College of Engineering Department of Civil Engineering



CE 550 Geographic Information Systems (GIS) Applications in Transportation

Credit and Contact hours	3 / 3 (Lectures), 0 (Tutorials), 0 (Laboratory)		
Required, or Elective	Elective		
Course Description	This course aims to provide a comprehensive understanding of the fundamentals of the Geographic Information Systems (GIS) and introduce transportation infrastructure and road safety related data collection, and analytical methodologies and techniques using GIS. Topics include: basics of GIS, geospatial data and geo-referencing techniques, visualization and GIS data query, spatial analysis and modeling, multilayer mapping and overlay analysis, micro and macro simulation models, and heat maps and hotspot analysis.		
Prerequisites or Co- requisites	None		
	Students completing this course successfully will be able to:		
	Course Learning Outcomes (CLOs)	Related Student Outcomes (SO)	
Course	Course Learning Outcomes (CLOs) CLO1. Demonstrate a comprehensive and in-depth understanding of GIS fundamentals. K1	Related Student Outcomes (SO) SO1	
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	4. Geographic Data Analysis	CLO 4	
Textbook(s) and Other Required Material	 Miller, H.J. and Shaw, SL. (2001): Geographic Information Systems for Transportation: Principles and Applications [Chapter 1: Introduction, pp. 1-7]. New York: Oxford University Press Longley, P.A., Goodchild, M.F., Maguire, D.J. and Rhind, D.W. (2015): Geographic Information Science & Systems [Chapter 1: Systems, Science, and Study, pp. 1-33], 4th edition. Hoboken, NJ: Wiley 		
Grading System	Assignments25Term paper15Project –report and oral presentation20Final Exam40	% % %	
Instructors	Dr. Khalid F. Alkahtani; Office: 2A07; Email: kkahtani@ksu.edu.sa		
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