Faculty of Geoengineering

Course title: MATHEMATICS

ECTS credit allocation (and other scores): 2

Semester: spring

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Engineering and technology

Language: English

Number of hours per semester: 30

Course coordinator/ Department and e-mail: Professor Zofia Rzepecka, Institute of Geodesy, zofia.rzepecka@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Solving problems in functions, limits, derivatives, indefinite and definite integrals, partial derivatives, multiple integrals, differential equations, series approximations of functions, applications of mathematical fundamentals to potential theory and the Earth Gravitational Models

LECTURES: Theoretical background of functions, limits, derivatives, indefinite and definite integrals, partial derivatives, multiple integrals, differential equations, series approximations of functions, mathematical fundamentals of potential theory

Learning purpose: The basic aim is the extension of knowledge on higher mathematics and its applications in geodetic sciences

On completion of the study programme the graduate will gain:

Knowledge: Has general knowledge covering key issues of higher mathematics tools and their importance in geodetic sciences

Skills: Is able to use the mathematic tools to solve modern geodetic problems.

Social Competencies: Can interact and work in groups, can organize and coordinate working together on solving more difficult tasks.

Basic literature: I.N. Bronshtein · K.A. Semendyayev · G.Musiol · H.Muehlig, Handbook of Mathematics, Springer-Verlag Berlin Heidelberg 2007 (or other editions)

Supplementary literature: Richard Courant, Herbert Robbins, What is Mathematics?, Oxford University Press, 1996 (or other editions); Bernhard Hofmann-Wellenhof, Helmut Moritz, Physical Geodesy, Springer Wien NewYork, 2005

The allocated number of ECTS points consists of: 4

Contact hours with an academic teacher: 30

Student's independent work: 30