



<https://dergipark.org.tr/en/pub/wie>

# Wood Industry & Engineering

ISSN 2687-6043  
e-ISSN 2687-6035

# 2021

---

## Volume 3 Issue 2

Wood Industry and Engineering (WI&E) is a peer-reviewed international scientific journal and published twice in each year (January-June and July-December). Publication language is English.

Original articles, reviews, technical notes, short communication and extended conference papers on basic and applied research dealing with the science, technology, and engineering of wood and wood-based products can be submitted to Wood Industry and Engineering.

### **Publisher**

Head of Department of Forest Industry Engineering  
Karadeniz Technical University,  
Faculty of Forestry, 61080 Trabzon, Turkey

### **Editor**

Assoc. Prof. Dr. Engin Derya GEZER  
Karadeniz Technical University,  
Department of Forest Industry Engineering

### **Co-Editor**

Prof. Dr. Ismail AYDIN  
Karadeniz Technical University,  
Department of Forest Industry Engineering

### **Layout Check and Redaction**

Dr. Aydın DEMİR  
Karadeniz Technical University,  
Department of Forest Industry Engineering

### **Language Check**

Assoc. Prof. Dr. Samet DEMİREL  
Karadeniz Technical University,  
Department of Forest Industry Engineering

### **Publishing Board**

Prof. Dr. Semra ÇOLAK	Karadeniz Technical University, Department of Forest Industry Engineering
Assoc. Prof. Dr. Derya USTAÖMER	
Dr. Aydın DEMİR	
Res. Assist. Abdullah Uğur BİRİNCİ	

## Editorial Board

Alfred Teischinger, Prof.Dr.,	University of Natural Resources and Life Science (BOKU), Vienna, Austria
Ali Temiz, Prof.Dr.,	Karadeniz Technical University, Turkey
Andreja Kutnar, Assoc.Prof.Dr.,	University of Primorska, Slovenia
Anna Sandak, Dr.,	InnoRenew Centre of Excellence, Slovenia
Ario Ceccotti, Prof.Dr.,	Boğaziçi University Turkey
Aytaç Aydın, Assoc.Prof.Dr.,	Karadeniz Technical University, Turkey
Callum Hill, Prof.Dr.,	JCH Industrial Ecology Ltd, England, United Kingdom
Cenk Demirkir, Assoc.Prof.Dr.,	Karadeniz Technical University, Turkey
Coşkun Köse, Prof.Dr.,	Istanbul University-Cerrahpaşa, Turkey
Daniela Tesařová, Assoc.Prof.Dr.,	Mendel University in Brno, Czech Republic
Derya Ustaömer, Assoc.Prof.Dr.,	Karadeniz Technical University, Turkey
Douglas J. Gardner, Prof.Dr.,	University of Maine, USA
Dragica Jeremic, Dr.,	Mississippi State University, USA
Emilia Adela Salca, Assoc.Prof.Dr.,	Transilvania University of Braşov, Romania
Erol Karacabeyli, P.Eng. M.A.Sc.,	FPIInnovations, Canada
Esat Gümüşkaya, Prof.Dr.,	Karadeniz Technical University, Turkey
Fatih Mengeloğlu, Prof.Dr.,	Kahramanmaraş Sutcu Imam University, Turkey
Gökay Nemli, Prof.Dr.,	Karadeniz Technical University, Turkey
Gürsel Çolakoğlu, Prof.Dr.,	Karadeniz Technical University, Turkey
Holger Militz, Prof. Dr.,	Georg-August-Universität Göttingen, Germany
Hülya Kalaycıoğlu, Prof.Dr.,	Karadeniz Technical University, Turkey
Hüseyin Kırıcı, Prof.Dr.,	Karadeniz Technical University, Turkey
Igor Novak, Prof.Dr.,	Slovak Academy of Sciences, Slovakia
İbrahim Yıldırım, Assist.Prof.Dr.,	Karadeniz Technical University, Turkey
İlhan Deniz, Prof.Dr.,	Karadeniz Technical University, Turkey
İlker Akyüz, Assoc.Prof.Dr.,	Karadeniz Technical University, Turkey
Jakub Sandak, Dr.,	InnoRenew Centre of Excellence, Slovenia
Jeffrey J. Morrell, Prof.Dr.,	University of the Sunshine Coast, Australia
Jerzy Smardzewsky, Prof.Dr.,	Poznan University of Life Science, Poland
Jinzhen Cao, Prof.Dr.,	Beijing Forestry University, China
Julia Mihajlova, Assoc.Prof.Dr.,	University of Forestry, Bulgaria
Kadri Cemil Akyüz, Prof.Dr.,	Karadeniz Technical University, Turkey
Kemal Üçüncü, Assist.Prof.Dr.,	Karadeniz Technical University, Turkey
Küçük Hüseyin Koç, Prof.Dr.,	Istanbul University-Cerrahpaşa, Turkey
Lidia Gurau, Assoc.Prof.Dr.,	Transilvania University of Brasov, Romania
Miha Humar, Prof.Dr.,	University of Ljubljana, Slovenia
Mihaela Campean, Prof.Dr.,	Transilvania University of Brasov, Romania
Mohini Sain, Prof.Dr.,	University of Toronto, Canada
Mojgan Nejad, Dr.,	Michigan State University, USA
Mustafa Usta, Prof.Dr.,	Karadeniz Technical University, Turkey
Nurgül Ay, Prof.Dr.,	Karadeniz Technical University, Turkey
Nusret As, Prof.Dr.,	Istanbul University-Cerrahpaşa, Turkey
Öner Ünsal, Prof.Dr.,	Istanbul University-Cerrahpaşa, Turkey
Özlem Özgenç, Assoc.Prof.Dr.,	Karadeniz Technical University, Turkey
Pavlo Bekhta, Prof.Dr.,	Ukrainian National Forestry University, Ukraina
S. Nami Kartal, Prof.Dr.,	Istanbul University-Cerrahpaşa, Turkey
Salim Hızıroğlu, Prof.Dr.,	Oklahoma State University, USA
Samet Demirel, Assoc.Prof.Dr.,	Karadeniz Technical University, Turkey
Seda Ondaral, Prof.Dr.,	Karadeniz Technical University, Turkey
Sibel Yıldız, Prof.Dr.,	Karadeniz Technical University, Turkey
Selman Karayılmazlar, Prof.Dr.,	Bartın University, Turkey
Semra Çolak, Prof.Dr.,	Karadeniz Technical University, Turkey
Seyyed Khalil Hosseini Hashemi, Assoc.Prof.Dr.,	Islamic Azad University, Karaj, Iran
Tuncer Dilik, Prof.Dr.,	Istanbul University-Cerrahpaşa, Turkey
Turgay Akbulut, Prof.Dr.,	Istanbul University-Cerrahpaşa, Turkey
Turgay Özdemir, Prof.Dr.,	Karadeniz Technical University, Turkey
Ümit C. Yıldız, Prof.Dr.,	Karadeniz Technical University, Turkey
Vladislav Zdravković, Assoc.Prof.Dr.,	University of Belgrade, Serbia

