1. Course Description

COURSE DESCRIPTION FORM	
Course Code and Title	KM 330- Laser dyes
Course Semester	6
Catalog Description (Content) of the Course	Laser types and usage areas. Properties of organic laser dye, laser dye classification and chemical structures. Production of finished dye.
Main Textbook	Dye lasers, F.P. Schafer, Springer-Verlag, Berlin, 1977,
Supporting Textbooks	Developments in the chemistry and technology of organic dyes J. Griffiths (Ed.), CIS, London, 1984 • High technology applications of organic colorants, P. Gregory, Plenum Press, New York, 1988 • Handbook of lasers, R.J. Pressley (Ed.), Chemical Rubber Co., Ohio, 1971
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	To examine the syntheses of laser systems and their dyes
Learning Outcomes of the Course	Informing about laser systems and dyes
Mode of Delivery	
Weekly Schedule of the Course	**COURSE CONTENT** 1. week: Introduction, laser system, general framework 2. week: Laser types 3. week: Laser types 4. week: Laser types 5. week: Laser dyes and application areas 6. week: Laser dyes, chemical structures and properties. 7. week: Laser dyes, chemical structures and properties. 8. week: Color and colorfulness, general definitions. 9. week: Classifications of dyestuffs, structures and usage differences 10. week: Laser dye groups, coumarine, rhodamine, carbostyril dye setc. 11. Synthesis of laser dyes, examples of latest techniques

	week 12. week Synthesis of laser dyes, examples of latest techniques 13. week Synthesis of laser dyes, examples of latest techniques 14. week Synthesis of laser dyes, examples of latest techniques .
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 Mid-Term and Studying for Mid-Term Final and Studying for Final

Assessment Criteria

	Quantity	Total Contribution (%)
Midterm	2	60
Homework		0
Assignment		0
Projects		0
Practice		0
Quiz		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			
Preparing Homework			
Mid-Term and Studying for Mid-Term	2	10	20
Final and Studying for Final	1	12	12
Other			0
Total work load			**74**
Total work load/25			**2.96**

		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.	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		x			

			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	x					

			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.	x				
		17	Knowledge on standards used in engineering practice.	x				
Name of Lecturer(s) and Contact Information	1. Prof. Dr. Atilla MURATHAN, murathan@gazi.edu.tr 2. 3.							