

Syllabus

Course title **Mathematics**

<i>faculty</i>	Field of study:	All engineering fields
	Specialisation:	All
	Level of study:	Undergraduate and graduate
	System of education:	Full-time and extra-mural

Course: mandatory				ECTS points: 7			
Semester	No. of hours	L	C	P	Lab	Seminar	Completion/Exam
Fall	60	45	15				Exam

Course content (Lecture)
<p>The purpose of this course is to introduce fundamental facts from calculus and its applications. Another purpose is facilitate further studies in engineering in the context of applications of mathematics.</p> <p>Metric spaces and continuity in metric spaces. Limit of a function of one variable. Derivative of a function, basic theorems, maxima and minima, higher derivatives, convexity. Riemann integrals, fundamental theorems of calculus, indefinite and definite integrals, improper integrals. Geometric interpretation, applications to arc length and surfaces of revolution.</p>

Course content (Classes)
Exercises in selected topics. A particular attention is paid to develop the ability of logical thinking.

References (Basic):
<ol style="list-style-type: none"> 1. J. Stewart, Calculus (International Metric Edition), Thomson Brooks/Cole 2. W. Rudin, Principles of Mathematical Analysis, (many editions)

References (Additional):
<p>Optional for Polish students books in Polish</p> <ol style="list-style-type: none"> 3. W. Kryszicki, L. Włodarski, Analiza Matematyczna w Zadaniach, t.I, (many editions) 4. W. Rudin, Podstawy analizy matematycznej, PWN

Expected learning outcome:	Understanding of basic concepts and facts of calculus.
Language of instruction:	English
ERASMUS subject code:	11.1 (mathematics)
Prerequisites:	Completion of Basic Mathematics course.
Assessment method:	Examination (written or oral)
Unit:	Department of Differential Equations, Faculty of Applied Mathematics
Lecturer:	dr hab. Tomasz Rybicki, prof. AGH
Lecturer (Project / Laboratory):	dr hab. Tomasz Rybicki, prof. AGH
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