



Course Information

Course Code	1210238
Course Section	1
Course Title	INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS IN PLANNING
Course Credit	3
Course ECTS	5.0
Course Catalog Description	The course includes lectures where the history, characteristics and applications of GIS are discussed. In labs students practice how to use and apply the information they learned in regular lectures. ESRI's ArcGIS software is used in lab sessions, where students learn how to analyze and display geospatial data. GIS has a wide range of applications on several research fields. Among all possible applications, the lab exercises primarily focuses on city and regional planning.
Prerequisites	No prerequisites
Schedule	Wednesday, 09:40 - 13:30, MimBilLab

Instructor Information

Name/Title	Assist.Prof.Dr MELTEM ŞENOL BALABAN
Office Address	METU Faculty of Architecture City and Regional Planning Department, Annex Building Room # 322
Email	mbalaban@metu.edu.tr
Personal Website	http://crp.metu.edu.tr/staff/meltem-senol-balaban
Office Phone	
Office Hours	Wednesday; 14:00-15:00
Name/Title	Assist.Prof.Dr MÜZEYYEN ANIL ŞENYEL
Office Address	METU Faculty of Architecture City and Regional Planning Department New Building #425
Email	senyel@metu.edu.tr
Office Phone	210 6212
Office Hours	Wednesday; 14:00-15:00

Course Assistants

Name/Title	Araş.Gör. ESMA AKSOY
Office Address	
Email	
Office Hours	

Course Objectives

Geographical Information Systems (GIS) are tools for capturing, storing, querying, analyzing and displaying geospatial data. This course is an introduction to GIS, which covers the methods and practical applications of linking data to locations and discovering spatial relationships. This course intends to help students understand how to manage and process geographical information using GIS. Theoretical discussions are complemented with practical applications through lab sessions.

Course Learning Outcomes

The students are expected to comprehend uses and tools of GIS by the end of this course. They will be able to build, analyze and display geospatial data using a GIS software.

Program Outcomes Matrix

Undergraduate



Program Outcomes	Level of Contribution			
	0	1	2	3
1 Knowledge and internalization of the concepts of social responsibility and public interest	X			
2 Giving priority to these concepts in planning and practice				X
3 Commitment to professional ethics and values		X		
4 Capacity to independently carry out individual tasks and studies				X
5 Ability to work as a responsible team member as well as a leader in team works			X	
6 Professional competency to carry out plans and projects with the utmost quality				X
7 In the fields of planning and design: * Knowledge of planning theories * Ability to integrate theory and practice * Competency in problem definition, critical approach, and usage of analysis methods and techniques * Skills of inter-disciplinary and multi-dimensional thinking, analysis, synthesis, implementation, and development of alternative plans and design solutions			X	
8 In both Turkish and English: * Knowledge of professional terminology * Ability to carry out and present original studies * Skills of expressing oneself				X
9 Lifelong learning skills and attributes				X
10 Competency in process design and management				X

0: No Contribution 1: Little Contribution 2: Partial Contribution 3: Full Contribution

Instructional Methods

Since this course is a hands on training course classes are mainly based on lab. uses. First half of the course in each week will convey theoretical background and examples throughout the world, second half will conduct computer applications of the week's topic.

Tentative Weekly Outline

Week	Topic	Relevant Reading	Assignments
1	Introduction to GIS and Spatial Data Maps and Map Analysis, Data Types, Overview of GIS Software		Assignment 1: a summary document of week 1
2	Coordinate Systems, Projections and Geo-referencing; lab exercises on Projections, Geo-referencing, Selection, Building a Query Expression (SQL)		Assignment 2
3	Vector Data and Analysis; lab exercises on Vector Operations, Geoprocessing		Assignment 3
4	More exercises on Vector Data and Analysis		Assignment 4
5	Raster Data and Analysis; lab exercises on Raster Operations, Map Algebra		Assignment 5
6	No course since the students have Studio Trip.		



