COURSE DETAILS

Units of Credit 6

Contact hours 3 hours per week

Class / Tutorial
- Thursdays, 9:00 - 11:00 Room LIB1038
- Thursdays, 11:30 - 13:30 Room LIB1038

Course Convenor
U Vandebona
u.vandebona@unsw.edu.au
Room 508, Civil and Environmental Engineering Building
02 9385 5056

INFORMATION ABOUT THE COURSE

This subject covers the important area of congestion and delay minimisation aspects related to transport systems. It specifically addresses the theory and practice related to such work.

Selection and application of transport solutions will be investigated during the subject. Different types of transport solutions and when and where to apply them are important issues for transport professionals. Technological innovations, environmental considerations and socio-economic aspects are also discussed in the context of the delay minimisation of transport facilities. A reasonable competency to perform computational work will be required. Computer literacy will be helpful but is not essential.

There is a companion subject named Transport Systems - Part I which covers location aspects in transport planning, presented by the same teacher. These two subjects are prepared as self contained subjects and you may attempt this subject without having attempted the companion subject.

HANDBOOK DESCRIPTION


The URL of the course online handbook is:
OBJECTIVES
1. Understand operations research concepts applicable in field of transport engineering
2. Learn optimisation techniques adopted in transport engineering practice
3. Learn transport modelling concepts and relevance to design process
4. Learn computation methods related to different transport modes
5. Learn methods to compute delay
6. Learn methods to estimate cost of congestion
7. Learn strategies for delay minimisation

TEACHING STRATEGIES
The following teaching/learning strategies will be used in the course.

Private Study
- Review lecture material and textbooks
- Do set problems and assignments
- Reflect on class problems and assignments

Lectures
- Find out what you must learn
- See methods that are not in 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

- Explain differences between the various transport system concepts;
- Recognise the importance of transport system concept for analysis and design;
- Explain transport system relationships contributing to congestion and delays;
- Ability to calculate delay;
- Ability to compute the cost of congestion;
- Ability to recognise the range of solutions available to manage congestion.

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

Assessment is based on two assignments and a final written examination.

- Assignments are worth 30% each.
- Final written examination is worth 40%.

Assignments are assessed on the technical merit and consistency of the methodology followed. Attention to the detail and demonstrated initiative in experimentation with concepts learned will be rewarded. Late submissions will be penalised.

The written examination will be in the conventional closed book format covering all topic areas.

The formal exam scripts will not be returned. Students who perform poorly in the quick quizzes 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 too by the Head of School.

ASSIGNMENTS

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Assignment Details</th>
<th>Due Date</th>
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</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>Application of queue length</td>
<td>30 August, 1pm</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>Designs for interacting queues</td>
<td>4 October, 1 pm</td>
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COURSE PROGRAM

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Lecturer</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26 July</td>
<td>Introduction</td>
<td>UV</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2 August</td>
<td>Queueing theory</td>
<td>UV</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9 August</td>
<td>Graphical methods</td>
<td>UV</td>
<td>Assignment set</td>
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<tr>
<td>4</td>
<td>16 August</td>
<td>Airport and Freight system applications</td>
<td>UV</td>
<td></td>
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<tr>
<td>5</td>
<td>23 August</td>
<td>Delay minimisation methods</td>
<td>UV</td>
<td></td>
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<td>6</td>
<td>30 August</td>
<td>Queueing theory assignment completion – no class</td>
<td>None</td>
<td>Assignment due</td>
</tr>
<tr>
<td>7</td>
<td>4 September</td>
<td>IEA Workshop – Intelligent Transport Systems and sustainability</td>
<td>Mini-Conference</td>
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<tr>
<td>8</td>
<td>13 September</td>
<td>Project planning</td>
<td>DC</td>
<td>Assignment set</td>
</tr>
<tr>
<td>9</td>
<td>20 September</td>
<td>Simulation methods</td>
<td>UV</td>
<td></td>
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<tr>
<td>x</td>
<td>27 September</td>
<td>Session recess</td>
<td>None</td>
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<tr>
<td>10</td>
<td>4 October</td>
<td>Assignment completion – no class</td>
<td>None</td>
<td>Assignment due</td>
</tr>
<tr>
<td>11</td>
<td>11 October</td>
<td>Scheduling techniques and schedule development</td>
<td>UV</td>
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<tr>
<td>12</td>
<td>18 October</td>
<td>Reliability</td>
<td>UV</td>
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<tr>
<td>13</td>
<td>25 October</td>
<td>Cost of delay and congestion pricing</td>
<td>UV</td>
<td></td>
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<tr>
<td>14</td>
<td>1 November</td>
<td>Review</td>
<td>UV</td>
<td></td>
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Note: UV = Dr Upali Vandebona, DC = David Clark
RESOURCES

Textbooks


DATES TO NOTE

Refer to MyUNSW for Important Dates in 2006 available at:
https://my.unsw.edu.au/student/resources/KeyDates.html

COMMON SCHOOL INFORMATION

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: