CRP 338 INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Course Code:	*1210338*
METU Credit (Theoretical-Laboratory hours/week):	*3(1-2)*
ECTS Credit:	*5.0*
Department:	*City and Regional Planning*
Language of Instruction:	*English*
Level of Study:	*Undergraduate*
Course Coordinator:	*Asst. Prof. Dr. Meltem Şenol Balaban*
	Dr. M. Anıl Şenyel
Offered Semester:	*Spring Semester*

Course Objective

Geographical Information Sytems (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 Content

The course includes lectures where the history, characteristics and applications of GIS are discussed, and labs where students practice how to use and apply the information they learned in regular lectures. ESRI's ArcGIS 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.

Reference Material:

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.
ArcGIS online documentation, http://desktop.arcgis.com/en/documentation/
QGIS online documentation, http://www.qgis.org/en/docs/index.html

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.

Grading:

Course requirements include a mid-term project and a final project. There will also be pop-quizzes, which will have no make-up, and will be graded as attendance. Grading will be as follows:

Mid-Term assignment: 40%

Final assignment: 50%

Attendance: 10%

Students who did not participate less than 30% of the classes will be graded NA. **All submissions will be in .jpeg format, not in .mxd.**

The maps should include a supplementary file, introducing the layers you have used, and step by step operations you have performed (in word or excel).

Weekly Program:

Week	Date	Lecture	Lab
Week 1	21.02.2017	Introduction to GIS and Spatial Data	No lab
Week 2	28.02.2017	Maps and Map Analysis, Data Types, GIS Software	Software Interface, Shapefiles, Attribute Tables, Geodatabase
Week 3	07.03.2017	Coordinate Systems, Projections and Georeferencing	Projections, Georeferencing, Selection, Building a Query Expression (SQL)
Week 4	14.03.2017	Vector Data and Analysis	Vector Operations, Geoprocessing
Week 5	21.03.2017	STUDIO TRIP	NO CLASS/Free Study Time @ the Lab
Week 6	28.03.2017	Raster Data and Analysis	Raster Operations, Map Algebra
Week 7	04.04.2017	Spatial Analysis and Data Display	Relationships, Map Design and Layout
Week 8	11.04.2017	**Mid-Term: Several Operations and Creating Thematic Maps**	
Week 9	18.04.2017	Data Operations	Editing tools, creating a new shp/feature class files
Week 10	25.04.2017	Data Operations	Editing tools, digitizing process
Week 11	02.05.2017	Visual Programming	Model Builder
Week 12	09.05.2017	Network Operations	Network Analysis, discussion on final projects
Week 13	16.05.2017	Semester Wrap-up and discussion on final projects	
Week 14	23.05.2017	Semester Wrap-up and discussion on final projects	

Final date will be announced!