

*Course Unit Title* Bridging Course – Mathematics

*Language of instruction* Polski/English

*Faculty/* International Faculty of Engineering

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<i>Planned learning activities and teaching methods</i>	<b>Lec.</b>	<b>Tut.</b>	<b>Lab.</b>	<b>Proj.</b>	<b>Sem.</b>	<b>Other</b>	<b>Total of teaching hours</b>
	30						30

*Objectives of the course unit* The aim of this course is to enable students to acquire knowledge and skills of the selected mathematical concepts, theories and tools applied in engineering.

*Learning Outcomes* The successful student should be able to:

1. carry out algebraic operations in the complex domain, interpret their geometric properties and solve equations;
2. recognise various types of elementary functions of a real variable, sketch their graphs and use their properties to solve equations and inequalities;
3. calculate derivatives and use them to calculate limits and examine various function properties;
4. obtain indefinite/definite integrals using basic techniques of integration and solve practical problems involving integral calculus;
5. define a matrix, determinant, carry out selected matrix operations
6. solve systems of linear equations
7. solve elementary problems involving three dimensional objects

*Assessment methods and criteria of learning outcomes* not applicable

*Prerequisites and co-requisites* „świadectwo dojrzałości”

*Course contents*

1. Introduction to complex numbers (2h)
2. Analytic geometry in 3D space: (5h)
3. Differential calculus of one variable (9h)
4. Integral calculus of one variable (9h)
5. Algebra of matrices, systems of linear equations (5h)

*Recommended and required reading* James Stewart *Calculus* – Brooks/Cole Publishing Company ISBN 978-0538497817