Subject Description Form

Subject Code	CSE30292
Subject Title	Transportation Operations and Management
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	Pre-requisite: CSE291 or EE2029B
Objectives	1. To provide the students with the knowledge of operations in various transportation systems. 2. To introduce the engineering problems arising from the operations of transportation systems. 3. To discuss the characteristics and performance evaluation of transportation operations and management measures. 4. To understand the inter-modal transportation connections, transfers and competitions.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Discriminate the basic characteristics of various transportation systems. b. Demonstrate understanding of the fundamentals of transportation operations and management. c. Conduct simple design on traffic signal and transit schedules. d. Select appropriate operations and management strategy based on different conditions and constraints. e. Be ready to take further subjects on individual transportation systems at higher levels.
Subject Synopsis/ Indicative Syllabus	1. *Road transportation* (3 weeks) Transportation facility planning procedures; Travel demand and traffic data collection; junction control, traffic signal, basic fixed time traffic signal design, signal coordination; traffic management measures. 2. *Urban transit and railway transportation* (3 weeks) Transit operations and service scheduling; transit route planning; transit line capacity; capacities of different transit modes; measures for increase of transit speed; rail traffic control; optimizing transit operations. 3. *Air transportation* (2weeks) Civil aviation and structure of the airline industry; aircraft characteristics and performance; navigation and traffic control; airport planning and design. 4. *Transportation terminals*: (4 weeks) Types and characteristics of terminals (sea ports, rail-yards, airports, parking lots); Analysis of terminal operations (queueing theory, Monte Carlo simulation), parking studies
Teaching/Learning Methodology	The key concepts and techniques covered in this subject are discussed in lecture. To strengthen understanding and provide opportunities for students to appreciate what they have learnt, students will have chances to do presentations, discussions, and hands-on exercise both in the lectures and the tutorials. Furthermore, individual assignments consisting of essays and numerical problems let students demonstrate their level of

			understanding and create evidence of learning.				

Assessment Methods in Alignment with Intended Learning Outcomes	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed				
			a	b	c	d	e
	1.Assignments and in-class exercise	25%	✓	✓	✓	✓	✓
	2.Mid-term test	15%	✓	✓	✓	✓	✓
	3.Final examination	60%	✓	✓	✓	✓	✓
	Total	100%					

Students must attain at least grade D in both coursework and final examination (whenever applicable) in order to attain a passing grade in the overall result.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The students will be assessed with three components: written assignments and in-class exercise, a midterm test and a final exam. The written assignments will consist of both numerical and descriptive problems, and the in-class exercise includes discussions and presentations. They are aimed at measuring students' attainment of the intended learning outcomes in different aspects. The numerical problems target at ability in conducting transportation system design. The essay problems and the in-class presentations and discussions provide opportunities for students to develop deeper understanding to operations and management of various transportation modes, demonstrate students' ability to think critically in the selection of operations and management strategy and to enhance their effective communication skills. These are appropriate in achieving intended learning outcomes (a), (b), (c), (d), and (e). The midterm test and the final exam are conducted at different times in the semester to consolidate students' knowledge in lectures, tutorials, and other class activities. They are appropriate in assessing intended learning outcomes (a), (b), (c), (d), and (e).

Student Study Effort Expected	Class contact:	Average hours per week
	▪ Lectures/Tutorials/Laboratory	3 Hrs.
	Other student study effort:	
	▪ Reading and Studying	3 Hrs.
	▪ Completion of assignments and class presentations	3 Hrs.
	Total student study effort	9 Hrs.

Reading List and References	**Textbooks** 1. C.F. Daganzo, *Fundamentals of transportation and traffic operations*, Pergamon, 1997 2. Vukan R. Vuchic, Urban *Transit: Operations, Planning and Economics*. John Wiley & Sons, 2005 3. Roger P. Roess, Elena S. Prassas, William R. McShane, *Traffic Engineering*, Pretience Hall, 2004

References
1. Transport Department, *Transportation Planning and Design Manual*, 2008
2. Transportation Research Board, *Highway Capacity Manual 2000*, 2000
3. P.H. Wright, N.J. Ashford, and R.J. Stammer, Jr., *Transportation Engineering: Planning and Design*, John Wiley, 4th Ed., 1997
4. C.J. Khisty and B.K Lall, *Transportation Engineering: An Introduction*, 3rd Edition, Prentice Hall, 2003

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