

Session 2 2009



CVEN 4401 URBAN TRANSPORT PLANNING

COURSE DETAILS

Units of Credit 6
Contact hours 4.5 hours per week

Lecture Thursday, 4.00 - 7.00
Tutorial Thursday, 7.00 - 8.30

Lecturers Upali Vandebona (UV), course coordinator
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INFORMATION ABOUT THE COURSE

This course presents a detailed treatment of the long term strategic planning aspects of transport systems. The course gives a broad overview of the issues, techniques, problems and possible solutions involved in transport planning and evaluation, including environmental and economic considerations. The program focuses on the issues of Ecologically Sustainable Development and its relevance in transport, and the problems it poses to transport planning in developing a sustainable transport system.

Link to virtual handbook:

<http://www.handbook.unsw.edu.au/undergraduate/courses/2009/CVEN4401.html>

OBJECTIVES

This course introduces the conventional four-step travel forecasting procedure, as currently applied in urban areas throughout the world. The unit will complement those learnt in the other transport units to provide a well-rounded knowledge of transport planning and management. The main topics include an overview of the transport planning system, land-use models, network construction, data requirements, trip generation models, trip distribution models, mode choice models, highway paths and assignment, transit paths and assignment, validation and acceptance testing, and forecasting. The course will also allow students to practice using transportation forecasting software in a project assignment. The focus is on the application of transport models in real world settings.

The following describes the learning goals that this course aims to achieve and details how the achievement of these goals will be assessed.

- Apply concepts, techniques and principles that underlie transport planning and analysis.
- Manage the impacts of future trends in transport management, planning and analysis.
- Use contemporary modelling techniques to solve problems in transport planning and analysis).

- Engage in lifelong learning, reflective thinking and self and peer assessment.
- Communicate effectively in verbal, written and group contexts to a professional standard.
- Lead and participate in teams (including members from diverse cultural backgrounds); manage, persuade and influence others.

TEACHING STRATEGIES

The following teaching strategies will be used the course.

Private Study

- Review lecture material and textbooks
- Do set problems and assignments
- Use WebCT for discussions
- Download class notes from WebCT if not collected during classes
- Reflect on class problems and assignments

Lectures

- Find out what you must learn
- See methods that are not in the textbooks
- Follow worked examples
- Hear announcements on course changes

Tutorials

- Be guided by tutors
- Practice solving set problems
- Ask questions

Assessments

- Demonstrate your knowledge and skills
- Demonstrate higher understanding and problem solving abilities

EXPECTED LEARNING OUTCOMES

By successfully completing this course you will be able to

- Recognise the importance of transport within the framework of Ecologically Sustainable Development;
- Describe the relationships between Land Use, Transport and the Environment;
- Use computation methods related to various stages of transport planning and travel demand forecasting, including trip generation, trip distribution, mode choice and traffic assignment.
- Illustrate transport system equilibrium with simple examples of land use - transport interaction;
- Evaluate the transport system conditions based on demand forecast;
- Apply computational methods for the planning of public transport systems;
- Calculate the costs and benefits of simple transport projects;
- Evaluate the economic consequences of various transport project alternatives.

- Evaluate the harmful impacts of transport and traffic on the environment and identify management measures to minimise these impacts;
- Explain the various levels of air pollution and their relationships with transport.
- Describe planning methods used to minimise air pollution from transport.

For each hour of contact it is expected that a student will put in at least 1.5 hours of private study.

ASSESSMENT

The final grade for this course will be based on the sum of the scores from the assignment and the final examination. For the values of the single components see the table below:

Item	Topic	Weight	Due Date
1	Project progress report	5 %	27 August
2	Project progress report	5 %	24 September
3	Modelling project	50%	15 October
4	2 hour examination	40%	S2 Exams

The Final Examination is closed-book. Its duration is 2 hours. The questions will embrace the whole of the subject material presented. The formal exam scripts may not be retained by candidate. Students who perform poorly in the assignment and tutorials are recommended to discuss progress with the lecturer during the semester. The lecturer reserves the right to adjust the final scores by scaling if agreed to by the Head of School.

ASSIGNMENTS

The assignment is a modelling exercise of a hypothetical city using the CUBE Voyager software. A detailed assignment brief is supplied separately. It is a small group assignment for pairs of students, including a 10-page project report submission, plus oral presentation.

