

**School of Engineering and Natural Sciences / Industrial Engineering (English)**

**2022 - 2023 Academic Year**

**SCHEDULING**

**Syllabus**

<b>Course Description</b>					
<b>Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A Hour</b>	<b>Credit</b>	<b>ECTS</b>
SCHEDULING	IND3249110	Spring Semester	3+0	3	6
<b>Prerequisites Courses</b>	AĞ AKIŞLARI VE TAMSAYILI PROGRAMLAMA				
<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>	Prof.Dr. Hakan TOZAN				
<b>Assistant(s)</b>					
<b>Aim</b>	The students who succeeded the course will be able to identify, formulate and solve various problems in the area of scheduling (deterministic and stochastic) They will internalize computational complexity and heuristic problem solving in scheduling domain. They will be able solve scheduling problems with various types of methods including computerized scheduling systems.				
<b>Course Content</b>	This course contains; Introduction ,Deterministic Models: Preliminaries: Framework and Notation,Deterministic Models: Preliminaries: Classes of Schedules and Complexity Hierarchy,Deterministic Single Machine Models (Total weighted completion time, maximum lateness, number of tardy jobs),Deterministic Single Machine Models (Total weighted tardiness, makespan),Deterministic Parallel Machine Models (Makespan with/ without preemption, TCT with preemption),Deterministic Parallel Machine Models (TCT with preemption, due-date related obj.),Deterministic Flowshops (with limited/unlimited intermediate storage),Felexible Flow Shops,Open Shop Scheduling,Jop Shop Scheduling,General Purpose Procedures for Deterministic Schedule,Stochastic Moldels: Preliminaries,Stochastic Models.				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
			1, 14, 15, 2, 4, 6, 9	A, B, C, D, E, F	
<b>Teaching Methods</b>	1: Lecture, 14: Self-Study, 15: Problem solving, 2: Question - Answer, 4: Exercise, Practice, 6: Role Model, Making an example, 9: Simulation				
<b>Assessment Methods</b>	A: Written Exam, B: Oral Exam, C: Homework, D: Project / Design, E: Quiz, F: Performance task				
<b>Lecture Schedule</b>					
<b>Sequenc e</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	Introduction				
2	Deterministic Models: Preliminaries: Framework and Notation				
3	Deterministic Models: Preliminaries: Classes of Schedules and Complexity Hierarchy				
4	Deterministic Single Machine Models (Total weighted completion time, maximum lateness, number of tardy jobs)				
5	Deterministic Single Machine Models (Total weighted tardiness, makespan)				
6	Deterministic Parallel Machine Models (Makespan with/ without preemption, TCT with preemption)				
7	Deterministic Parallel Machine Models (TCT with preemption, due-date related obj.)				
8	Deterministic Flowshops (with limited/unlimited intermediate storage)				
8	Felexible Flow Shops				
10	Open Shop Scheduling				
11	Jop Shop Scheduling				
12	General Purpose Procedures for Deterministic Schedule				
13	Stochastic Moldels: Preliminaries				
14	Stochastic Models				
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		30			
General Exam		70			

<b>Resources</b>
Michael Pinedo, Scheduling: Theory, Algorithms, and Systems, 4th Edition, Springer.