1. Course Description

COURSE DESCRIPTION FORM	
Course Code and Title	KM392 CHEMICAL ENGINEERING LABORATORY I
Course Semester	6
Catalog Description (Content) of the Course	Laboratory applications of Physical chemistry, fluid mechanics and heat transfer principles. Evaluation of experimental data and results. Written presentation.
Main Textbook	Handouts prepared by the instructor.
Supporting Textbooks	1. Related text books. 2. All the library and internet Web sources
Course Credit (ECTS)	4
Prerequisites of the Course (Compulsory attendance should be indicated here.)	There is no prerequisite or co-requisite for this course..
Type of the Course	Compulsory
Instruction Language of the Course	Turkish
Object and Target of the Course	• Acquisition of ability to apply background knowledge about fluid mechanics, physical chemistry and heat transfer by experiments. • Acquisition of experience by performing and designing experiments independently . • Analysis of experimental data and learning methods of evaluation. • Application and instruction of safety rules during experiments in the lab. • To gain experience about group study. • To gain written communication skills by preparation of lab reports.
Learning Outcomes of the Course	1.Bench scale experimental set-up construction, hands-on experience with laboratory work. 2. Guidelines and safety concepts for laboratory works. 3. To examine experimental data, interpret the results, gain report preparation technique. 4. Work as a team member.
Mode of Delivery	The mode of delivery of this course is face to face
Weekly Schedule of the Course	**1. Week:** General information about the laboratory **2. Week:** Team work principles and formation of teams, Laboratory Safety, Waste Management, Data Analysis, Report Writing **3. Week:** Phase equilibrium **4. Week:** Phase equilibrium **5. Week:** Thermodynamic property determination **6. Week:** Thermodynamic property determination **7. Week:** Surface chemistry **8. Week:** Surface chemistry **9. Week:** Fluid mechanics **10. Week:** Fluid mechanics **11. Week:** Heat transfer **12. Week:** Heat transfer **13. Week:** Chemical kinetics **14. Week:** Chemical kinetics

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
Practicing Hours of Course Per Week
Searching in Internet and Library
Preparing Reports
Mid-Term and Studying for Mid-Term
Final and Studying for Final

Assessment Criteria

	Quantity	**Total Contribution (%)**
Midterm	1	10
Homework		
Assignment	5	30
Projects		
Practice		
Quiz	5	20
Contribution of In-term Studies to Overall Grade		60
Contribution of Final Examination to Overall Grade		40
Attendance		

Workload of the Course

Activity	**Total Week Count**	**Weekly Duration (in hour)**	**Total Workload in Semester**
Theoretical Study Hours of Course Per Week	14	1	14
Practicing Hours of Course Per Week	14	3	42
Reading	0	0	0
Searching in Internet and Library	5	2	10
Designing and Applying Materials	0	0	0
Preparing Reports	5	3	15
Preparing Presentation	0	0	0
Presentation	0	0	0
Mid-Term and Studying for Mid-Term	1	5	5
Final and Studying for Final	1	10	10
Other	0	0	0
Total work load			96
Total work load/25			3.84
ECTS of the course			4

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	X				

			proper 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.					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/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					

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