Code: 17 „Strength of materials”

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| ECTS credits: 3Forms of assessments: Exam | Number of hours per week: 2+0+2Types of assessment: Exam - written with oral discussion |
| Department, providing instruction on the discipline: Department: *MECHANICS AND MACHINE ELEMENTS* *FACULTY OF SHIPBUILDING* |

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| Annotation: Strength of Materials discipline is fundamental to all machine engineers. The main objective of the course is to acquire the students the skills for strength and deformation calculation of structures under static loading. The knowledge acquired by the disciplines **Calculus, Mechanics (section "Statics")** and **Material Science** should be used as a basis for learning the material. During the course the students are acquainted with the main types of loadings - tension / compression, twisting of circular sections and symmetrical bending as well as with the most common in the machine-building practice combined load – torsion and bending. The question of stability of compression loaded columns is also discussed briefly. The knowledge obtained is the basis for the successful absorption of the following engineering disciplines. |
| Main issues of the syllabus content :* Introduction into Strength of Materials
* Axially loaded members. Trusses
* Deformations in axially loaded members
* Pure torsion
* Symmetrical bending
* Combined loads
* Stability of compressed columns
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| Content presentation: The training content is presented by delivering of lectures and laboratory exercises. A problem-oriented approach to teaching is available.• During the lectures the basic principles of the individual topics are explained and illustrated with typical examples.• The exercises by performing real and virtual experiments illustrate the behavior of the materials in different load cases and the practical strain measurements by strain gauge. With the help of dynamic mathematical software such as GeoGebra and MdSolids, the students' skills are developed to quickly solve repetitive tasks typical of machine-building practice. |