Week	Topic	Relevant Reading	Assignments
7	Spatial Analysis and Data Display; lab exercises on Relationships (join-relate functions), Map Design and Layout		Assignment 6
8	More lab exercises on Spatial Analysis and Data Display		Assignment 7
9	Mid-Term: Several Operations and Creating Thematic Maps		
10	Digital Mapping; Digitizing process and transformations		Assignment 8
11	Data Operations; lab exercises on Editing tools, creating a new shp/feature class files and several exercises		Assignment 9
12	Visual Programming and Model Builder exercises		Assignment 10
13	Semester Wrap-up and discussion on final projects		-
14	Discussions on final projects and preparations		-

Course Textbook(s)

Chang, K. 2014. *Introduction to Geographic Information Systems*, 7th ed., McGraw-Hill: Singapore.

Clarke, K., C. 2011. *Getting Started with Geographic Information Systems*, 5th ed., Prentice Hall: Boston.

Demens, M., N. 2009. *Fundamentals of Geographic Information Systems*, 4th ed., John Wiley and Sons: Phoenix.

Course Material(s) and Reading(s)

Material(s)

ArcGIS online documentation, <http://desktop.arcgis.com/en/documentation/>

QGIS online documentation, <http://www.qgis.org/en/docs/index.html>

Reading(s)

ArcGIS online documentation, <http://desktop.arcgis.com/en/documentation/>

QGIS online documentation, <http://www.qgis.org/en/docs/index.html>

Supplementary Readings / Resources / E-Resources

Resources

<http://desktop.arcgis.com/en/arcmap/10.3/main/get-started/arcgis-tutorials.htm>

Assessment of Student Learning

Assessment	Dates or deadlines
Attendance: Students who did not participate less than 40% of the classes will be graded NA. Attendance will affect total grade as 10%.	Weekly



Assessment	Dates or deadlines
Assignments: The homework assignments will be designed to help you learn specific skills covered in class. A one sheet of paper summary of what you have learned during the class will be prepared, and due at the beginning of the next class. No late work will be accepted, besides in excused (instructor approved) circumstances.	See Weekly Outline
Mid-term Exam will be on lab. by using program. More detailed instructions regarding format and content of the exam will be given later in the semester.	10 April
Final Project and Presentation: Projects will be prepared in groups of two. It is announced in class one month before the submission and presentation.	any date btw 23 May - 4 June. Please follow the final dates.

Course Grading

Deliverable	Grade Points
Mid-term Exam	35
Pop Quizzes	10
Weekly assignments	10
Attendance	10
Final Project and Presentation	35
Total	100

Course Policies

Class Attendance

Students who did not participate less than 40% of the classes will be graded NA.

The course will start on time (9:40) please be on time, if not you cannot catch up the course. Later than 9:50 cannot be welcomed!!!

Late Submission of Assignments

For the weekly assignments late submissions will not be accepted. Before the lecture starts they are collected and graded.

For the Final Projects' submissions please consult with the lecturers one week before the submission date.

Make up for Exams and Assignments

No make-ups.

Final Exam Entrance Conditions

Final project design should be discussed with the lecturers at first, otherwise the project will not be graded.

Class and Laboratory Rules (Eating-Drinking, Use of Mobile Phones and Electronic Devices, Civility, etc.)

Eating-Drinking, Use of Mobile Phones and Electronic Devices are all forbidden not only during mid-term exam but also during the lab sessions.

Other

After each week's course students should prepare a summary document that is about what they have learned during the class. Hand writing is necessary. The assignments will be submitted to beginning of the next week's class.

Information for Students with Disabilities



To obtain disability related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the ODTÜ Disability Support Office as soon as possible. If you need any accommodation for this course because of your disabling condition, please contact me. For detailed information, please visit the website of Disability Support Office: <http://engelsiz.metu.edu.tr/>

Academic Honesty

The METU Honour Code is as follows: *"Every member of METU community adopts the following honour code as one of the core principles of academic life and strives to develop an academic environment where continuous adherence to this code is promoted. The members of the METU community are reliable, responsible and honourable people who embrace only the success and recognition they deserve, and act with integrity in their use, evaluation and presentation of facts, data and documents."*