

1. Course Description

COURSE DESCRIPTION FORM				
Course Code and Title	CHE384 CEMENT AND CONCRETE			
Course Semester	6			
Catalog Description (Content) of the Course	Cement production, clinker mineralogical compounds, cement types and properties, pozzolanic cement, cement hydrotreatment reactions, concrete and mortars, properties of fresh concrete, factors affecting concrete quality, concrete additives, ready mixed concrete, alkali aggregate reaction in concrete, sulphate corrosion in concrete			
Main Textbook	Yalçın, H., Gürü, M., Çimento ve Beton, Palme Yayıncılık, Ankara, 2006			
Supporting Textbooks	P.K.MEHTA, Concrete Structure Properties and Materials, Prentice-Hall, Inc, John Wiley & Sons, 1981 F.M.LEA, The Chemistry of Cement and Concrete, Arnold, London, 1970.			
Course Credit (ECTS)	3			
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	Explanation of cement and concrete production and usage areas. Properties of concrete which is an important material in engineering, usage areas, repairs, subjects and applications of them			
Learning Outcomes of the Course	1. Recognition of the need for lifelong learning 2. Ability to access information, to follow developments in science and technology, and to continue to educate him/herself 3. Comprehensive information on important engineering materials which are cement and concrete			
Mode of Delivery	Face to face education			
Weekly Schedule of the Course	1. Portland cement production, Types of clinker cement 2. Cement hydration reactions 3. Concrete and its properties 4. Factors affecting concrete quality 5. Factors affecting concrete quality 6. Concrete Additives 7. Ready-mixed concrete 8. Alkali aggregate reactions 9. Sulphate corrosion in concrete 10. Accessory corrosion and its effects 11. Prevention of concrete corrosion 12. Prevention of concrete corrosion 13. Concrete corrosion contamination 14. Concrete casting in special conditions.			
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 Mid-Term and Studying for Mid-Term Final and Studying for Final			
Assessment Criteria		Quantity	Total Contribution (%)	
	Midterm	2	60	
	Homework			
	Assignment			
	Projects			
	Practice			
	Quiz			

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	8	3	24					
	Searching in Internet and Library								
	Designing and Applying Materials								
	Preparing Reports								
	Preparing Presentation								
	Presentation								
	Mid-Term and Studying for Mid-Term	2	3	6					
	Final and Studying for Final	2	4	8					
	Other								
	Total work load			80					
	Total work load/25			3.2					
	ECTS of the course			3					
Course's Contribution To Program	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 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.							
	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.							
	7	Ability to work efficiently in multi-disciplinary teams							
	8	Ability to work individually.							X
	9	Ability to communicate effectively in Turkish, both orally and in writing;			X				

		ability to write effective reports and comprehend written reports, make effective presentations					
	10	Prepare design and production reports, give and receive clear and intelligible instructions.					
	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.					
	14	Information about awareness of entrepreneurship, innovation, and sustainable development.					
	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.					
	17	Knowledge on standards used in engineering practice.			X		
Name of Lecturer(s) and Contact Information		Prof. Dr. Metin GÜRÜ- Email: mguru@gazi.edu.tr					