

1. Course Description

COURSE DESCRIPTION FORM		
Course Code and Title	CHE471 CHEMICAL TECHNOLOGY	
Course Semester	7	
Catalog Description (Content) of the Course	Basics of chemical technology. Preparation of water in industry and refining methods of contaminated water. Production of sulphuric acid, nitric acid and ammonia. Gas fuels. Synthetic organic chemicals. Polymers and Plastics. Some other chemical technologies.	
Main Textbook	Shreve, R.N., Brink, J.A., "Chemical Process Industries", McGraw Hill, 1977.	
Supporting Textbooks	Kent, J.A., "Riegel's handbook of Industrial Chemistry", 9th Edition, Chapman & Hall Book Co., 1992. Berg, F.J., Jong, W.A., "Introduction to Chemical Process Technology", Delf University Press, Delf, 1983 Mouljin, J.A., Makkee, M., Van Diepen, A., "Chemical Process Technology", Wiley, 2001.	
Course Credit (ECTS)	5	
Prerequisites of the Course (Compulsory attendance should be indicated here.)	No 70 % Attendance	
Type of the Course	Compulsory	
Instruction Language of the Course	English	
Object and Target of the Course	To introduce some selected inorganic and organic technologies to students. To enhance students' abilities and knowledge about using and preparing the process flow diagrams. To form groups and be able to work and make research as groups. To increase oral and written communication skills in Turkish.	
Learning Outcomes of the Course	1. Understanding basic principles and features of chemical processes. 2. Easening the students' adaptation in entrance to industrial media. 3. Understanding basic principles and features of processes. 4. Determining the legal responsibilities of processes and industrial applications arising from health, environment and security aspects at international and national scales.	
Mode of Delivery	Face to face	
Weekly Schedule of the Course	1st Week	Importance and basis of the chemical technology. Raw materials, fuels and power needs
	2nd Week	Use of water in chemical industry and preperation of boiler feed water
	3rd Week	Waste water treatment
	4th Week	Ammonia production
	5th Week	Nitric acid production
	6th Week	Sulfur and sufuric acid
	7th Week	Sulphuric acid
	8th Week	Gaseous fuels. Purification of natural gas. Gasification of solid fuels.
	9th Week	Chemicals derived from methane
	10th Week	Chemicals derived from ethylene
	11 th Week	Oils and fats
	12 th Week	Polymers

	13 th Week	Polimerization processes.		
	14 th Week	Plastics, additives and their handling methods.		
Educative Activities <i>(Credit will be determined based on the time given for these activities. Should be filled carefully.)</i>	Theoretical Study Hours of Course Per Week Searching in Internet and Library Preparing Reports Preparing Presentation Presentation Mid-Term and Studying for Mid-Term Final and Studying for Final			
Assessment Criteria		Quantity	Total Contribution (%)	
	Midterm	2	50	
	Homework	0	0	
	Assignment	0	0	
	Projects	1	10	
	Practice	0	0	
	Quiz	0	0	
	Contribution of In-term Studies to Overall Grade		60	
	Contribution of Final Examination to Overall Grade		40	
Attendance	0	0		
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	0	0	0
	Reading	0	0	0
	Searching in Internet and Library	4	7	28
	Designing and Applying Materials	0	0	0
	Preparing Reports	3	6	18
	Preparing Presentation	2	7	14
	Presentation	1	3	3
	Mid-Term and Studying for Mid-Term	2	3	6
	Final and Studying for Final	1	3	3
	Other			0
	Total work load			114
	Total work load/25			4.56
	ECTS of the course			5

		Number	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 analysis and modeling methods for this purpose.			X			
		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. (Realistic constraints and conditions may include factors such as economic and environmental issues, sustainability, manufacturability, ethics, health, safety issues, and social and political issues, according to the	X					

			nature of the design.)						
	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.	X						
	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, both orally and in writing; knowledge of a minimum of one foreign language.					X		
	10	Ability to prepare design and production reports, to give and take directions clearly.		X					
	11	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and					X		

			to continue to educate him/herself.					
	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	Name-Surname of Lecturers Prof. Dr. Atilla MURATHAN E-mail address murathan@gazi.edu.tr							
	Name-Surname of Lecturers Prof. Dr.Göksel ÖZKAN E-mail address gozkan@gazi.edu.tr							