

Course title: Nature-Inspired Optimization Algorithms	Neptun code: GEIAL483-a
Course coordinator: Dr. Zsolt Csaba Johanyák, PhD, dr. habil., professor (NJE)	
type of lesson and number of lessons: lecture (2)	
method of evaluation: colloquium	
curriculum location of the subject: (autumn/spring semester): autumn and spring	
pre-study conditions (<i>if any</i>): -	
The task and purpose of the subject:	
The aim of this course is the introduction of the concept of nature inspired optimization algorithms and their practical applications.	
Course description:	
Aims of optimization. Evaluation. Constraints. Particle swarm optimization. Firework algorithm. Artificial immune system based algorithms. Ant and bee algorithms. Firefly algorithm. Cuckoo algorithm. Comparative evaluation of the algorithms. Case studies.	
Required literature:	
1. Xin-She Yang: Nature-Inspired Optimization Algorithms, 2nd edition, Elsevier, 2020, ISBN 9780128219898	
Recommended literature:	
1. Jason Brownlee: Clever Algorithms: Nature-Inspired Programming Recipes, 2012, ISBN 978-1-4467-8506-5 https://github.com/clever-algorithms/CleverAlgorithms	
2. Mathworks: Global Optimization Toolbox https://www.mathworks.com/help/gads/index.html?s_tid=CRUX_lftnav	