

Title (Computational Mechanics)	Code 1010102111010110235
Field Civil Engineering II stopień	Year / Semester 1 / 1
Specialty -	Course core
Hours Lectures: 2 Classes: - Laboratory: 2 Projects / seminars: -	Number of credits 6
	Language polish

Lecturer:

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Status of the course in the study program:

Computational Methods

Assumptions and objectives of the course:

The goals are focused on the bases of numerical methods and on the software tools of structural analysis. The students are familiar with computer methods that support the process of design and have the abilities on the critical interpretation of numerical results.

Contents of the course (course description):

The course is developed around the following topics:
making the engineering decisions, mathematical and numerical modeling in mechanics, the examples of solving the difficult engineering problems not possible without computer support, the structure of Finite Element Method Program, computer simulation of experiments and processes, the general formulation of FEM (displacement version), elements for plane stress and plane strain, isoparametric formulation, numerical integration, weak and strong formulations, elements of nonlinear numerical analysis (geometrical and physical nonlinearities), plate and shell elements, elements of optimal design, programming tools etc.

Introductory courses and the required pre-knowledge:

Knowledge on the basis of numerical methods, structural mechanics, strength of materials are expected

Courses form and teaching methods:

Lectures and computer laboratories

Form and terms of complete the course - requirements and assessment methods:

On the basis of individual projects (computations of selected structures); the lectures are summarised by written exam

Basic Bibliography:

Additional Bibliography: