Transilvania University of Brașov
INTERDISCIPLINARY DOCTORAL SCHOOL

ADMISSION TO DOCTORAL STUDIES Session September 2026

Field of doctoral studies: Industrial Engineering

Doctoral supervisor: prof. dr. ing. Stoicanescu Maria

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 1: *Studies and experimental research on the streamline of the artificial aging process of 7075 alloy sheets in order to improve the physical-mechanical properties*

Contents / Main aspects to be considered

The following aspects will be addressed within the theme:

- Analysis of the influence of technological factors on the artificial aging heat treatment
- Mechanisms and kinetics of heat treatments for artificial aging
- Process optimization

Recommended bibliography:

1. Y.Reda, H.M.Yehia, A.M.El-Shamy- Microstructural and mechanical properties of Al-Zn alloy 7075 during RRA and triple aging, Egyptian Journal of Petroleum, Volume 31, Issue 1, March 2022, Pages 9-13
2. Yakun Xu, Xincun Zhuang, Wen Zhang, Qi Li, Zhen Zhao - Mechanical behaviors and microstructure characteristics of W-tempered and peak-aged 7075 alloy sheets under low frequency vibration–assisted tension Materials Science and Engineering: A, Volume 833, 26 January 2022, 142338
3. Jin Ma, Qiang Wang, Tingyan Zhang, Hui Cao, Yongbiao Yang, Zhimin Zhang - Effect of natural aging time on tensile and fatigue anisotropy of extruded 7075 Al alloy, Journal of Materials Research and Technology Volume 18, May–June 2022, Pages 4683-4697
4. Zhihao Du, Zanshi Deng, Ang Xiao, Xiaohui Cui, Hailiang Yu, Zhuangzhuang Feng - Effect of the aging process on the micro-structure & properties of 7075 aluminum alloy using electromagnetic bulging, Journal of Manufacturing Processes Volume 70, October 2021, Pages 15-23

Prerequisites / Remarks:

☐ **Scientific Doctorate**

✓ ☐ **Professional Doctorate**

☐ **without tuition fee (state budget funded)**

✓ ☐ **with tuition fee or with funding from other sources than the state budget**

Doctoral supervisor,

Prof. Dr. ing. Stoicanescu Maria

Signature

Coordinator of the field of doctoral studies,

Prof. Dr. ing. Oancea Gheorghe

Signature