Student Talent Day 2026

Scientific Student Conference Activities at the Institute of Manufacturing Science

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Why Is It Worth Participating in the Scientific Student Conference?

- **Professional Deepening**

  TDK participation allows deep exploration of topics, strengthening theoretical knowledge and practical understanding.

- **Skill Development**

  Students enhance research, engineering, data analysis, and presentation skills essential for academic and industrial careers.

- **Creativity and Independence**

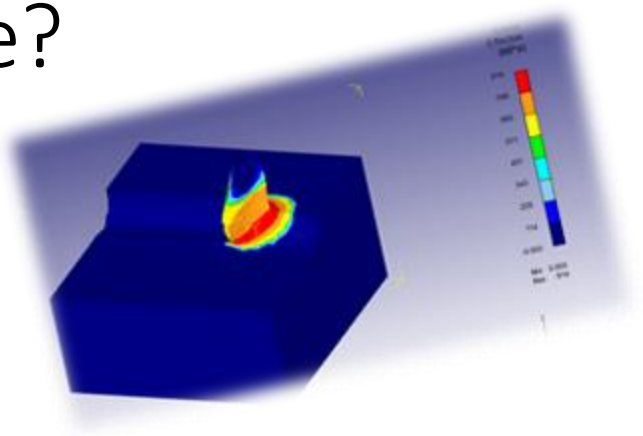
  Participants develop creativity and autonomy by managing projects and proposing original ideas confidently.

- **Networking and Recognition**

  TDK fosters professional relationships and offers opportunities for awards, scholarships, and publications.

- **Admission advantage**

  TDK achievements may give you an advantage in the admissions process for master's or doctoral programs.



Why Choose the Institute of Manufacturing Science for Student Research?

- **Industry-Oriented Research**

  Research topics align with national and international manufacturing challenges, ensuring practical and relevant student work.

- **Advanced Laboratory Infrastructure**

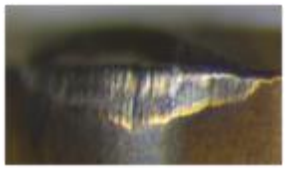
  The institute offers CNC machines, 3D printers, advanced measurement tools, and specialized software for high-quality research.

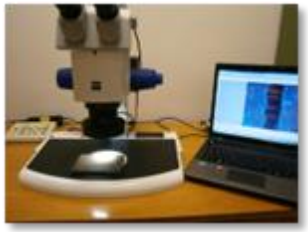
- **Personalized Mentoring**

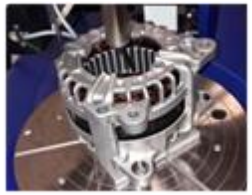
  Continuous guidance from experienced academic staff improves research quality and student learning outcomes.

- **Career Development Support**

  Participation boosts thesis preparation, program admissions, and transitions to industrial research or PhD programs.





