

Course title	Engineering Materials in Application
Component code	03-10
Lecturer	Determined later
Lecturer's email address	
Hours	30
ECTS	5
Semester	Winter X Summer X
Content	Selective description of engineering materials. Comprehensive analysis of material properties and the material application (metals, plastics, elastomeric materials, wood, ceramic materials, composites). The discussion concerning the onfluence of processing conditions and the structure on the base properties of the materials. Analysis of some important mechanical properties. Criteria of materials selection for certain application. Description of materials selection procedure for making constructional elements (case study).
Learning outcomes	Student have basic knowledge of materials science, including types of materials used in technology, roles in selection of engineering materials in machine construction - comparison of their structure, properties and applications, basics of material design.
Selected literature	<ul style="list-style-type: none"> • Askeland D.R., Wright W.J., <i>Essentials of Materials Science and Engineering</i>, CENGAGE, 2019 (dostęp online: https://tiny.pl/c4zfd) • Hussain C.M., <i>Handbook of nanomaterials for industrial applications</i>, 1 ed., Elsevier, 2018. (dostęp online: https://tiny.pl/c4zfs) • Segal D., <i>Materials for the 21st Century</i>, Oxford University Press, Oxford, 2017 • Jiang X., Kang Z., Guo X., Zhuang H., <i>Novel carbon materials and composites: Synthesis, properties and applications</i>, 1 ea., Wiley & Sons, New York 2019
Teaching tools/methods	<p>Lecture: multimedia presentation illustrated with examples given on a board.</p> <p>Laboratory classes: performing experimental procedure of testing of materials properties, solving tasks, discussion, teamwork.</p>

Form of examination	Written colloquium at the end of the semester, contains open questions. Passing on the basis of written tests and oral answers of all performed laboratory meetings. All laboratory exercises must be passed with positive note.
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