



Course title: INFORMATION TECHNOLOGIES IN GEOMATICS

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: Tomasz Templin, Ph.D., Institute of Geodesy,
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Type of classes: classes and lectures

Substantive content

CLASSES:

An Introduction to Matlab. Customize Matlab IDE. Working in command window. Language Fundamentals (Syntax, operators, data types, arrays). Creating Arrays / Mathematical Operation with Array. Control Flow Commands (Loops and Branches). MATLAB Data Classes and Structures. Using Script Files and Managing Data (Importing and Exporting Data). Building a Graphical User Interface. Working with external Toolboxes. Applications in Numerical Analysis.

LECTURES:

An Introduction to Geomatics. An Introduction to Matlab. Language Fundamentals (Syntax, operators, data types, array). Control Flow Commands (Loops and Branches). MATLAB Data Classes and Structures. Writing Your Own MATLAB Functions. Building GUI Tools. Applications in Numerical Analysis.

Learning purpose:

This course is designed to provide students basics and the techniques for geodata acquisition, processing and visualization.

On completion of the study programme the graduate will gain:

Knowledge:

Describe what Geomatics and GISciens are. Define basic terms and definitions. Understand data structures and the appropriate use these data structures.

Skills:

Apply appropriate analysis techniques for typical engineering problems. Customize Matlab IDE. Working in command window. Select and perform appropriate functions for applied numerical analysis. Writing Own MATLAB Functions. Building a Graphical User Interface.

Social Competencies:

Have skills for leading and participating in small group projects.

Basic literature:

- 1) Gilat A., MATLAB An Introduction with Applications, wyd. Wiley, 2014.
- 2) MathWorks, Getting Started with MATLAB, wyd. The MathWorks, Inc.

Supplementary literature:



1) Trauth M. H., Sillmann E., MATLAB and Design Recipes for Earth Sciences, wyd. Springer, 2012.

The allocated number of ECTS points consists of: 50 h.

Contact hours with an academic teacher: 30 h.

Student's independent work: 20 h.