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| <b>Course title: Deformation and fracture</b>   | <b>Neptun code: GEMTT503-a</b> |
| <b>Course coordinator: Simon-Koncsik Zsuzsanna Ph.D., associate professor</b>   |                                |
| type and number of lesson: lecture, 2 hours/ week   |                                |
| method of accountability: colloquium  |                                |
| curriculum location of the subject: autumn/spring   |                                |
| pre-study conditions: Materials Sciences  |                                |
| <b>The task and purpose of the subject:</b>   |                                |
| Understanding the deformation and fracture processes of metals and alloys at elevated temperatures loads and fatigue stresses.  |                                |
| <b>Course description:</b>  |                                |
| Factors affecting the behaviour and properties of materials, the effect of state factors. The structure of deformation maps, their information content. Effect of increased temperature on the mechanisms of deformation. Alloying atoms, second phase and dislocations interactions at elevated temperatures. Fracture maps. Crack initiation and propagation models. Changes in dislocation structure under repeated loading and cross slip. Fatigue crack initiation and propagation models. |                                |
| <b>Required literature:</b>   |                                |
| 1. Klesnil, M.-Lukás, P.: Fatigue of Metallic Materials. Academia, Prague, 1980.  |                                |
| <b>Recommended literature:</b>  |                                |
| 1. Materials Science and Technology Eds: R. W. Cahn - D. Haasen - E. J. Kramer. Vol 1. és Vol. 6. Weinheiss - New York - Basel - Cambridge, 1993.   |                                |
| 2. Cahn, R. W. - Haasen, P.: Physical Metallurgy North-Holland Physics Publishing, Amsterdam-Oxford-New York-Tokyo, 1983.   |                                |