Title **Modeling in Machine Designing**	Code **10102522210102102321**
Field **Mechanics and Machine Designing**	Year / Semester **1 / 2**
Specialty **-**	Course **core**
Hours Lectures: **1** Classes: **-** Laboratory: **1** Projects / seminars: **1**	Number of credits **4**
	Language **polish**

Lecturer:

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Faculty:

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Status of the course in the study program:

- Core course at the Faculty of Mechanical Engineering and Management for the second degree stationary studies.

Assumptions and objectives of the course:

- Ability to formulate physical models for purposes of machine designing.

Contents of the course (course description):

- Definition of deformation and stress. Deriving the equations related to strength of beams, plates, and shells. Dynamic properties of structures. Modeling dynamic systems. Formulation of dynamic equations ? the Lagrange equations. Thermal phenomena. Heat flux. Heat conduction, convection, radiation. Solving the differential equations resulting from the modeling procedures. Finite difference method, finite element method, meshless methods.

Introductory courses and the required pre-knowledge:

- Theoretical knowledge based on mechanical engineering and strength of materials acquired at the first degree studies. Knowledge of differential calculus and vector algebra.

Courses form and teaching methods:

- A lecture illustrated with practical examples presented with the help of a multimedia projector.

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

- Credit based on a short written test from the theoretical knowledge.

Basic Bibliography:

Additional Bibliography: