

Title Numerical method in structural analysis	Code 10102122210102102352
Field Mechanical Engineering	Year / Semester 1 / 2
Specialty Mechanics of materials and structures	Course core
Hours Lectures: 1 Classes: - Laboratory: 1 Projects / seminars: -	Number of credits 2
	Language polish

Lecturer:

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Status of the course in the study program:

- Core course at the Mechanical Engineering Faculty to second degree studies

Assumptions and objectives of the course:

- The student should obtain knowledge from numerical methods with applications for structure analysis

Contents of the course (course description):

- Solutions of equations in one variable with applications to structural problems.
Basic problems of interpolations. Examples of interpolations of material characteristics by spline functions. Gauss elimination method for solution of linear system of equations. Determination of forces in rods of plane and space truss.
Approximation experimental data by means of least square method.
Numerical solution of non-linear system of equation in analysis of frames.
Numerical solution of ordinary differential equations.
Numerical implementation for determination of non-linear deflections of beams..

Introductory courses and the required pre-knowledge:

- Knowledge of applied mechanics. Basic knowledge of differential calculus and vector algebra

Courses form and teaching methods:

- Lectures and computer laboratory lectures

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

- Written test from lectures and practical lectures

Basic Bibliography:

Additional Bibliography: