



## ADMISSION TO DOCTORAL STUDIES

Session September 2026

Field of doctoral studies: Materials Engineering

Doctoral supervisor: Prof. Dr. Eng. Dan CRISTEA

### TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

**TOPIC 1:** *Copper or silver-doped ternary or quaternary coatings, with improved antibacterial protection capacity*

**Contents / Main aspects to be considered** - *Development and characterization of nitride or oxynitride coatings of a transition metal (MeN or MeON), doped with copper or silver, with improved mechanical and antibacterial 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:** *to be adapted/ completed/ deleted*

**Scientific Doctorate**

**Professional Doctorate**

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

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

**TOPIC 2:** *Wear resistant coatings for low lubrication conditions*

**Contents / Main aspects to be considered** - *Development and characterization of nitride coatings of a transition metal (MeN), doped with carbon, with improved mechanical and antifriction properties.*

**Recommended bibliography:**

5. Manish Roy - Surface Engineering for Enhanced Performance against Wear - Springer, 2013
6. J.R. Davis - Surface Engineering For Corrosion And Wear Resistance– ASM International, 2001
7. Burakowski, T – Surface engineering of metals: principles, equipment, technologies – CRC Press, 1999
8. Ohring, M. The materials science of thin films. Academic Press, 1992

**Prerequisites / Remarks:** *Knowledge of physics and materials science.*

**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. Eng. Dan CRISTEA

Signature

**Coordinator of the field of doctoral studies,**

Prof. Dr. Eng. Mircea Horia TIEREAN

Signature