Subject Description Form

Subject Code	CSE516
Subject Title	Urban Transport Planning - Theory and Practice
Credit Value	3
Level	5
Pre-requisite/ **Co-requisite/** **Exclusion**	Recommended background knowledge: It is expected that students will have a fundamental understanding of mathematics, statistics, and computers consistent with undergraduate level study in science or engineering.
Objectives	To provide a comprehensive theoretically based, yet practical approach to transport planning in urban areas. Emphasis is also placed on the application of rigorous transport models and analytical techniques in case studies.
Intended Learning Outcomes	Upon completion of the subject, students will be able: a. to apply basic transport planning approaches to determine appropriate solutions for solving congestion problems, particularly in the planning stage for transport infrastructure projects; b. to design and conduct traffic surveys for assessment of the impacts due to transport improvement projects, and other travel demand management measures; c. to analyze and interpret data systemically from traffic and behavior surveys for strategic transport planning and travel demand forecasting; and d. to utilize the four-step modelling techniques for forecasting future travel demand and analyzing the effects of transport infrastructure facilities on a transport system.
Subject Synopsis/ Indicative Syllabus	**Keyword Syllabus** i) Fundamentals of Urban Transport Planning The fundamentals of land-use and transport planning; the planning process; planning studies; congestion problems and transport policy. ii) Urban Transport Technology Urban transport modes and technologies; intelligent transport systems. iii) Travel Demand and Data Collection Characteristics of travel demand; travel demand forecasting; travel surveys.

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<tr><td></td><td>iv) <u>Travel Demand Analysis</u>
Model development; nature of modelling errors. Four step models: trip generation; trip distribution; modal split; traffic assignment. Simplified approach to small area planning.

v) <u>Generation and Evaluation of Solutions</u>
Evaluation techniques: economics, operation and environmental evaluation; multi-criteria assessment; public participation; case studies.

vi) <u>Traffic Impact Assessment</u>
TIA guidelines, methodology, and examples.

vii) <u>Laboratory</u>
This course will be augmented by computer modelling and case studies for input to calibrate transport planning models: Network building; trip generation; trip distribution and modal split; traffic assignment; transport system evaluation.

Computer laboratory: transportation network modeling</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The underlying principles and techniques relating to traffic survey and transport planning will be dealt with in lectures. However, it is important that the students are exposed to the interdependence between theories and practice in transport planning. Students are therefore required to undertake survey design and data collection in order to understand the associated techniques in practice. Individual assignments will consist of numerical problems on transport modelling and analysis while computer laboratory sessions will be held to demonstrate the applications of transport model and to provide opportunity for students to appreciate the difference between manual calculation and computer modelling. The course project aims at developing a holistic understanding on contemporary urban transportation problems and devising solutions from both theoretical and practical perspectives. Professionals from government or industry may be invited to give lectures on current issues of transport planning in Hong Kong.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="4">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td></tr>
<tr><td>1. Continuous Assessment</td><td>60%</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2. Written Examination</td><td>40%</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>Total</td><td>100%</td><td colspan="4"></td></tr>
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	Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: Continuous assessment will be based on written assignment(s) and lab reports. **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.**
Reading List and References	**Textbooks** Ortúzar, J. de D. and Willumsen, L.G., *Modelling Transport*, 4th Ed., John Wiley & Sons (2011). **Reference Books** Hensher, David A. and Button, Kenneth J., *Handbook of Transport Modelling*, Elsevier Science Ltd. (2000). Lam, W.H.K. and Bell, M.G.H., *Advanced Modeling for Transit Operations and Service Planning*, Pergamon, Elsevier Science Ltd., Oxford (2003). Sheffi, Yosef, *Urban Transportation Networks*, Prentice-Hall (1985).