

<b>Course Description</b>					
<b>Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A Hour</b>	<b>Credit</b>	<b>ECTS</b>
HEURISTICS METHODS for OPTIMIZATION	IND4268240	Spring Semester	3+0	3	6
<b>Prerequisites Courses</b>	MODELLEME VE OPTİMİZASYONA GİRİŞ; STOKASTİK MODELLER				
<b>Recommended Elective Courses</b>					
<b>Language of Instruction</b>	English				
<b>Course Level</b>	First Cycle (Bachelor's Degree)				
<b>Course Type</b>	Elective				
<b>Course Coordinator</b>	Assoc.Prof. Yasin GÖÇGÜN				
<b>Name of Lecturer(s)</b>	Assoc.Prof. Yasin GÖÇGÜN				
<b>Assistant(s)</b>					
<b>Aim</b>	It aims to improve current application and analysis skills with heuristic methods, and to apply heuristic methods such as simulated annealing, genetic algorithms and Tabu search.				
<b>Course Content</b>	This course contains; Introduction to the Course ,Introduction to Heuristic Methods,Simulated Annealing Algorithm,Genetic Algorithms,Evolutionary Strategies,Tabu Search,Ant Colony,Particle Surround Optimization,Hybrid Methods,Multi-objective Optimization,Current Optimization Applications,Analysis of Current Applications-1,Analysis of Current Applications-2,Analysis of Current Applications-3.				
<b>Course Learning Outcomes</b>		<b>Teaching Methods</b>		<b>Assessment Methods</b>	
Students apply simulating annealing.		10, 16, 6, 9		A, E	
Students Gain knowledge of what kind of problems Genetic Algorithm methods can be used in and how they can be applied.		10, 16, 6, 9		A, E	
Students will be able to apply Tabu search method to related problems.		10, 16, 6, 9		A, E	
The student applies the Ant Colony method to related problems.		10, 16, 6, 9		A, E	
<b>Teaching Methods</b>	10: Discussion Method, 16: Question - Answer Technique, 6: Experiential Learning, 9: Lecture Method				
<b>Assessment Methods</b>	A: Traditional Written Exam, E: Homework				
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	Introduction to the Course				
2	Introduction to Heuristic Methods				
3	Simulated Annealing Algorithm				
4	Genetic Algorithms				
5	Evolutionary Strategies				
6	Tabu Search				
7	Ant Colony				
8	Particle Surround Optimization				
9	Hybrid Methods				
10	Multi-objective Optimization				
11	Current Optimization Applications				
12	Analysis of Current Applications-1				
13	Analysis of Current Applications-2				
14	Analysis of Current Applications-3				
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		30			
General Exam		70			
<b>Resources</b>					
Metaheuristics for Hard Optimization: Methods and Case Studies, Johann Dréo , Patrick Siarry , Alain Pétrowski , Eric Taillard					