



ADMISSION TO DOCTORAL STUDIES

Session September 2022

Field of doctoral studies: Industrial engineering

Doctoral supervisor: Prof. Dr. Eng. Pascu Alexandru

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 2: Optimization of gas springs welding technology

Content / Main aspects to be considered

State of the art of gas springs welding technology;

Welding technology of stainless steel gas springs;

Experimental tests regarding the welding of gas springs used in automotive industry.

Recommended bibliography:

1. Iovanaş R., Sudarea electrică prin presiune, Ed. Sudura, 2005.
2. Machedon T., Machedon E., Sudarea prin topire, Ed. Lux Libris, 2015, ISBN:978-973-131-332-0.
3. Kimchi M., Resistance Spot Welding: Fundamentals and Applications for the Automotive Industry, Ed. Morgan & Claypool, ISBN: 9781681731704, 2017.
4. Messler, R.W., Principles of Welding: Processes, Physics, Chemistry, and Metallurgy. John Wiley & Sons, ISBN: 978-471-25376-1, 2008.

TOPIC 3: Experimental research concerning the laser cladding with metallic powders

Content / Main aspects to be considered

State of the art of laser technology;

State of the art of the laser cladding technology;

Experimental study regarding the dilution mitigating between the clad layer and the base material;

Experimental tests regarding the enhancement of mechanical properties of the clad layer.

Recommended bibliography:

1. PASCU Alexandru, Parameters of the laser cladding process, Ed. LuxLibris Braşov , ISBN 978-973-131-344-3, 2015.
2. PASCU Alexandru, Recondiţionarea cu laser: baze teoretice şi aplicaţii industriale, Ed. Printech Bucureşti , ISBN 978-606-23-0689-2, 2016.

3. Toyserkani E., Khajepour A., Corbin S., Laser cladding, Ed. CRC PRESS, ISBN: 9780429121890, 2005.

TOPIC 4: Experimental research concerning the dissimilar laser welding

Content / Main aspects to be considered

State of the art of laser technology;

State of the art of the laser welding technology;

Experimental study regarding the heterogenous welding of stainless steel and carbon steel.

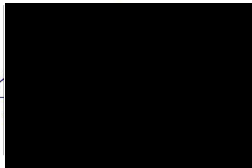
Recommended bibliografy:

1. STANCIU Elena Manuela, PASCU Alexandru, Sudarea cu laser, Ed. LuxLibris Braşov, ISBN 978-973-131-304-4, 2014.
2. Svelto O., Principles of lasers, 4th edition, Ed. Springer, ISBN: 978-1-4757-6266-2, 1998.
3. John C. Ion, Laser Processing of Engineering Materials, Elsevier Butterworth-Heinemann, ISBN: 0 7506 6079 1, 2005.

Doctoral supervisor,

Prof. dr. ing. PASCU Alexandru

Signature



Coordinator of the field of doctoral studies,

Prof. dr. ing. OANCEA Gheorghe

Signature

