ADMISSION TO DOCTORAL STUDIES   Session September 2025

Field of doctoral studies: Mathematics
Doctoral supervisor: Ioan-Lucian Popa

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 1: Fractals-Inspired Textile Designs using Iterative Approaches
Contents / Main aspects to be considered Profitability To mathematically model, even produce, new fractal patterns with improved fixed-point iterative methods (e.g. four step iteration with s-convexity). To depict, and examine the created fractals with the help of computational devices (MATLAB or Python), to optimize those by visual balance, symmetry, and coherence of motifs
Recommended bibliography: [1] R. Brouet, A. Sheffer, M.P. Cani, et al., Design preserving garment transfer. ACM Trans. Graph. 31(4), 36 (2012) [2] X.H. Yang, J.H. Sui, B. Meng, X.W. Zhang, Auto-generating uniform stochastic web images for ink-jet printing textiles. Text. Res. J. 80(18), 1942–1948 (2010) [3] . Neves, K. Janssens, M. Neves, Fractal geometry – a new tool for textile design development applications in printing. International Journal of Clothing Science and Technology 6(1), 28–36 (1994) [4] B.B. Mandelbrot, The fractal geometry of nature (W.H. Freeman, New York, 1982
Remarks:
☒ Scientific Doctorate (full-time only) ☐ Professional Doctorate – in the fields of Music and Science of sport and physical   education (full-time or part-time)
☐ without tuition fee (state budget funded) ☒ with tuition fee or with funding from other sources than the state budget

Doctoral supervisor,   Coordinator of the field of doctoral studies,

Prof. Dr. Ioan-Lucian Popa   Prof. Dr. Radu Paltanea

Signature   Signature