College of Engineering Department of Civil Engineering



CE 532 Advanced Transportation Planning

Credit and Contact hours	3 / 3 (Lectures), 0 (Tutorials), 0 (Laboratory)			
Required, or Elective	Required			
Course Description	This course offers a detailed treatment of the long-term strategic planning aspects of transport systems. The course provides a broad overview of the concepts, issues, techniques, and possible solutions involved in transport planning and evaluation, including environmental and economic considerations. The course focuses on the issues of assessing sustainable development and its relevance in transport, and the problems it poses to transport planning in developing a sustainable transport system.			
Prerequisites or Co- requisites	None			
Course Learning Outcomes	Students completing this course successfully will be able to: Course Learning Outcomes (CLOs) CLO1. Describe the relationships between Land Use, Transport and the Environment. K1	Related Student Outcomes (SO) SO1		
	CLO2. Recognize and describe the importance of transport systems within the framework of sustainable development, and the concepts for the purpose of transport infrastructure. K1	SO1		
	CLO3. Apply computational methods related to various stages of transportation planning and travel demand forecasting model, including trip generation, trip distribution, mode choice, and traffic assignment. S1	SO2		
	CLO4. Apply computational methods for the planning of public transport systems and urban planning concepts for the purpose of transport infrastructure. S2	SO3		
	CLO5. Evaluate transport system conditions based on demand forecasts in real-life transport projects through a variety of economic analysis methodologies (e.g. cost-	SO7		
	benefit analysis, multi-criteria analysis). V2			
Student	 benefit analysis, multi-criteria analysis). V2 SO 1 Recognize advanced engineering knowledge, concepts, and techniques to interpret, and analyze complex and real-life engineering problems. 	o identify,		
Student Outcomes related to	 benefit analysis, multi-criteria analysis). V2 SO 1 Recognize advanced engineering knowledge, concepts, and techniques to interpret, and analyze complex and real-life engineering problems. SO 2 Provide solutions for complex and real-life engineering problems throug and the use of modern engineering tools, and identify their impact on soc cultural, environmental, safety, and economic factors. 	o identify, h critical thinking ial, global,		

	SO 7 Effectively manage, individually or in groups, specialized tasks and activities in coursework, projects, assignments, and research work with a high level of autonomy and responsibility.			
Topics Covered	List of Topics		Related CLOs	
	1. Course introduction, project assignment		CLO I	
	2. Transport Modes and Traffic characteristics		CLOI	
	3. Framework of sustainable development and transport infrastructure		CLO 2	
	4. Transport demand and trip generation		CLO 3	
	5. Trip Distribution		CLO 3	
	6. Mode Choice modelling		CLO 3	
	7. Traffic Assignment concepts, model types		CLO 3	
	8. Transport System Equilibrium		CLO 3	
	9. Economic evaluation of transport projects		CLO 5	
	10. Public transport systems, Fleet size calculations		CLO 4	
	11. Public transport demand forecast		CLO 4	
	12. Environmental impacts and sustainable transport		CLO 5	
	13. Revision/Project Presentations		CLO 5	
1 extDook(s)	Modelling Transport 4th Edition Jus	n de Dies Ortuzer I	nia C	
and Other Required	• Modelling Transport, 4th Edition, Juan de Dios Ortuzar, Luis G.			
Material	willumsen, ISBN: 978-0-470-76039-0			
Grading System	Project progress report -Part one	2.5%		
	Project progress report -Part Two	2.5%		
	Term paper	15%		
	Mid-term exam	20%		
	Project – Final report and oral presentation	20%		
	Final Exam	40%		
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Date of Review	March, 2025			