

1. Course Description

COURSE DESCRIPTION FORM	
Course Code and Title	CHE328- Liquid Crystal Dyes
Course Semester	6
Catalog Description (Content) of the Course	Liquid crystal structures and classification. Usage areas of liquid crystals. Properties and structures of liquid crystal dyes. Production of finished dye.
Main Textbook	E. Lueder, Liquid Crystal Displays, John Wiley & Sons, 2001, USA
Supporting Textbooks	•International Liquid Crystal Society (http://www.ilesoc.org) I.C. Khoo, Liquid Crystals, John Wiley & Sons, 1995, Canada D. Demus et al. (Ed.), Physical Properties of Liquid Crystals, Wiley-VCH, 1999, Germany
Course Credit (ECTS)	3
Prerequisites of the Course (Compulsory attendance should be indicated here.)	No
Type of the Course	Elective
Instruction Language of the Course	English
Object and Target of the Course	Examination of liquid crystals and their dyes, synthesis evaluation
Learning Outcomes of the Course	Informing about liquid crystals and dyes
Mode of Delivery	
Weekly Schedule of the Course	COURSE CONTENT
	1. week Introduction
	2. week Liquid crystals and their classification
	3. week Liquid crystals and their classification
	4. week Color and dyes
	5. week G-H Systems
	6. week G-H Systems
	7. week G-H Systems
	8. week Liquid crystal dyes and their properties
	9. week Liquid crystal dyes and their properties
	10. week Liquid crystal dyes and their properties
	11. week Effects on G-H type indicators
	12. week Effects on G-H type indicators
	13. week Effects on G-H type indicators

	week 14. week	Production of dyes which have different structures			
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 Mid-Term and Studying for Mid-Term Final and Studying for Final				
Assessment Criteria		Quantity	Total Contribution (%)		
	Midterm	2	60		
	Homework	0	0		
	Assignment	0	0		
	Projects	0	0		
	Practice	0	0		
	Quiz	0	0		
	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	3	42
		Practicing Hours of Course Per Week			
		Reading			
		Searching in Internet and Library			
		Designing and Applying Materials			
		Preparing Reports			
		Preparing Presentation			
		Presentation			
		Mid-Term and Studying for Mid-Term	2	10	20
		Final and Studying for Final	1	12	12
		Other			
		Total work load			74
		Total work load/25			2.96
	ECTS of the course			3	

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.	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	x				

		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. Name-Surname of Lecturers :Prof. Dr. Atilla MURATHAN E-mail address: murathan@gazi.edu.tr 2. 3.							