparing to get credits for the second semester.	30

Student's workload		
Source of workload	**hours**	**ECTS**
Total workload	125	5
Contact hours	55	2
Practical activities	70	3