

Title <b>Strength of thin-walled structures</b>	Code <b>10102212610102102300</b>
Field <b>Mechanics and Mechanical Engineering</b>	Year / Semester <b>3 / 6</b>
Specialty <b>Construction of machines and equipments</b>	Course <b>core</b>
Hours Lectures: <b>1</b> Classes: <b>1</b> Laboratory: <b>-</b> Projects / seminars: <b>-</b>	Number of credits <b>3</b>
	Language <b>polish</b>

**Lecturer:**

- Professor Krzysztof Magnucki  
tel. +48(61) 665 2064  
e-mail: krzysztof.magnucki@put.poznan.pl

**Faculty:**

Faculty of Mechanical Engineering and Management  
ul. Piotrowo 3  
60-965 Poznań  
tel. (061) 665-2361, fax. (061) 665-2363  
e-mail: office\_dmef@put.poznan.pl

**Status of the course in the study program:**

- The field course

**Assumptions and objectives of the course:**

- Study in the range: selected problems of theory of elasticity, principle of minimum potential energy, fields of displacements and stresses for plates and shells, a strength condition, theory of the edge effect for shells of revolutions.

**Contents of the course (course description):**

- Introduction: linear and nonlinear hypothesis of thin-walled structures, field of displacements for beams, plates and shells, kinetic relationships.  
The classical Kirchhoff's bending theory, total potential energy of the rectangular plate. The governing differential equation for the deflections of rectangular plate. Bending of rectangular plates. Axisymmetrical bending of circular plates.  
Cylindrical shells: geometry of the middle surface, the edge effect for shells of revolutions. Selected problems of pressure vessels. Thin-walled beams, Vlasov theory: geometric properties of open cross sections, states of stresses and displacements.

**Introductory courses and the required pre-knowledge:**

- Classical mechanics and strength of materials

**Courses form and teaching methods:**

- Lectures, classes

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

- Examination

**Basic Bibliography:**

**Additional Bibliography:**