



MARMARA UNIVERSITY - Faculty of Engineering

SYLLABUS

Environmental Engineering

2014-2015 Spring Semester

Course Code	Course Name	Course Type	Weekly Course			Credits	ECTS	Weekly Time & Classroom Schedule
			T	A	L			
ENVE 330	Solid Waste Engineering	Compulsory	2	2	0	3	5	Thursday 12:30-14:20 MC165 Friday 09:30-11:20 MB142
Prerequisite	Prerequisite to							
Course Lecturer	Prof. Barış ÇALLI		Office Hours Schedule		Thursday 14:30-16:20			
E-mail	baris.calli@marmara.edu.tr		Office / Room		MB641			
Phone	216 348 02 92 / 289		Phone		216 348 02 92/685			
Teaching Assistant(s)	Alper Bayrakdar		Office / Room		MC261			
E-mail	alper.bayrakdar@marmara.edu.tr							
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, Theisen H and Vigil SA 'Integrated Solid Waste Management, Engineering Principles and Management Issues' McGraw-Hill, 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	11.02 & 12.02	Evolution of Solid Waste Management						Textbook 1-Chapter 1
Week 2	18.02 & 19.02	Sources, Types and Composition of Municipal Solid Wastes						Textbook 1-Chapter 3
Week 3	25.02 & 26.03	Physical, Chemical and Biological Properties of Municipal Solid Waste						Textbook 1-Chapter 4
Week 4	03.03 & 04.03	Waste Handling, Separation, Storage and Processing at Source/Collection of Solid Waste						Textbook 1-Chapter 7&8
Week 5	10.03 & 11.03	Transfer and Transport of Solid Waste						Textbook 1-Chapter 10
Week 6	17.03 & 18.03	Separation and Processing of Solid Waste on Site						Textbook 1-Chapter 9&12
Week 7	24.03 & 25.03	Thermal Conversion Technologies						Textbook 1-Chapter 13
Week 8	07.04 & 08.04	Biological Conversion Technologies-Composting						Textbook 1-Chapter 9&14
Week 9	14.04 & 15.04	Biological Conversion Technologies-Anaerobic Digestion						Textbook 1-Chapter 9&14
Week 10	21.04 & 22.04	Disposal of Solid Wastes and Residual Matter-1						Textbook 1-Chapter 11
Week 11	28.04 & 29.04	Disposal of Solid Wastes and Residual Matter-2						Textbook 1-Chapter 11
Week 12	05.05 & 06.05	Disposal of Solid Wastes and Residual Matter-3						Textbook 1-Chapter 16&17
Week 13	12.05 & 13.05	Presentation of design projects						
Week 14								
Evaluation Tools	Evaluation Tool	Quantity	Date	Weight in Total (%)	Weight in Semester Evaluation (%)			
	Final Exam	1		40				
	Final Make-up Exam (if exists)	1		40				
	Semester Evaluation			60	100			
	Midterm(s)	1		30	50,0			
	Quiz(zes)							
	Project(s)	1		30	50,0			
	Homework(s)							
Laboratory								
Other								
Program and Learning Outcome Relations	No	Program Outcomes			Relations			
		1	2	3	1	2	3	
	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.						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.				X		
	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.						
	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	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		
					TOTAL :	45	125,00	
					Recommended ECTS Credit (Total Hours / 25) :			5
1: weak, 2: moderate, 3: strong								