

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

**2023 - 2024 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. Serol BULKAN				
<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).				
<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-1,Deterministic Parallel Machine Models-2,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>	
Students will be able to model deterministic single machine problems			10, 16, 6, 9	A, E	
Students will be able to model deterministic parallel machine problems			10, 16, 6, 9	A, E	
Students will be able to model open shop scheduling problems			10, 16, 6, 9	A, E	
Students will be able to model job shop scheduling 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>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-1				
7	Deterministic Parallel Machine Models-2				
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.