## Compliance with Ethic Rules

The papers submitted to Wood Industry and Engineering should not already been published or been submitted to another journal.

Authors should adhere to COPE (Committee on Publication Ethics)'s international standards for editors and authors. More details can be found at journal web page via link: <https://dergipark.org.tr/en/pub/wie/policy>.

Compliance with the principles of scientific research and publication ethics is evaluated within the framework of the provisions of Article 4 of the Inter-University Council Scientific Research and Publication Ethics Directive, Article 9 of Regulations of the TUBITAK Committee on Research and Publication Ethics and Article 6 of the Higher Education Council Scientific Research and Publication Ethics Directive.

Ethical committee approval should be obtained for studies on clinical and experimental human and animals requiring "Ethics Committee Decision" and this approval should be stated and documented in the paper.

## Disclaimer

Authors are responsible for the content of their work. As publisher, Karadeniz Technical University and Department of Forest Industry Engineering do not accept responsibility for the statements made or for the opinions expressed in the Wood Industry and Engineering Journal. Publisher makes no representation or warranty of any kind, concerning the accuracy, completeness, suitability or utility of any information, apparatus, product or processes discussed in this publication; therefore, it assumes no liability.

## Copyright

Except for fair copying, no part of this publication may be produced, stored in a retrieval system in any form or by any means electronic, mechanical, etc. or otherwise without the prior written permission of the Wood Industry and Engineering Journal and without reference.

## Correspondence

Wood Industry and Engineering Journal  
Karadeniz Technical University  
Faculty of Forestry, Department of Forest Industry Engineering  
Kanuni Campus, 61080, Trabzon / TURKEY

Phone: +90 462 377 3154

Fax: +90 462 325 7499

<https://dergipark.org.tr/en/pub/wie>

<http://www.ktu.edu.tr/woodindustry>



ISSN: 2687-6043

e-ISSN: 2687-6035

## Contact

[engin\\_gezer@yahoo.com](mailto:engin_gezer@yahoo.com)

[iaydin@ktu.edu.tr](mailto:iaydin@ktu.edu.tr)

December 2021, Trabzon, TURKEY

## CONTENTS

	<u>Page</u>
<b>RESEARCH ARTICLES</b>	
EVALUATION OF TOOL PATH STRATEGIES IN CNC WOODWORKING MACHINES AND A CASE STUDY.....	1-11
<i>Özer Özçelik, Küçük Hüseyin Koç</i>	
EFFECTS OF WOOD SPECIES OF THE DOWELS AND FIBER WOVEN FABRIC TYPES ON BENDING MOMENT RESISTANCE OF L-SHAPED JOINTS.....	12-22
<i>Abdurrahman Karaman, Mehmet Nuri Yıldırım</i>	
ERGONOMIC ANALYSIS OF WORKPLACE FURNITURE IN HOSPITALS: A PUBLIC HOSPITAL EXAMPLE.....	23-30
<i>Tarık Gedik</i>	
DETERMINATION OF THERMAL CONDUCTIVITY OF LAMINATED WOOD MATERIALS DEPENDING ON THE LAYER ORIENTATION.....	31-36
<i>Özkan Cırrık</i>	
<b>REVIEW ARTICLES</b>	
AN EVALUATION ON THE HISTORY OF FURNITURE AFTER THE INDUSTRIAL REVOLUTION.....	37-47
<i>Okşan Ölmez, İnci Versan Alkan</i>	
A MINI REVIEW OF THE STUDIES ON MASSIVE WOOD MATERIALS MACHINING AND SURFACE QUALITY.....	48-59
<i>Sait Dundar Sofuoğlu</i>	