COURSE PROGRAM

Week	Topic (lecturer)	Tutorial	Assignments
1	Course introduction, project assignment (UV)	CUBE	
2	Transport Modes and Traffic characteristics (PH)	CUBE	
3	Transport demand and trip generation (PH)	CUBE	
4	Trip Distribution (PH)	CUBE	
5	Mode Choice modelling (PH)	CUBE	
6	Traffic Assignment concepts, model types (PH)	CUBE	Progress rep.1
7	Transport System Equilibrium (PH)	CUBE	
8	Economic evaluation of transport projects (PH)	CUBE	
9	Public transport systems, Fleet size calculations (UV)	CUBE	Progress rep.2
10	Public transport demand forecast (UV)	CUBE	
11	Environmental impacts and sustainable transport (PH)	CUBE	
12	Revision/Project Presentations (PH)	CUBE	Assignment

REQUIRED/RECOMMENDED READING

All compulsory material required for this unit is provided to students in the lecture notes handed out during the lectures. Recommended reading references are listed below.

AUSTROADS (1996) Benefit Cost Analysis Manual. Austroads Publication No. AP-42/96. Sydney.

Black, J. (1981) Urban Transport Planning: Theory and Practice, (London: Croom Helm).

Hensher, D.A. and Button, K.J. (2000) Handbook of Transport Modelling, Pergamon.

AUSTROADS (1988). Guide to Traffic Engineering Practice, (Sydney)

Part 1. Traffic Flow.

Part 2. Roadway Capacity.

Part 3. Traffic Studies.

Ortuzar, J. D. and Willumsen L. G. (1994) Modelling Transport, 2nd edn. Wiley.

Richardson, AJ, Ampt, ES and Meybourg, AH (1995) Survey Methods for Transport Planning, Eucalyptus Press, University of Melbourne, Australia.

RTA (1990). Economic Analysis Manual. Roads and Traffic Authority of New South Wales. Prepared and Coordinated by the Programming Strategy Branch. Updated in 1996, Sydney.

Taylor, MAP, Young, W and Bonsall, P (1996) Understanding Traffic Systems - Data, analysis and presentation, Avebury Technical, Ashgate, England.

Thomas, R. (1991) Traffic Assignment Techniques, Avebury Technical.

Transportation Research Board (1994) Highway Capacity Manual: Special Report 209. Third Edition (Washington, D.C.: Transportation Research Board, National Research Council).

Most of these references are available in the UNSW Library.

WEBCT

Copies of class notes are available in WebCT:

<http://vista.elearning.unsw.edu.au/webct/entryPageIns.dowebct>

DATES TO NOTE

Refer to MyUNSW for Important Dates available at:

<https://my.unsw.edu.au/student/resources/KeyDates.html>

COMMON SCHOOL INFORMATION

Common School information may be found at:

http://www.civeng.unsw.edu.au/currentstudents/ug/common_ug/index.html

To navigate to this website from the Civil and Environmental Engineering School Home page:

→ Current Students → General Information → Common School Info for Undergraduate Students

The Common School Information site has information on the following:

1. Dates to Note - important dates relating to enrolling and disenrolling, and a University website (via MyUNSW) with a calendar of other important UNSW dates (semester dates, recess weeks, stuvac dates and exam periods).
2. School Contacts
 - i. for enrolment or timetable difficulties,
 - ii. referral chain of contacts for course difficulties:
Course Coordinator/Lecturer → Year Coordinators → Grievance Officer,
 - iii. Advanced Standing, and
 - iv. Mentoring.
3. Course Requirements
 - i. attendance at lectures, tutorials and laboratory classes,
 - ii. participation in tutorials, and
 - iii. completion of assessment work.
4. Notes on Assessment
 - i. plagiarism (with link to UNSW Learning Centre web site on plagiarism),
 - ii. keep a copy of written submissions,
 - iii. submitting assignments, and
 - iv. late submissions (obtaining extensions and special consideration)
5. Supplementary Exams - includes link to School website with School policy on supplementary exams.
 - i. Special Consideration - includes link to UNSW website (New South Q) for downloading forms, requirements for lodging special consideration forms.
6. Solutions to Problems - Troubleshooters
 - i. Learning Centre,
 - ii. student counsellors, and
 - iii. student support services.
7. CEVSOC - student committee membership and link to (unofficial) student CEVSOC website.

The minimum attendance requirement is 80% of all classes, including lectures and tutorials. You may fail the course if more than 20% absences are recorded. Please see the section on Special Consideration.

For information about:

- Notes on assessments and plagiarism,
- School policy on Supplementary exams,
- Special Considerations,
- Solutions to Problems,
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC.

Refer to Common School Information on the School website available at:

http://www.civeng.unsw.edu.au/currentstudents/ug/common_ug/index.html