



MARMARA UNIVERSITY - Faculty of Engineering
Environmental Engineering
SYLLABUS
2022-2023 Fall Semester

Course Code	Course Name	Course Type	Weekly Course Hours			Credits	ECTS	Weekly Time & Classroom Schedule
			T	A	L			
ENVE-4043	Particulate Control in Air Pollution	TE	3	0	0	3	5	Wednesday 10:30-12:20, Thursday 11:30-12:20
Prerequisite	Prerequisite to							
Course Lecturer	Prof. Dr. S. Sinan Keskin					Office Hours Schedule		Wednesday 14:00-15:00, Thursday 14:00-15:00
E-mail	sinankeskin@marmara.edu.tr					Office / Room No		M4-120
Phone	0216-777-3609					Phone		
Teaching Assistant						Office / Room No		
E-mail								
Course Objectives	A design course covering particulate matter control technologies. Basic aerodynamic properties of particles will be covered. Particle control technologies including gravity settlers, cyclones, electrostatic precipitators, and scrubbers will be examined for their design parameters and collection efficiencies.							
Learning outcomes	<ul style="list-style-type: none"> To have knowledge about basic properties of particles. To have knowledge about particle collection techniques. To be able to choose proper collection technique depending on particle properties. To be able to calculate particle collection efficiency. To be able to perform basic design calculations for cyclones, ESP's and scrubbers. 							
Textbooks and/or References	1	Air Pollution Control Engineering, Lawrence K. Wang, Norman C. Pereira, Yung Tse Hung						
	2	Stationary Source Control Techniques Document for Fine Particulate Matter, US-EPA						
	3	Air Pollution: Measurement, Modelling and Mitigation, 2nd Ed., 2002, CRC Press						
Teaching methods	Slide presentations							
WEEK	Date	TOPICS					Reference No - Section	
Week 1	5/10/2022	Particle size distributions and aerosol mechanics					3-2.1, 2.2, 2.3	
Week 2	12/10/2022	Aerosol mechanics (cont.)					3- 2.3	
Week 3	19/10/2022	Reduction of primary particle emissions and pretreatment					3- 2.5, 2- 5.1	
Week 4	26/10/2022	Cyclones					1-3.1, 3.2	
Week 5	2/11/2022	Cyclones (cont.)					1- 3.2	
Week 6	9/11/2022	Fabric Filter Baghouses					1- 3.2	
Week 7	16/11/2022	Fabric Filter Baghouses (cont.)					2- 5.3	
Week 8	23/11/2022	Midterm Exam Week						
Week 9	30/11/2022	Fabric Filter Baghouses (cont.)					1- 2.1, 2.2, 2.3	
Week 10	7/12/2022	Electrostatic Precipitators					1- 2.4, 2.5, 2.6	
Week 11	14/12/2022	Electrostatic Precipitators (cont.)					2- 5.2	
Week 12	21/12/2022	Electrostatic Precipitators (cont.)					1- 4.1, 4.2	
Week 13	28/12/2022	Electrostatic Precipitators (cont.) / Wet Scrubbing					1- 4.3	
Week 14	4/1/2023	Wet Scrubbing (cont.)					1- 4.4 / 2- 5.4	
Week 15	11/1/2023	Wet Scrubbing (cont.)					1- 5.1, 5.2	
Week 16	18/1/2023	Final Exams					1- 5.2, 5.4	
Evaluation Tools	Evaluation Tool	Quantity	Date				Weight in Total (%)	Weight in Semester Evaluation (%)
	Final Exam	1					40	0
	Final Make-up Exam /if	1						
	Semester Evaluation						60	100
	Midterm	1					30	50.0
	Quiz(zes)							
	Project(s)							
	Homework	6					30	50.0
Laboratory	0							
Other	0							
*** Lifelong Learning Programme (LLP) ***						Language of Instruction: English		
Evaluation Tool	Quantity	Student Workload Hours	Evaluation Tool			Quantity	Student Workload Hours	
Theoretical Hours	14	42	Applied Hours					
Midterm	1	12	Final			1	12	
Quiz			Project					
Laboratory			Homework			6	30	
Atelier			Seminar					
Field Study			Presentation					
Other			Self Study					
						TOTAL :	36	
							124.00	
						Recommended ECTS Credit (Total Hours/ 25) :	5	