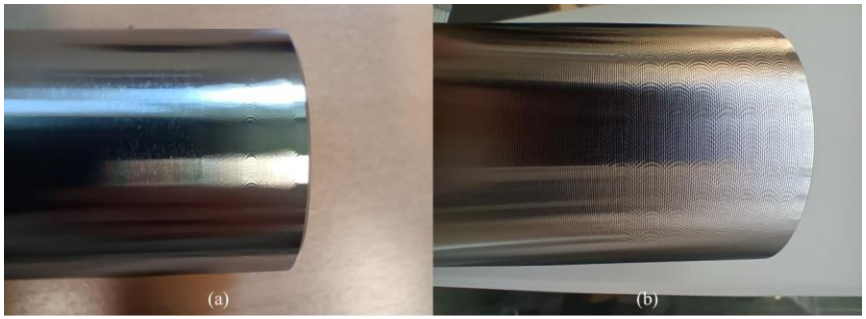


Student Research Topics in the 2024–2025 Academic Years

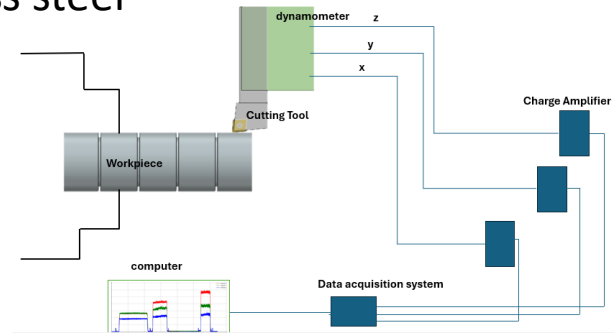
- Works of Hungarian students:
  - Investigation of corner-milling strategy on flat surface machining of structural steelDetermination of screw tightening torque
  - Analytical and experimental examination of surface roughness in the symmetry plane of face-milled surfaces
  - Product development designed for 3D printing technology
  - Modal analysis of the natural frequency of the universal fixture in the acoustics laboratory
  - Innovative solutions in quality assurance using AI and Big Data
  - Redesign of the clamping method for ring gears
  - Cycle-time balancing of an automated production line
  - Full automation of gear manufacturing
- Topics studied by foreign students:
  - Vibration effect on surface roughness in metal turning using MPU6050 sensoribration analysis for tool condition monitoring in CNC turning using MPU6050 sensor
  - Investigation of machining parameters effects on cutting force and vibration in CNC turning
  - Analysing the Influence of Cutting Force on Geometrial Accuracy Machining of X5CrNi18-10 stainless steel
  - Experimental and Numerical Analysis of Cutting Forces and Shape Errors in Turning of X5CrNi18-10 Stainless Steel
  - Multi-Criteria Evaluation of Surface Integrity in Chromium-Nickel Alloy Steel Turning Using Topsis and Gra
  - Study ont he Effects of Tube Wall thickness on Forces, Vibrations, and Machining Quality in Turning Operations

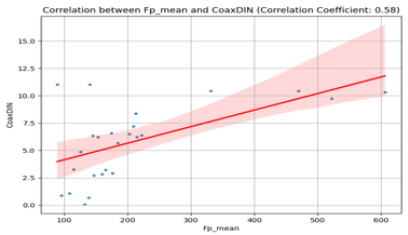
A selection of student work

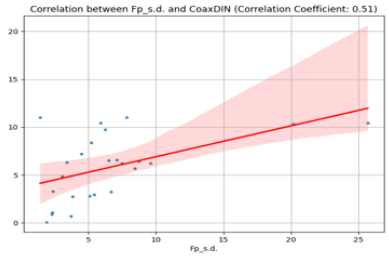
Vibration analysis in turning



Force measurement during machining of stainless steel





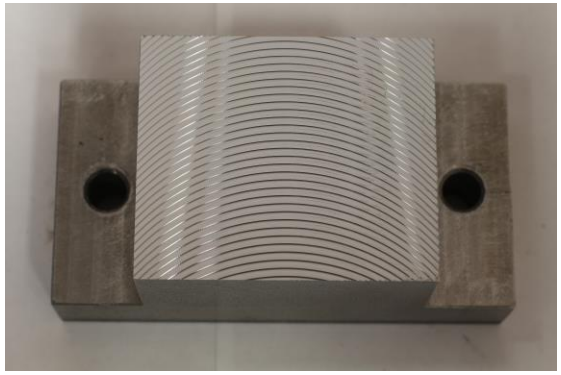


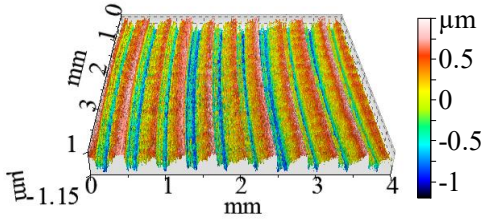
Investigation of circularity error of a disc

