STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Mathematics**	Code **1011101311010340063**

Field of study **Engineering Management - Full-time studies -**	Profile of study (general academic, practical) **general academic**	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) **full-time**

No. of hours				No. of credits **4**
Lecture: **30**	Classes: **15**	Laboratory: **-**	Project/seminars: **-**	

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

Education areas and fields of science and art	ECTS distribution (number and %**)**
technical sciences	**2 50%**
social sciences	**2 50%**

Responsible for subject / lecturer:	Responsible for subject / lecturer:
Grzegorz Grzegorczyk email: grzegorz.grzegorczyk@put.poznan.pl tel. 61 665 26 87 Wydział Elektryczny ul. Piotrowo 3a, 60-965 Poznań	Małgorzata Zbąszyniak email: malgorzata.zbaszyniak@put.poznan.pl tel. 61 665 27 12 Wydział Elektryczny ul. Piotrowo 3a, 60-965 Poznań

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledge mathematics with range of secondary school.
2	**Skills**	The ability to think logically. Ability to describe simple problems in mathematical language.
3	**Social competencies**	Working in a group.

Assumptions and objectives of the course:

Acquiring and consolidating of basic mathematical concepts on examples and skills in mathematical apparatus.

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

Knowledge:

1. Has knowledge of selected aspects of higher mathematics - [T1A_WO1]

2. Application of mathematics to solve technical problems - [T1A_WO1]

Skills:

1. Can use basic knowledge of mathematics as a tool in management - [T1A_UO9]

2. Can perform studies using mathematical apparatus - [T1A_UO9]

Social competencies:

1. Understand and apply formal mathematical apparatus in management - [T1A_KO4]

Assessment methods of study outcomes

Tests, written and oral exam

Course description

Elements of linear algebra.
Sequences and their limits.
The functions of single variable.
Continuity and limit of functions of single variable.
Elements of the differential calculus of functions of single variable.

Basic bibliography:

1. Foltyńska, Z. Ratajczak, Z. Szafrański, Matematyka dla studentów uczelni technicznych, WPP Poznań 2000

Additional bibliography:

1. W. Krysicki, L. Włodarski, Analiza matematyczna w zadaniach, PWN Warszawa 1999

<table>
<tr><td colspan="2" align="center">Result of average student's workload</td></tr>
<tr><td align="center">Activity</td><td align="center">Time (working hours)</td></tr>
<tr><td>1. Lectures</td><td>30</td></tr>
<tr><td>2. Classes</td><td>15</td></tr>
<tr><td>3. Consultation</td><td>15</td></tr>
<tr><td>4. Preparing to classes</td><td>15</td></tr>
<tr><td>5. Preparing to pass the lectures</td><td>15</td></tr>
<tr><td>6. Preparing to pass the classes</td><td>16</td></tr>
<tr><td>7. Pass classes</td><td>2</td></tr>
<tr><td>8. Pass lectures</td><td>2</td></tr>
<tr><td colspan="2" align="center">Student's workload</td></tr>
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Source of workload	hours	ECTS
Total workload	110	4
Contact hours	64	2
Practical activities	46	2