School of Civil and Environmental Engineering

Term 3, 2020

CVEN9405
URBAN TRANSPROT PLANNING PRACTICE

COURSE DETAILS

Units of Credit	**6**	
Contact hours	4 hours per week	
Class	Monday, 14:00 – 16:00	Weeks 1 – 5 & 7 – 10: Online through Blackboard Collaborate Ultra
Workshop	Monday, 16:00 – 18:00	Weeks 1 – 5 & 7 – 10: Online through Blackboard Collaborate Ultra
Course Coordinator and Lecturer	Divya Jayakumar Nair email: divya.nair@unsw.edu.au office: CE103	

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 course focusses on the issues of assessing sustainable development and its relevance in transport, and the problems it poses to transport planning in developing a sustainable transport system.

HANDBOOK DESCRIPTION

See link to the virtual handbook: https://www.handbook.unsw.edu.au/undergraduate/courses/2020/CVEN9405/

OBJECTIVES

CVEN9405 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, traffic assignment impacts, validation and acceptance testing, and forecasting. 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.

TEACHING STRATEGIES

The teaching strategies that will be used and their rationale are stated below.

Private Study	• Review lecture material and textbook • Do set problems and assignments • Join Moodle discussions of problems • Reflect on class problems and assignments • Download materials from Moodle • Keep up with notices and find out marks via Moodle
Lectures	• Find out what you must learn • See methods that are not in the textbook • Follow worked examples • Hear announcements on course changes
Workshops	• Be guided by demonstrators • Practice solving set problems • Ask questions
Assessments (final examination and assignments)	• Demonstrate your knowledge and skills • Demonstrate higher understanding and problem solving

EXPECTED LEARNING OUTCOMES

This course is designed to address the learning outcomes below and the corresponding Engineers Australia Stage 1 Competency Standards for Professional Engineers, as shown. The full list of Stage 1 Competency Standards may be found in Appendix A.

After successfully completing this course, you should be able to:

Learning Outcome		**EA Stage 1 Competencies**
1.	*Recognise and understand the importance of transport systems within the framework of sustainable development.*	*PE1.1, PE1.3, PE1.6*
2.	*Describe the relationships between Land Use, Transport and the Environment.*	*PE1.1, PE1.2, PE1.3, PE1.5*
3.	*Apply computational methods related to various stages of transport planning and travel demand forecasting, including trip generation, trip distribution, mode choice and traffic assignment.*	*PE1.1, PE1.2, PE1.3, PE2.1, PE2.2, PE2.3*
4.	*Illustrate transport system equilibrium with simple examples of land use and transport interaction.*	*PE1.1, PE1.2, PE1.3, PE2.1, PE2.2*
5.	*Evaluate the transport system conditions based on demand forecasts.*	*PE2.1, PE2.2, PE2.3, PE3.4*
6.	*Apply computational method for the planning of public transport systems.*	*PE1.1, PE1.2, PE1.3, PE2.1, PE2.2, PE2.3*
7.	*Evaluate transport projects through a variety of economic analysis methodologies (e.g. cost-benefit analysis, multi-criteria analysis)*	*PE1.1, PE1.2, PE1.3, PE2.1, PE2.2, PE2.3, PE3.4*
8	*Describe and apply urban planning concepts for the proposal of transport infrastructure*	*PE1.1, PE1.2, PE1.3, PE2.1, PE2.2, PE2.3, PE3.4*

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

COURSE PROGRAM

A table of lectures and workshops or practical class topics for each week, indicating the name of lecturer involved (where multiple lecturers teaching in course), online activities, such as discussion forums, and relevant readings from the textbook and other reference material identified for the course.

Term 3 2020

Date	Topic	Lecture Content	Demonstration Content
14/09/2020 (Week 1)	Introduction to Transport Planning	• Transport Planning Background • 4 Step Modelling Approach • Land Use and Transport	Practice Problems: 4 Step Models and Land Use
21/09/2020 (Week 2)	Cost-Benefit Analysis	Cost-Benefit Analysis Project Application	Practice Problems: Cost-Benefit Analysis
28/09/2020 (Week 3)	Trip Generation – Introduction	• Introduction to Statistics • Introduction to Trip Generation	Practice Problems: Basic Statistics
05/10/2020 (Week 4)	***Public holiday Monday 5th Oct***		
12/10/2020 (Week 5)	Trip Generation- Development and Interpretations	• Trip Generation Rate • Cross-classification • Growth Factor • Regression Analysis	Practice Problems: Trip Generation
19/10/2020 (Week 6)	***Flexibility week for all courses (non-teaching)***		
26/10/2020 (Week 7)	Trip Distribution	• Growth Factor Models • Gravity Model	Mid-Session Exam
02/11/2020 (Week 8)	Trip Distribution & Mode Choice	• Gravity Model • Utility Theory	Practice Problems: Trip Distribution
09/11/2020 (Week 9)	Mode Choice	• MNL Models • NL Models	Practice Problems: Mode Choice
16/11/2020 (Week 10)	Traffic Assignment	User Equilibrium & Applications	Practice Problems: Traffic Assignment

ASSESSMENT

The final grade for this course will be based on the sum of the scores from each of the assessment tasks which include assignments, Moodle quizzes and a Final exam (detailed in the table below). The pass mark in this course is 50% overall. However, students must score at least 40% in the final examination in order to qualify for a Pass in this course. A mark of at least 40% in the final examination is required before the class work is included in the final mark.

