Society of Production Engineering

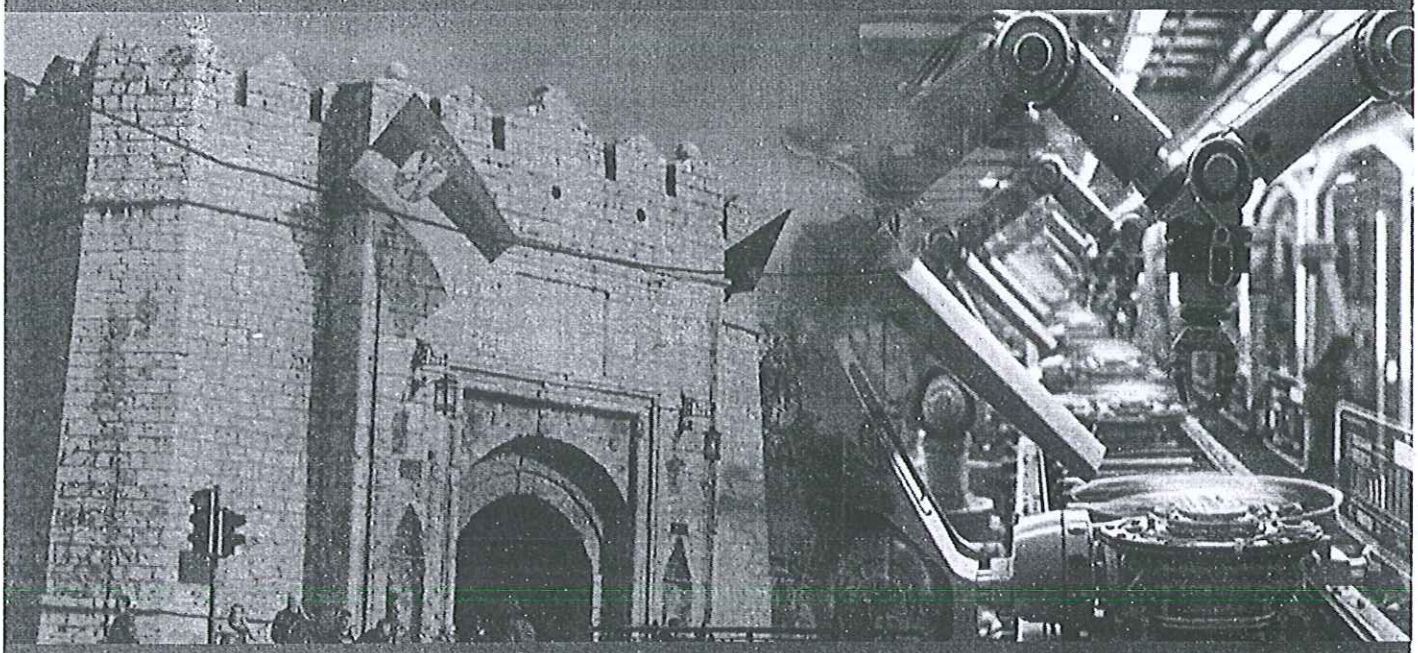
ICPES 2025

40th INTERNATIONAL CONFERENCE ON PRODUCTION ENGINEERING – SERBIA 2025

Nis, Serbia, 18th - 19th September 2025

University of Nis
Faculty of Mechanical Engineering

CONFERENCE PROGRAM



60th anniversary of the Association of Production Engineering of Serbia

Editors:

Prof. dr Miodrag Manić, University of Niš, Faculty of Mechanical Engineering,

Prof. dr Saša S. Ranđelović, University of Niš, Faculty of Mechanical Engineering,

Publisher:

Faculty of Mechanical Engineering, st. Aleksandra Medvedeva 14, 18000 Niš, Serbia

For the Publisher:

Prof. dr Goran Janevski, University of Niš, Faculty of Mechanical Engineering,

Technical editor:

M.Sc. Rajko Turudija, University of Niš, Faculty of Mechanical Engineering,

Edition: 90 copies Printed by Galeb

Society of Production Engineering

ICPES 2025
40th INTERNATIONAL CONFERENCE ON PRODUCTION ENGINEERING - SERBIA 2025

University of Nis
Faculty of Mechanical Engineering

Nis, Serbia, 18 - 19th September 2025

MEASUREMENT OF NOISE AND VIBRATION IN THE CUTTING ZONE DURING TURNING

Zvonko PETROVIĆ[1], Branko RADIĆEVIĆ[2], Bogdan NEDIĆ[3], Radovan NIKOLIĆ[1]
[1]Academy of Professional Studies Šumadija-Department in Trstenik, Kragujevac, Serbia
[2]Faculty of Engineering and Civil Engineering in Kraljevo, University of Kragujevac, Serbia
[3]Faculty of Engineering, University of Kragujevac, Serbia
*Corresponding author: zpetrovic@asss.edu.rs

Abstract: *Turning is a complex machining process due to the influence of numerous factors and is accompanied by the occurrence of noise as well as forced and self-excited vibrations. Measuring these quantities enables more accurate modeling of the cutting process and the determination of optimal machining conditions. In this study, sound energy and vibrations during the turning process were measured, and the measurement methodology was described. The selected input machining parameters were: cutting speed (v), depth of cut (a), and feed rate (s). Optimal machining conditions were then determined using the Particle Swarm Optimization (PSO) method.*

Keywords: *Noise, Vibrations, Particle Swarm Optimization (PSO)*