



**MARMARA UNIVERSITY - Faculty of Engineering**

**SYLLABUS**

**Environmental Engineering**

**2017-2018 Spring Semester**

Course Code	Course Name	Course Type	Weekly Course Hours			Credits	ECTS	Weekly Time & Classroom Schedule	
			T	A	L				
ENVE 3030	Solid Waste Engineering	Compulsory	2	2	0	3	5	Tuesday 11:30-13:20 MB554 Friday 10:30-12:20 MB554	
Prerequisite		Prerequisite to							
Course Lecturer	Prof. Barış ÇALLI				Office Hours Schedule	Tuesday 09:30-11:20			
E-mail	<a href="mailto:baris.calli@marmara.edu.tr">baris.calli@marmara.edu.tr</a>				Office / Room	MB641			
Phone	216 348 02 92 / 1289				Phone				
Teaching Assistant(s)					Office / Room				
E-mail									
Course Objectives	The purpose of this course is to discuss the principles of solid waste management and engineering principles related to the separation, processing, transformation, and final disposal of solid waste.								
Learning outcomes	1. Understand the main aspects of integrated solid waste management 2. Hold knowledge about generation, storage, separation, collection, transfer, transformation (physical, chemical and biological) and final disposal of municipal solid waste 3. Analyze and evaluate the integrated solid waste management system applied in a region								
Textbooks and/or References	1. Tchobanoglous G, Thiesen H and Vigil SA 'Integrated Solid Waste Management, Engineering Principles and Management Issues' McGraw-Hill, 1993 2. Vesilind PA, Worrell W and Reinhart D, 'Solid Waste Engineering' Brooks/Cole Thomson Learning Inc., 2002. 3. Qian X, Koerner RM and Gray DH, 'Geotechnical Aspects of Landfill Design and Construction' Prentice Hall, 2002.								
Teaching methods	White board, Digital projector, Technical site visits								
WEEK	Date	TOPICS						Reference No - Section	
Week 1	06.02 & 09.02	Evolution of Solid Waste Management						Textbook 1-Chapter 1	
Week 2	13.02 & 16.02	Sources, Types and Composition of Municipal Solid Wastes						Textbook 1-Chapter 3	
Week 3	20.02 & 23.02	Physical, Chemical and Biological Properties of Municipal Solid Waste						Textbook 1-Chapter 4	
Week 4	27.02 & 02.03	Waste Handling, Separation, Storage and Processing at Source/Collection of Solid Waste						Textbook 1-Chapter 7&8	
Week 5	06.03 & 09.03	Transfer and Transport of Solid Waste						Textbook 1-Chapter 10	
Week 6	13.03 & 16.03	Separation and Processing of Solid Waste on Site						Textbook 1-Chapter 9&12	
Week 7	20.03 & 23.03	Thermal Conversion Technologies-1						Textbook 1-Chapter 13	
Week 8	06.04	Thermal Conversion Technologies-2						Textbook 1-Chapter 13	
Week 9	10.04 & 13.04	Biological Conversion Technologies-Composting						Textbook 1-Chapter 9&14	
Week 10	17.04 & 20.04	Biological Conversion Technologies-Anaerobic Digestion						Textbook 1-Chapter 9&14	
Week 11	24.04 & 27.04	Disposal of Solid Wastes and Residual Matter-1						Textbook 1-Chapter 11	
Week 12	04.05	Disposal of Solid Wastes and Residual Matter-2						Textbook 1-Chapter 11	
Week 13	15.05 & 18.05	Disposal of Solid Wastes and Residual Matter-3						Textbook 1-Chapter 11	
Week 14	22.05 & 25.05	Presentation of projects							
Evaluation Tools		Evaluation Tool	Quantity	Date	Weight in Total (%)	Weight in Semester Evaluation (%)			
		Final Exam	1		40				
		Final Make-up Exam (if exists)							
		Semester Evaluation			60	100			
		Midterm(s)	1		30	50,0			
		Quiz(zes)							
		Project(s)	1		20	33,3			
		Homework(s)							
Laboratory									
Other	1		10	16,7					
Program and Learning Outcome Relations		No	Program Outcomes			Relations			
		1	Having knowledge about mathematics, science and environmental engineering as the owner of the accumulation of sufficient information about the theoretical and applied knowledge in these areas. Ability to apply the model to solve theoretical and applied engineering problems.			1		X	
		2	Ability to identify, formulate and solve complex problems. For this purpose, selecting and applying appropriate methods, analysis and modeling skills.				X		
		3	Ability to design complex system, process, device or product under realistic constraints and conditions, to meet certain requirements. For this purpose to apply the methods of modern design.						
		4	Ability to select and use modern techniques and tools required for development of environmental engineering applications, the ability to use information technology effectively.						
		5	Design experimental setup to investigate the environmental engineering problems, conduct experiments, collect data, analyze and interpret results.						
		6	Ability to work effectively with disciplinary and multi-disciplinary teams, self-study skills.						
		7	Ability to communicate effectively in oral and written, knowledge about at least one foreign language.				X		
		8	Awareness of the need for lifelong learning, information access, monitoring and continuous self-renewal ability in science and technology developments.						
		9	Professional and ethical responsibility.						
		10	Having knowledge about project management, risk management, change management. Recognition of the entrepreneurship, innovation and sustainable development in business life.						
11	Having knowledge about environmental engineering applications on the universal and social dimensions of health, environmental and safety impacts, contemporary issues, engineering solutions, and awareness of the legal consequences.								
*** Lifelong Learning Programme (LLP) ***					Language of Instruction: English				
Evaluation Tool	Quantity	Student Workload Hours		Evaluation Tool	Quantity	Student Workload Hours			
Theoretical Hours	14	28		Applied Hours	14	28			
Midterm	1	20		Final	1	20			
Quiz				Project	1	15			
Laboratory				Homework					
Atelier				Seminar					
Field Study				Presentation					
Other				Self Study	14	14			
					<b>TOTAL :</b>	45	125,00		
					<b>Recommended ECTS Credit (Total Hours / 25) :</b>				
							5		
1: weak, 2: moderate, 3: strong									