

Title Computer Methods	Code ErasmusFCEE-EM
Field Civil Engineering	Year / Semester 1 / 1
Specialty -	Course compulsory
Hours Lectures: 10 Classes: - Laboratory: 5 Projects / seminars: -	Number of credits 6

Lecturer:

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Status of the course in the study program:

Compulsory course for students of the 1st degree of Civil Engineering.

Objectives of the course:

The main aim of this course is to provide students with basic computer methods used in civil engineering practice.

Course description:

The course is provided in the form of lectures and complementary classes. Students work with computers in computer laboratory. First part of the course is focused on Scilab - software for numerical computation. Basic topics practiced in Scilab: creating of vectors and matrices, addressing of matrix elements, operations on matrices, preparing of a function, programming using keywords: for, while, if and select, drawing in 2D plane and many others. In the second part of the course students learn how to prepare algorithms appropriate for approximation method, regression, solution of a system of linear equations, solution of nonlinear equations using different methods, min or max of a linear and nonlinear function integration methods and differential equations.

Initial knowledge:

Basic knowledge of linear algebra and mathematical analysis. Some experience in using Linux operating system as well as basic knowledge of any programming language.

Teaching methods:

Multimedia presentations and traditional teaching methods.

Assessment methods:

Final test.

Bibliography:

1. Scilab, <https://www.scilab.org/>
2. Fundamental Numerical Methods and Data Analysis, G. W. Collins, II, 2003
3. Numerical Methods for Engineers, S. C. Chapra, R. P. Canale, McGraw-Hill , 2005