

Course Description Form			
Course Code and Name	5191329 Pattern Recognition		
Course Semester	Fall - Spring		
Catalog Content	Classification methods, feature selection and dimension reduction approaches, pattern recognition methods		
Textbook	Pattern Recognition, S. Theodoridis, K. Koutroubas, Academic Press, 2008		
Supplementary Textbooks	Pattern Classification, R.O. Duda, P.E. Hart, D.G. Stork, Wiley, 2000		
Credit	8		
Prerequisites of the Course (Attendance Requirements)	None		
Type of the Course	Elective		
Instruction Language	Turkish		
Course Objectives	Applying of classification methods in a sample problem successfully Obtaining the ability of effective use of feature selection and dimensionality reduction Understanding that pattern recognition can be applied to different problems in a similar way.		
Course Learning Outcomes	1- The students can produce both theoretical and practical solutions to the problems encountered in pattern recognition. 2- The students can develop pattern recognition applications.		
Instruction Methods	Face to face		
Weekly Schedule	1. Week General introduction 2. Week Classifiers based on Bayes decision theory 3. Week Linear classifiers 4. Week Linear discriminant functions 5. Week Non linear classifiers 6. Week Support vector machines 7. Week Support vector machines 8. Week Feature extraction 9. Week Feature extraction 10. Week Linear transformations 11. Week Feature selection 12. Week Dimensionality reduction 13. Week Clustering 14. Week Project presentations		
Teaching and Learning Methods <i>(These are examples. Please fill which activities you use in the course)</i>	Weekly theoretical course hours Weekly applied course hours Reading Activities Internet browsing, library work Designing and implementing materials Report preparing Preparing a Presentation Presentations Preparation of Midterm and Midterm Exam Final Exam and Preparation for Final Exam		
Assessment Criteria		Numbers	Total Weighting (%)
	Midterm Exams		
	Assignment	1	30
	Application	1	30
	Projects	1	30
	Practice	1	10
	Quiz		
	Percent of In-term Studies (%)		60
	Percentage of Final		40

	Exam to Total Score (%)						
	Attendance						
Workload	Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load			
	Weekly Theoretical Course Hours	14	3	42			
	Weekly Tutorial Hours						
	Reading Tasks	14	2	28			
	Studies	14	2	28			
	Material Design and Implementation	14	3	42			
	Report Preparing	14	1	14			
	Preparing a Presentation	14	1	14			
	Presentations	14	2	28			
	Midterm Exam and Preperation for Midterm Exam						
	Final Exam and Preperation for Final Exam	1	14	14			
	Other (should be emphasized)						
	Total Workload			210			
	Total Workload / 25			8.4			
	Course Credit (ECTS)			8.0			
Contribution Level Between Course Learning Outcomes and Program Outcomes	No	Program Outcomes	1	2	3	4	5
	1	Reaches the expansion of knowledge by conducting scientific research in the field of engineering and evaluation, interpretation and application of information.					X
	2	Has extensive and in depth knowledge including the latest techniques, methods applied and their limitations in engineering.					X
	3	Completes and applies knowledge by using scientific methods by using limited or missing data and integrates information from different disciplines.				X	
	4	Be aware of new and developing practices of the profession, examines and learns when needed.					X
	5	Defines and formulates problems related to the field, develops methods to solve them and applies innovative methods in solutions.				X	
	6	Develops new and / or original ideas and methods, designs complex systems or processes and develops innovative / alternative solutions in their designs.				X	
	7	Designs and applies theoretical, experimental and modeling based researches, examines and solves the complex problems encountered in this process.					X

	8	Works effectively in disciplinary and multidisciplinary teams, leads such teams and develops solution approaches in complex situations, works independently and takes responsibility.		X			
	9	Communicates oral and written using a foreign language at least at the level of European Language Portfolio B2.	X				
	10	Conveys the process and results of the studies in written and oral form in a systematic and clear manner in national and international environments within or outside the field.				X	
	11	Knows the social, environmental, health, security, legal aspects of engineering applications; project management, and business lifeX applications and be aware of the constraints of these engineering applications.					
	12	Considers social, scientific and ethical values in the stages of data collection, interpretation and announcement and in all professional activities.	X				
The Course's Lecturer(s) and Contact Informations		Name Surname: Assist. Prof. Dr. Uraz Yavanoğlu E-mail address: uraz@gazi.edu.tr					