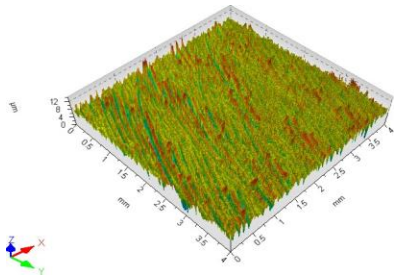
Tool wear analysis

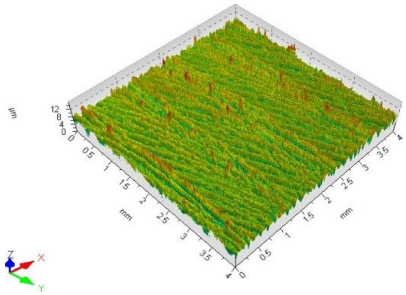
A selection of student work

Topograhy of face milled surfaces

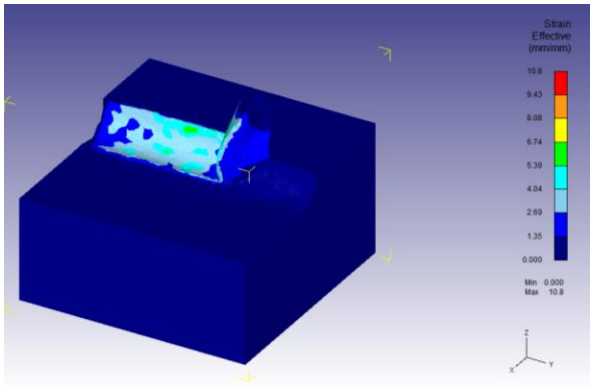


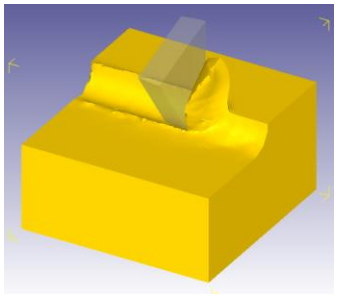


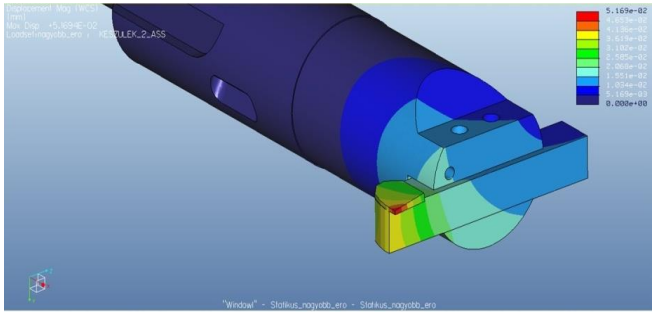




FEM simulations



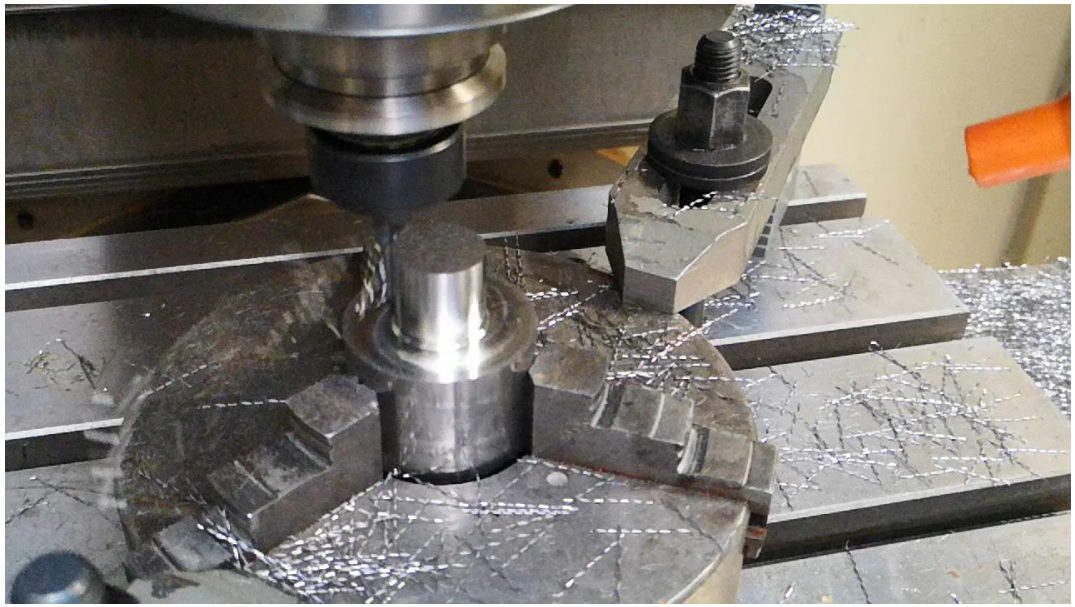




Student Research themes

- Dr. Csaba Felhő
  - Process monitoring by piezoelectric sensor in metal cutting
  - In-process surface quality checking in metal cutting
  - In-process temperature measurement in metal cutting operations
  - Use of AI to monitor and control metal cutting processes
- Prof. Dr. György Kovács
  - Design and efficiency improvement of production processes and systems
- Dr. István Sztankovics
  - Study of the surface roughness in Tangential turning of low alloy steels

Thank you for your attention



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