

Subject Description Form

Subject Code	CSE30292
Subject Title	Transportation Operations and Management
Credit Value	3
Level	3
Pre-requisite/ Co-requisite/ Exclusion	Nil
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. Identify the basic characteristics of various transportation systems. b. Discuss the major issues pertaining the operations and management of specific transportation systems. c. Conduct simple design on traffic signal and transit schedules. d. Select appropriate operations and management strategy based on different conditions and constraints.
Subject Synopsis/ Indicative Syllabus	1. Road transportation (4 weeks) 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 (4 weeks) Transit operations and service scheduling; transit line capacity; capacities of different transit modes; measures for increase of transit speed; rail traffic control; optimizing transit operations. 3. Air transportation (1 week) Civil aviation and structure of the airline industry; aircraft characteristics and performance; navigation and traffic control. 4. Transportation terminals (4 weeks) Types and characteristics of terminals (seaports, railyards, airports, parking lots); Analysis of terminal operations (queueing theory, Monte Carlo simulation).

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	<table><tr><th rowspan="2">Specific assessment methods/tasks</th><th rowspan="2">% weighting</th><th colspan="4">Intended subject learning outcomes to be assessed</th></tr><tr><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>1. Assignments</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>2. Two Quizzes</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>3. Final examination</td><td>60%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>Total</td><td>100%</td><td colspan="4"></td></tr></table> Students must pass the final examination and achieve a passing overall score / grade to pass the subject. 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, two quizzes and a final exam. All the aforementioned assessments will consist of both numerical and descriptive problems. The numerical problems target at ability in conducting transportation system design. The descriptive problems 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), and (d).						Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed				a	b	c	d	1. Assignments	20%	✓	✓	✓	✓	2. Two Quizzes	20%	✓	✓	✓	✓	3. Final examination	60%	✓	✓	✓	✓	Total	100%				
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Reading List and References	Textbooks 1. Vuchic, V. (2005). <i>Urban transit : Operations, planning and economics</i>. Hoboken, N.J: John Wiley & Sons. 2. Roess, R., Prassas, Elena S, & McShane, William R. (2011). <i>Traffic engineering</i> (4th ed.). Upper Saddle River, N.J: Pearson. 3. Fricker, J., & Whitford, Robert K. (2004). <i>Fundamentals of transportation engineering : A multimodal systems approach</i>. Upper Saddle River, NJ: Pearson Prentice Hall. References 1. Hong Kong. Transport Dept. (2020). <i>Transport Planning & Design Manual</i>. 2. National Research Council. Transportation Research Board. (2000). <i>Highway capacity manual</i> (Special report (National Research Council (U.S.). Transportation Research Board) ; 209). Washington, D.C: The Board. 3. Wright, P., Ashford, Norman, & Stammer, Robert. (1998). <i>Transportation engineering : Planning and design</i> (4th ed.). New York: J. Wiley.
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