STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Mathematics**		Code **1010125111010340004**

Field of study **Transportation Engineering Extramural Second-**	Profile of study (general academic, practical) **general academic**	Year /Semester **1 / 1**

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

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

No. of hours				No. of credits **3**
Lecture: **20**	Classes: **10**	Laboratory: **-**	Project/seminars: **-**	

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

Education areas and fields of science and art	ECTS distribution (number and %**)**
technical sciences	**3 100%**
Technical sciences	**3 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knowledge of mathematics course of high school and I level of technical university
2	**Skills**	Ability of reflection and mathematical describtion of simply problem.
3	**Social competencies**	Work in a group

Assumptions and objectives of the course:

-Adopting and solidifying on examples mathematical basic meanings and ability of use of mathematical methods .

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

Knowledge:

1. It owns knowledge in range of chosen section of superior highest mathematics - [-]
2. Employment of highest mathematics in solving engineering problems. - [-]

Skills:

1. Ability to use methods of highest mathematics in engineering sciences, in construction and physics   - [KU_09]
2. Ability to use geometric interpretations and physical basic notions of highest mathematics   - [KU_09]

Social competencies:

1. It understands and apply mathematical methods in technical research - [-]
2. It knows limitations of personal knowledge and understands requirement of farthest education - [-]
3. Work in a group - [K_K01, K_K03]

Assessment methods of study outcomes

-Tests, written and oral examinations

Course description

- Real power series.
- Complex power series.
- Fourier series, trigonometric and exponential forms.
- Special functions.
- Elements of abstract algebra

Basic bibliography:

1. I. Foltyńska, Z. Ratajczak, Z. Szafrański, Matematyka dla studentów uczelni technicznych, Wydawnictwo Politechniki Poznańskiej cz. I , II, III.

2. F. Leja, Rachunek różniczkowy i całkowy. Państwowe Wydawnictwo Naukowe, Warszawa 2012.

3. E.Matwiejew

Additional bibliography:

1. W. Żakowski, Matematyka, t. IV, Wydawnictwa Naukowo-Techniczne, Warszawa, 2003.

Result of average student's workload	
Activity	**Time (working hours)**
Student's workload	

Source of workload	hours	ECTS
Total workload	75	3
Contact hours	32	1
Practical activities	40	2