



## ADMISSION TO DOCTORAL STUDIES

Session September 2026

**Field of doctoral studies: Industrial engineering**

**Doctoral supervisor: Prof. Dr. Eng. Stanciu Elena Manuela**

### TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

#### **TOPIC 1:** *Laser welding of dissimilar materials*

##### **Contents / Main aspects to be considered**

Current state of the art in laser welding technology.

Laser welding technology of stainless steels.

Experimental investigations on the welding of dissimilar materials.

##### **Recommended bibliography:**

1. Stanciu Elena Manuela, Pascu Alexandru, Sudarea cu laser, Editura LuxLibris Braşov, ISBN 978-973-131-304-4, 2014.
2. John C. Ion, Laser Processing of Engineering Materials, Elsevier Butterworth-Heinemann, ISBN: 0 7506 6079 1, 2005.
3. Stanciu Elena, Laser welding: Theoretical background and applications, ISBN-10: 6139874041, 2018.
4. Messler, R.W., Principles of Welding: Processes, Physics, Chemistry, and Metallurgy. John Wiley & Sons, ISBN: 978-471-25376-1, 2008.

##### **Prerequisites / Remarks:**

**Bachelor's and Master's studies in the field of Industrial Engineering represent an advantage for the candidate(s).**

**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:** *Monitoring and prevention of risks in industrial laser applications*

##### **Contents / Main aspects to be considered**

Current state of the art in laser processing technologies.

Identification and classification of risk factors in industrial laser applications.

Analysis of the influence of technological parameters on the risk level in laser processes.

Research on the optical, thermal, and chemical emissions generated during laser processing.

**Recommended bibliography:**

1. Stanciu Elena Manuela, Pascu Alexandru, Sudarea cu laser, Editura LuxLibris Braşov, ISBN 978-973-131-304-4, 2014.
2. Pascu Alexandru, Recondiţionarea cu laser: baze teoretice şi aplicaţii industriale, Editura Printech Bucureşti , ISBN 978-606-23-0689-2, 2016.
3. John C. Ion, Laser Processing of Engineering Materials, Elsevier Butterworth-Heinemann, ISBN: 0 7506 6079 1, 2005.

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**Doctoral supervisor,**

Prof. Dr. Eng. Stanciu Elena Manuela

Signature

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

Prof. dr. ing. Gheorghe OANCEA

Signature