For the values of the single components see the table below:

Assessment	Weighting	Assessment Criteria
Moodle Quiz (Week 3)	5%	The online quiz will be administered via Moodle. The Moodle quiz will be based on the material covered in Week 1-3 lectures and workshops. The Moodle quiz will be an open book and is intended to help prepare the students for the final exam. The quiz will be available immediately after the **Week 3 workshop and will be open until 28th September, Monday 11.59PM**. **Failure to complete a quiz within the accessible time period will result in a mark of zero.** The questions will be marked based on technical accuracy
Mid-Term Exam (Week 7)	20%	A mid-session exam will be administered during the workshop on **26th October, Monday between 4PM and 6PM (Week 7)**. The exam will cover course material (Week 1 to Week 5 Lectures/Workshops/Reading resources) and is intended to assess student's knowledge of the expected learning outcomes, prepare students for the final exam, and discourage last minute cramming. **Failure to complete a quiz within the accessible time period will result in a mark of zero.** The quiz will be assessed on technical accuracy.
Assignment	25%	This assignment will be based on the topics covered in Weeks 7 to 10 lectures and workshops. The assignment is designed to assess students understanding of the expected learning outcomes related to trip distribution, mode choice and traffic assignment of the 4 step model. The assignment will be made available at the beginning of Week 7. The last date of submitting assignment is **20th November Friday 11:59PM**. The assignment is for individual assessment and must be submitted via the link available on the Moodle course page. The assignment must have a cover sheet according to UNSW template. The expected outcome of this assignment is to prepare students for the final exam and discourage last minute cramming. The assignment will be assessed based on the technical accuracy of solutions and clarity in the uploaded report.
Final Exam	50%	A 2-hour final exam will be administered at the end of the term to assess the student's knowledge of the material covered throughout the entire course. The exam will be assessed on technical accuracy.

Students who miss the assessment as a result of illness or unforeseen circumstances must apply for special considerations (https://student.unsw.edu.au/special-consideration) and contact the course-coordinator.

Students who perform poorly in the assignment and workshops are recommended to discuss progress with the lecturer during the term. The lecturer reserves the right to adjust the final scores by scaling if agreed to by the Head of School.

Supplementary Examinations for Term 3 2020 will be held on Monday 11th January – Friday 15th January 2021 (inclusive) should you be required to sit one. You are required to be available during these dates. Please do not to make any personal or travel arrangements during this period.

ASSESSMENT OVERVIEW

Item	Duration	Weighting	Learning outcomes assessed	Due date and submission requirements	Deadline for absolute fail	Marks returned
Moodle Quiz	1 hour	5%	1,2	Monday 28th September at 23:59 on Moodle	Monday 28th September at 23:59	Monday 28th September
Mid-Term Exam	2 hours	20%	1,2,3,5,7	Monday 26th October at 18:00 on Moodle	Monday 26th October at 18:30	Monday 9th November
Assignment	3 weeks	25%	3,4,5,6,7	Friday 20th November at 23:59 on Moodle	Monday 23rd November at 23:59	Wednesday 2nd November
Final Exam	2 hours	50%	1,2,3,4,5,6,7,8	TBD (Refer to myUNSW)	N/A	N/A

PENALTIES

All assessment items have an absolute deadline beyond which a student will be awarded zero marks. Late submissions are allowed after the due date only for the assessment task 3- Assignment and will be penalised at the rate of 20% per day after the due date and time have expired. Late submissions are to be emailed both to the course coordinator and the postgraduate teaching assistant.

RELEVANT RESOURCES

Main textbook:

- Modelling Transport, 4th Edition, Juan de Dios Ortuzar, Luis G. Willumsen, ISBN: 978-0-470-76039-0

Recommended reading references are listed below:

- AUSTROADS (1996) Benefit Cost Analysis Manual. Austroads Publication No. AP-42/96. Sydney.
- Urban Transportation Planning Hardcover – December 20, 2000 by Michael Meyer and Eric Miller
- https://www.planning.dot.gov/documents/briefingbook/bbook_07.pdf
- Black, J. (1981) Urban Transport Planning: Theory and Practice, (London: Croom Helm).
- Blunden WR and Black JA (1984) The Land use/Transport system, Pergamon Press
- Hensher, D.A. and Button, K.J. (2000) Handbook of Transport Modelling, Pergamon.

DATES TO NOTE

Refer to MyUNSW for Important Dates available at:

https://student.unsw.edu.au/dates

PLAGIARISM

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person's work or ideas as if they were your own. When it is necessary or desirable to use other people's material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

https://student.unsw.edu.au/plagiarism

ACADEMIC ADVICE

For information about:

- Notes on assessments and plagiarism;
- Special Considerations: student.unsw.edu.au/special-consideration;
- General and Program-specific questions: The Nucleus: Student Hub
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC/SURVSOC/CEPCA

Refer to Academic Advice on the School website available at:

https://www.engineering.unsw.edu.au/civil-engineering/student-resources/policies-procedures-and-forms/academic-advice

Appendix A: Engineers Australia (EA) Competencies

Stage 1 Competencies for Professional Engineers

	Program Intended Learning Outcomes
PE1: Knowledge and Skill Base	PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals
	PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing
	PE1.3 In-depth understanding of specialist bodies of knowledge
	PE1.4 Discernment of knowledge development and research directions
	PE1.5 Knowledge of engineering design practice
	PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice
PE2: Engineering Application Ability	PE2.1 Application of established engineering methods to complex problem solving
	PE2.2 Fluent application of engineering techniques, tools and resources
	PE2.3 Application of systematic engineering synthesis and design processes
	PE2.4 Application of systematic approaches to the conduct and management of engineering projects
PE3: Professional and Personal Attributes	PE3.1 Ethical conduct and professional accountability
	PE3.2 Effective oral and written communication (professional and lay domains)
	PE3.3 Creative, innovative and pro-active demeanour
	PE3.4 Professional use and management of information
	PE3.5 Orderly management of self, and professional conduct
	PE3.6 Effective team membership and team leadership