



SCHOOL OF CIVIL ENGINEERING

Unit Outline Prepared by:	Dr. Jonathan Bunker	Date.:	April 2002
UNIT TITLE:	Transport Engineering 2	UNIT CODE:	CEB508
DISCIPLINE CODE:	0309090	SEMESTER/YEAR:	Sem 1, Elective
CREDIT POINTS	12		
PREREQUISITES:	CEB214, CEB323		
STAFF DETAILS:			

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1. Rationale

The transport engineer must be familiar with the role of each transport mode in the overall transport task, along with the operational aspects of each mode. This must be overarched by an understanding of the system for planning, operation and management of transport projects and systems, particularly in context with economic, environmental and social attributes.

This unit builds upon the knowledge and skills developed in the unit Transport Engineering 1 to provide students who wish to pursue a career in transport engineering with this essential understanding.

2. Aims

The aim of this unit is to development students' awareness and abilities sufficient for entry to practise as a graduate in the transport engineering discipline.

3. Objectives

Technical

If you participate in and pass this unit you should be able to:

1. demonstrate an understanding of the appropriate role of each transport mode;
2. offer informed analysis of the operational processes associated with each mode;
3. demonstrate an understanding of the system for planning, operation and management of transport projects and systems;
4. undertake an evaluation of a transport project or plan with respect to its economic, environmental and social attributes.

Generic Capabilities

By the completion of this unit, you should have become aware of your current abilities in the following generic and professional capabilities, and should have progressed in the development of them:

- (a) *Communication* – oral, written and graphical communication, and articulate ideas

- (b) *Discipline Knowledge* – extensive theoretical knowledge, apply knowledge, discern deficits and maintain awareness
- (c) *Work Practices* – manage time, achieve end results, accept responsibilities, awareness of own limitations and work with other disciplines
- (d) *Interpersonal skills* – effective teamwork, empathise, listening and negotiation skills and assertiveness
- (e) *Community & Global Awareness* – awareness of global issues, appreciate differences and work sensitively
- (f) *Environmental & Sustainability Awareness* – awareness of environmental and sustainability issues, understand and employ ESD principles
- (g) *Ethical Behaviour* – sense of professional responsibility, value honesty and accountability and abide by Code of Ethics
- (h) *Thinking Skills & Problem Solving* – critical, creative, analytical and reflective thinking and solve problems
- (i) *Information Literacy* – use current technologies, retrieve relevant information, continued development and lifelong learning
- (j) *Systems Approach* – identify the primary purpose and users, decompose a system, trade off between cost and performance, identify and contrast and describe and compare systems

4. Content

- Introduction. Transport in the economy
- Integrated transport planning
- Transport and land use: trip generation, access, parking, amenity
- Transport modeling
- Transport modeling
- Transport modeling, ITP class discussions
- Traffic simulation modeling
- NLW
- Transit operations, field trip
- Transit capacity and quality of service
- Transit capacity and quality of service
- Evaluation of transport projects
- Evaluation of transport projects

5. Teaching & Learning Approaches

A number of teaching methods will be used in this unit to assist the students' learning. **Lectures** will form the basis of delivery of the subject matter and unit housekeeping. Lectures will normally be conducted throughout the semester during the weekly period timetabled. Lectures will vary in duration depending on the use of supporting teaching methods for each topic. An **OLT web site** will be used as a clearinghouse for unit notes and for notices. Some of the topics are well represented on the internet through sites published by government or academic organisations. Assignment 1 will be a learning exercise where student groups will investigate a major transport project or plan. Assignment 1 will include a group discussion session where students will present and discuss their preliminary findings of the ITP reviews. Assignments 2 and 3 will be analytical assignments based material delivered in some of the lectures. Example problem(s) will be reviewed as a tutorial component of these lectures to aid students in an understanding of the analysis to be performed in

the assignment. **Tutorials** will be issued as components of a number of other lectures, which will include questions similar to those that will be examined.

Teaching Mode

Hours per week	Lecture	Tutorial	Pracs
4	2	1.5	0.5

Learning Approaches

Problem-Based	Self-Learning	Individual	Team Based	Experiential Learning	Reflective	Exposition	Presentation
✓	✓	✓	✓	✓			✓

6. Assessment

This unit incorporates formative and summative assessment, through submission of two assignments, which will be returned with feedback to enable students to understand how they are progressing and how their work can be improved. Summative assessment also consists of a formal examination to be sat individually during the formal examination period. This examination will cover all aspects of unit content. The purpose of the assessment is to classify each student's abilities in respect of the professional capabilities and unit objectives as defined in the table below.

Component	Formative	Summative	%	Objectives
Lectures	X	-	-	1-4, (a)-(j)
Tutorial sessions	X	-	-	1-4, (a)-(j)
Assignment 1 (integrated transport)	X	X	20	1-4, (a)-(j)
Assignment 2 (transport modeling)	X	X	20	1-4, (a)-(j)
Assignment 3 (transit capacity & QOS)			20	1-4, (a)-(j)
Final examination	-	X	40	1-4, (a)-(j)
			100%	

7. Resource Materials

The following text will be made available to each student group on loan from the coordinator:

1. Queensland Transport 1999, *Integrated Regional Transport Planning Principles*, Queensland Transport, Brisbane.
2. Particular regional transport planning documents, which will be used as case studies, will also be made available on loan. Others may be accessed through the world wide web. Students may also be required to independently locate and review literature.
3. Class notes will also be posted on the unit OLT site.

Other useful references:

1. Department of Main Roads 2000, *Road Planning and Design Manual* (available on web).
2. Ogden and Taylor 1996, *Traffic Engineering and Management*, Monash University.
3. Transportation Research Board 1998, *Highway Capacity Manual*, Special Report 209, 3rd edition, Washington, D.C.
4. Transportation Research Board 1999, *Transit Capacity and Quality of Service Manual*, TCRP Web Document 6, Washington, D.C. (available on web).

8. Risk Management

Students in this unit will undertake lectures and design sessions during the formal contact time in a QUT lecture theatre/class room. There are no extraordinary workplace health and safety aspects associated with formal contact. Students will be responsible for their own health and safety, and that of other members of the community as a responsible citizen during any field trips or site visits related to the unit.