

COURSE DESCRIPTION FORM	
Course Code and Title	CHE477 INDUSTRIAL WASTEWATER TREATMENT
Course Semester	7
Catalog Description (Content) of the Course	Physical, Chemical and Biological Treatment Methods of Wastewater, Case Studies for Various Industries, Composition and Properties of Wastes, Applicability of Waste Treatment Methods. Radioactive and thermal pollution control.
Main Textbook	Eckenfelder, W.W.(Jr.), " Industrial Water Pollution Control", 3. Edition, Mc Graw Hill Inc., 2000.
Supporting Textbooks	1- Metcalf and Eddy, Inc." Waste Water Engineering, Treatment, Disposal, and Reuse, 4. Basim, Mc Graw Hill Inc., 2003. 2- Periodicals
Course Credit (ECTS)	4
Prerequisites of the Course (Compulsory attendance should be indicated here.)	-
Type of the Course	Elective
Instruction Language of the Course	English
Object and Target of the Course	To have knowledge about energy technologies and to use engineering, science and mathematics knowledge in this subject.
Learning Outcomes of the Course	3- To recognize the various energy technologies being used and under investigation. 4- To learn the basic principles of energy technologies, 5- To be able to evaluate the advantages and disadvantages of energy technologies.
Mode of Delivery	Face to face
Weekly Schedule of the Course	<ol style="list-style-type: none"> 1. Week Introduction; General Concepts, Resources and Properties of Industrial Wastes, Wastewater Treatment Processes. 2. Week Pre and Primary Treatment; Equalization, Neutralization 3. Week Pre and Primary Treatment; Precipitation, Oil separation, Flotation 4. week Coagulation, Sedimentation and Metal removal 5. Week Aeration and Mass Transfer 6. Week Aeration and Mass Transfer 7. Week Biological Wastewater Treatment Processes; Aerated lagoons, Activated Sludge Processes 8. Week Biological Wastewater Treatment Processes; Trickling Filters, Rotary Biological Filters 9. Week Biological Wastewater Treatment Processes; Anaerobic Processes 10. Week Adsorption, Ion Exchange, Chemical Oxidation 11. Week Adsorption, Ion Exchange, Chemical Oxidation 12. Week Sludge Handling and Sludge Disposal Week 13. Week Term Paper Presentation 14. Week Paper Presentation

Educative Activities (Credit will be determined based on the time given for these activities. Should be filled carefully.)	Theoretical Study Hours of Course Per Week Reading Searching in Internet and Library Preparing Reports Preparing Presentation Presentation Mid-Term and Studying for Mid-Term Final and Studying for Final									
Assessment Criteria		Sayısı	Toplam Katkısı (%)							
	Midterm	2	30							
	Homework	3	10							
	Assignment									
	Projects	1	20							
	Practice									
	Quiz									
	Contribution of In-term Studies to Overall Grade		60							
	Contribution of Final Examination to Overall Grade		40							
	Attendance		70							
Workload of the Course	Activity	Total Week Count	Weekly Duration (in hour)	Total Workload in Semester						
	Theoretical Study Hours of Course Per Week	14	3	42						
	Practicing Hours of Course Per Week									
	Reading	6	2	12						
	Searching in Internet and Library	6	2	12						
	Designing and Applying Materials									
	Preparing Reports	3	3	9						
	Preparing Presentation	3	3	9						
	Presentation	1	1	1						
	Mid-Term and Studying for Mid-Term	5	4	20						
	Final and Studying for Final	1	4	4						
	Other									
	Total work load			95						
	Total work load/25			3.8						
	ECTS of the course			4						
	Course's Contribution To Program	No	Program Outcomes			1	2	3	4	5
1		Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems.					x			
2		Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper					x			

		analysis and modeling methods for this purpose.					
	3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.			x		
	4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.			x		
	5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.					
	6	Ability to work efficiently in intra-disciplinary teams.		x			
	7	Ability to work efficiently in multi-disciplinary teams;	x				
	8	Ability to work individually.			x		
	9	Ability to communicate effectively in Turkish/English, both orally and in writing; Ability to write effective reports and comprehend written reports, make effective presentations,				x	
	10	prepare design and production reports, give and receive clear and intelligible instructions.	x				
	11	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.			x		
	12	Awareness of professional and ethical responsibility.	x				
	13	Information about business life practices such as project management, risk management, and change management.	x				
	14	Information about awareness of entrepreneurship, innovation, and sustainable development.		x			
	15	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety.		x			
	16	Knowledge about awareness of the legal consequences of engineering solutions.	x				
	17	Knowledge on standards used in engineering practice.	x				
Name of Lecturer(s) and Contact Information		1. Assoc. Prof. Dr. S. Ferda MUTLU, sfmutlu@gmail.com					

