



Şcoala Doctorală Interdisciplinară
(SDI)

Domeniul de doctorat:

Inginerie forestieră

Conducător doctorat:

Prof.dr.ing. Camelia Coşereanu

TEME (TEMATICĂ) PENTRU CONCURS

TEMA 1: *Studiu privind realizarea îmbinărilor pentru scaune cu ajutorul tehnologiei de imprimare 3D*

Conţinut / Principalele aspecte abordate

Introducere despre oportunitatea, actualitatea şi noutatea temei

1. Stadiul actual al cercetărilor privind utilizarea tehnologiei de imprimare 3D în îmbinarea elementelor de mobilier
2. Obiectivele tezei
3. Studiu teoretic privind proiectarea şi realizarea îmbinărilor la 90° pe imprimante 3D. Analiză cu element finit.
4. Studiu experimental privind testarea îmbinărilor la 90° prin solicitări la tracţiune şi compresiune.

Bibliografie recomandată:

1. Aydin, M (2015). Additive Manufacturing: Is It a New Era for Furniture Production?, Journal of Mechanics Engineering and Automation 5 (2015) 338-347, doi: 10.17265/2159-5275/2015.06.002
2. Kaszyca, K., Danilczuk, W., Zybała, R. (2019). Porous volumetric structures obtained by additive manufacturing technologies. Electronic materials 47(1-4): 15-21
3. Magrisso, S., Mizrahi, M., Zoran, A. (2018). Digital Joinery For Hybrid Carpentry. CHI 2018, April 21–26, 2018, Montreal, QC, Canada © 2018 Association for Computing Machinery. ACM ISBN 978-1-4503-5620-6/18/04. Accesat pe <https://doi.org/10.1145/3173574.3173741>
4. Ayrilmis, N., As, N., DüNDAR, T., Şendağ, A. (2020). Determination of Bending Moment of L-Type Corner Joints Used in Chair Production and Their Effects on Mechanical Performance of Chairs. Mat Int 2020, 2, 0318-0323. <https://doi.org/10.33263/Materials23.318323>
5. Začal, J, Dostál, P., Šustr, M., Barboutis, I. (2016). Design and Testing of Low Cost Chair with Round Mortise and Tenon Joints, Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, disponibil pe : <https://www.researchgate.net/publication/301936172>
6. Valiyousefi, M., Aliheidarloo, A. (2019). Study the impact of 3D-printed joints on the complex wooden structures, disponibil pe <https://www.researchgate.net/publication/335988719>

Note /Precondiții / Obs: Nu sunt

Conducător doctorat: Prof.dr.ing. Camelia COȘEREANU



Transilvania
University
of Brasov

ADMISSION TO DOCTORAL STUDIES

2020-2021

Session September 2020

**Interdisciplinary Doctoral School
(SDI)**

Field of doctoral studies:

Forestry Engineering

PhD supervisor:

Prof.dr.ing. Camelia Coşereanu

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 1: *Study on the wooden parts jointing using 3D printing technology*

Content / Main aspects to be considered

Introduction concerning the opportunity, actuality and the novelty of the thesis subject

1. The current state of research on the use of 3D printing technology in joining furniture elements
2. Thesis objectives
3. Theoretical study on designing and 3D printing of corner joints. Finite element analysis.
4. Experimental study on testing corner joints by tensile and compression stresses.

Recommended bibliography:

1. Aydin, M (2015). Additive Manufacturing: Is It a New Era for Furniture Production?, Journal of Mechanics Engineering and Automation 5 (2015) 338-347, doi: 10.17265/2159-5275/2015.06.002
2. Kaszyca, K., Danilczuk, W., Zybała, R. (2019). Porous volumetric structures obtained by additive manufacturing technologies. Electronic materials 47(1-4): 15-21
3. Magrisso, S., Mizrahi, M., Zoran, A. (2018). Digital Joinery For Hybrid Carpentry. CHI 2018, April 21–26, 2018, Montreal, QC, Canada © 2018 Association for Computing Machinery. ACM ISBN 978-1-4503-5620-6/18/04. Accesat pe <https://doi.org/10.1145/3173574.3173741>
4. Ayrilmis, N., As, N., Dündar, T., Şendağ, A. (2020). Determination of Bending Moment of L-Type Corner Joints Used in Chair Production and Their Effects on Mechanical Performance of Chairs. Mat Int 2020, 2, 0318-0323. <https://doi.org/10.33263/Materials23.318323>
5. Začal, J, Dostál, P., Šustr, M., Barboutis, I. (2016). Design and Testing of Low Cost Chair with Round Mortise and Tenon Joints, Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, disponibil pe : <https://www.researchgate.net/publication/301936172>
6. Valiyousefi, M., Aliheidarloo, A. (2019). Study the impact of 3D-printed joints on the complex wooden structures, disponibil pe <https://www.researchgate.net/publication/335988719>

Prerequisites / Remarks: *Not available*

PhD supervisor: : Prof.dr.ing. Camelia COŞEREANU