



Course title: MATLAB PACKAGE

ECTS credit allocation (and other scores): 3,5

Semester: autumn

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Natural sciences

Language: English

Number of hours per semester: 45 hours

Course coordinator/ Department and e-mail: Erasmus coordinator Anna Szczepkowska/ WMil,
anna.szczepkowska@matman.uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES:

Introduction to Matlab environment. Algebraic matrix/vector operations. Data visualization, 2D and 3D graphs. Animations. Solving systems of linear equations. Interpolation and approximation of functions. Symbolic computation. Solving ordinary differential equations and systems of ordinary differential equations. Phase portraits. If, switch, for and while instructions. Recursion. Image processing. Simulink.

LECTURES:

There are no lectures.

Learning purpose: The main goal of the course is to teach students to use Matlab environment at the basic level, that allows using built-in Matlab procedures and to write simple scripts and function for an individual purpose.

On completion of the study programme the graduate will gain:

Knowledge:

The student has knowledge about Matlab basics. The student knows the advantages and disadvantages of Matlab. The student has knowledge of the various formats and data structures in Matlab programming environment. The student has knowledge about the basics of programming in Matlab.

Skills:

The student can use the Matlab and included functions. The student can analyze in Matlab data from files of different formats. The student is able to find a solution of system of linear equations. The student has the ability to optimize functions. The student can analyze data using basic statistical and econometric tools in Matlab. The student is able to construct functions and scripts in Matlab for solving simple math problems. The student is able to work with basic data formats and data structures. The student has the ability to display data in graphs.

Social Competencies: Students can work in groups and understand the need to work systematically on all projects that are longterm.

Students are prepared to broaden their knowledge. Students are prepared to analyze data from different sources. Students can work with programs prepared by others and prepare programs that can be used by others.



Basic literature: 1) J. Brzózka, L. Dobroczyński, MATLAB: Środowisko obliczeń naukowo-technicznych, wyd. PWN, 2008 ; 2) B.

Mrozek, Z. Mrozek, MATLAB i Simulink, wyd. Helion, 2004 ; 3) R. Pratap, MATLAB 7 dla naukowców i inżynierów, wyd. PWN, 2010 ; 4) , <http://www.mathworks.com/>, wyd. ,

Supplementary literature: 1) W. Sradomski, MATLAB Praktyczny podręcznik modelowania, wyd. Helion, 2015

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 1,92 ECTS points,

Student's independent work: 1,58 ECTS points,