Universitatea Transilvania din Brașov

Interdisciplinary Doctoral School

ADMISSION TO DOCTORAL STUDIES Session September 2022

Field of doctoral studies: Materials Engineering
Doctoral supervisor: Dr. eng. Dan CRISTEA

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 1: *Magnesium-based ternary coatings, with improved corrosion protection capacity*
Content / Main aspects to be considered - *Development and characterization of nitride coatings of a transition metal, doped with magnesium, with improved mechanical and anticorrosive properties.*
Recommended bibliography: 1. Manish Roy - Surface Engineering for Enhanced Performance against Wear - Springer, 2013 2. J.R. Davis - Surface Engineering For Corrosion And Wear Resistance– ASM International, 2001 3. Burakowski, T – Surface engineering of metals: principles, equipment, technologies – CRC Press, 1999 4. Ohring, M. The materials science of thin films. Academic Press, 1992
Prerequisites / Remarks: *Knowledge of physics and materials science.*

TOPIC 2: *Ternary nitride thin films of transition metals*
Content / Main aspects to be considered - *Development and characterization of ternary nitride coatings of transition metals, with improved mechanical properties.*
Recommended bibliography: 1. Manish Roy - Surface Engineering for Enhanced Performance against Wear - Springer, 2013 2. J.R. Davis - Surface Engineering For Corrosion And Wear Resistance– ASM International, 2001 3. Burakowski, T – Surface engineering of metals: principles, equipment, technologies – CRC Press, 1999 Ohring, M. The materials science of thin films. Academic Press, 1992
Prerequisites / Remarks: *Knowledge of physics and materials science*

Doctoral supervisor,

Dr. eng. Dan CRISTEA

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Coordinator of the field of doctoral studies,

Prof. Dr. Eng. Mircea Horia TIEREAN

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