PERSONAL INFORMATION

Attila Körei

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Date of birth 14 July 1969

Nationality Hungarian

WORK EXPERIENCE

September 2010 – Present — Associate Professor

Institute of Mathematics, University of Miskolc

Head of the Department of Applied Mathematics from 2024

Courses in Numerical Methods and Optimization in Hungarian and in English

Research in Lattice Theory, Didactics of Mathematics, Robotics

Other: FIRST LEGO League coach of S-Team (University of Miskolc) in the Submerged Season (2025, Hungarian national champion in robotic game and robot design, 3rd place in robotic game at the FLL Open International Championship Greece) and in the Masterpiece Season (2024, Hungarian national champion in robotic game, 4th place in robotic game at the FLL Western Open Championship in the USA)

2009 – 2010 — Senior Lecturer

Department of Information Engineering, University of Miskolc

Course in Artificial intelligence

Research area: Production Engineering

2001 - 2009 — Assistant Lecturer

Department of Information Engineering, University of Miskolc

Courses in C Programming

Research areas: Production Engineering, Concept Lattices

1993 – 2001 — Assistant Lecturer

Department of Mathematics, University of Miskolc

Courses in Calculus

EDUCATION AND TRAINING

2003 – 2008 — PhD – Thesis Title: 'Using Concept Lattices in Classification Problems'

University of Miskolc, Hungary

1989 – 1994 — Diploma in Mathematics and Mathematics Teaching

Kossuth Lajos University, Debrecen, Hungary

PERSONAL SKILLS

Mother tongue(s) Hungarian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B2	B2	C1
German	A2	A2	A2	A2	A2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
Common European Framework of Reference for Languages

Teaching experience in English

Numerical Methods and Optimization course for foreign students from 2015.
Erasmus Teaching Mobilities 2017-2024
Pannónia Scholarship, Teaching Mobility in Lithuania, November 2024
Pannónia Scholarship, Teaching and Research Mobility in Lithuania, June 2025 (2 weeks)

Computer skills

Microsoft Office, LaTex, Matlab, C, programming LEGO robots, Desmos,
Working as a technical editor for the journal Miskolc Mathematical Notes

Others

Teacher Trainer of LEGO Education robotics programmes,
FIRST LEGO coach of S-TEAM (University of Miskolc)

Important publications of the last 5 years

1. Szilágyi, S., Palencsár, E., Körei, A., & Török, Z. (2025). Examining the Effectiveness of Non-Digital Game-Based Learning Among University Computer Science Students on the Topic of Improper Integrals. *Education Sciences*, *15*(2), 132. **(Q1)** https://doi.org/10.3390/educsci15020132
2. Szilágyi, S., Körei, A., Török, Z., Vaičiulytė, I. (2025). The Impact of 4C-Based Experiential Learning on the Mathematical Performance of First-Year University Students in Engineering. In: Auer, M.E., Rüütmann, T. (eds) Futureproofing Engineering Education for Global Responsibility. ICL 2024. Lecture Notes in Networks and Systems, vol 1281. Springer, Cham., **(Q4)** https://doi.org/10.1007/978-3-031-83520-9_36
3. Körei, A, & Szilágyi, S. (2024). Visualization of cycloid curves by educational robotics in the classroom environment, *International Journal of Mathematical Education in Science and Technology*, 1-17, **(Q1)** https://doi.org/10.1080/0020739X.2024.2439052
4. Szilágyi, S., Körei, A., & Vaičiulytė, I. (2024). An Innovative STEAM-Based Method for Teaching Cycloidal Curves in Engineering Higher Education. *Education Sciences*, *14*(10), 1087. **(Q1)** https://doi.org/10.3390/educsci14101087
5. Körei, A, Szilágyi, S., Vaičiulytė, I. (2024). An Educational Robotics Approach to Drawing and Studying Central Trochoids at the University Level. *Sustainability*. *16*(22), 9684. **(Q1)** https://doi.org/10.3390/su16229684
6. Körei, A., & Szilágyi, S. (2024). Kinematic Model Implementation Using Educational Robotics. In *International Conference on Robotics in Education (RiE)* (pp. 17-28). Cham: Springer Nature Switzerland. **(Q4)** https://doi.org/10.1007/978-3-031-67059-6_3
7. Körei, A., & Szilágyi, S. (2024). Discovering epitrochoid curves with STEAM-based learning methods. In *Annales Mathematicae et Informaticae*., pp 205-217, **(Q4),** https://doi.org/10.33039/ami.2024.04.001
8. Körei, A., Szilágyi, S., & Vaičiulytė, I. (2023). Task Design for Teaching Cardioid Curve with Dynamic Geometry Software and Educational Robotics in University Practice. *Problems of Education in the 21st Century*, *81*(6), 840. (WoS **Q3**) https://doi.org/10.33225/pec/23.81.840
9. Körei, A., & Szilágyi, S. (2024). Using Educational Robotics to Explore and Teach Trochoidal Curves. In: Guarda, T., Portela, F., Diaz-Nafria, J.M. (eds) *Advanced Research in Technologies, Information, Innovation and Sustainability*. ARTIIS 2023. Communications in Computer and Information Science, vol 1937. Springer, Cham., **(Q4)** https://doi.org/10.1007/978-3-031-48930-3_7
10. Körei, A.; & Szilágyi, Sz. (2023). How to Draw Cardioids with LEGO Robots: A Technical-Mathematical Project in Higher Education. In: Balogh, R., Obdržálek, D., Christoforou, E. (eds) Robotics in Education. RiE 2023. Lecture Notes in Networks and Systems, vol 747. Springer, Cham., **(Q4)** https://doi.org/10.1007/978-3-031-38454-7_4
11. Körei, A.; & Szilágyi, Sz. (2022). Displaying Parametric Curves with Virtual and Physical Tools, *THE TEACHING OF MATHEMATICS* XXV (2), 61-73. **(Q4)**, https://doi.org/10.57016/TM-EHGC7743
12. Körei, A.; & Szilágyi, Sz. (2022). Using a Math Card Game in Several Ways for Teaching the Concept of Limit, In: Auer

Michael E.; Hortsch Hanno; Michler Oliver; Köhler Thomas (eds): *Mobility for Smart Cities and Regional Development - Challenges for Higher Education : Proceedings of the 24th International Conference on Interactive Collaborative Learning*, Springer International Publishing, 865-877., Paper Chapter 85. **(Q4)**, https://doi.org/10.1007/978-3-030-93904-5_85

13. Körei, A., & Szilágyi, S. (2022). Parametric Graph Project - Using LEGO Gears for Drawing Curves. In: Guarda, T., Portela, F., Augusto, M.F. (eds) *Advanced Research in Technologies, Information, Innovation and Sustainability.* ARTIIS 2022. Communications in Computer and Information Science, vol 1675. Springer, Cham. **(Q4)** https://doi.org/10.1007/978-3-031-20319-0_8
14. Körei, A.; & Szilágyi, Sz. (2021). LimStorm – A Didactic Card Game for Collaborative Math Learning for Gen Z Students, In: Rüütmann Tiia; Auer Michael E. (eds): *Educating Engineers for Future Industrial Revolutions*, Springer International Publishing, 452-463., Paper Chapter 42., **(Q4)** https://doi.org/10.1007/978-3-030-68198-2_42
15. Körei, A.; Szilágyi, Sz., Török, Zs. (2021). Integrating Didactic Games in Higher Education: Benefits and Challenges, *TEACHING MATHEMATICS AND COMPUTER SCIENCE 19 (1)*, 1-15., https://doi.org/10.5485/TMCS.2021.0517