Institute of Transport and Logistics Studies

144 Burren Street, Newtown, Sydney

Directions and map: **http://sydney.edu.au/business/itls/about/directions**

Note: ITLS is not on the main campus

Please see the ITLS website for other important details about units at ITLS:

http://sydney.edu.au/business/itls/courses/transport_and_logistics

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ITLS student enquiries office:

Email: **business.itlsinfo@sydney.edu.au**

Office: Room 312B, Level 3, ITLS, 144 Burren Street, Newtown

Assessment collection / viewing: Monday to Friday 12pm to 1.30pm ONLY

Timetable:

Please note that the timetable provided in this outline is subject to change. You should check your timetable on MyUni for final dates and to see which group you have been assigned to, see: **http://myuni.usyd.edu.au/**

THE UNIVERSITY OF SYDNEY

BUSINESS SCHOOL

TPTM6222
Railway Planning and Operations
Winter School, 2011

Unit of Study Outline

Unit Coordinator: Professor Corinne Mulley
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Office: Room 313 , Level 3, ITLS, 144 Burren Street, Newtown
Consultation times: By appointment via email

Unit Coordinator: Dr Nigel G Harris
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Office: Room 104 , Level 1, ITLS, 144 Burren Street, Newtown
Consultation times: By appointment via email

Please use email as your first method of communication. Additionally, should you have questions pertaining to course content you will be directed to ask these questions via the discussion board on the course Blackboard site.

Lecture Class Times: 9:00AM to 5:00PM
Venue: LT1, Level 3, ITLS Building, 144 Burren Street, Newtown

	Class 1	Class 2	Class 3	Class 4	Class 5
Day	Tuesday	Monday	Wednesday	Thursday	Friday
Date	28 June 2011	11 July	13 July	14 July	15 July

	Class 6	Class 7	Class 8
Day	Tuesday	Thursday	Friday
Date	19 July	21 July	22 July

1. Unit of study information

1.1. School handbook description

There has been increasing interest in railways in recent years as a transport solution for both passengers and freight, and rail's modal share has been rising in many key markets. Problems of inadequate capacity are now arising, as much as problems of financial self-sufficiency, and these problems require a good understanding of what solutions are available, and (perhaps more importantly in an University context) why. This unit therefore offers an in depth examination of concepts pertaining to railway management, economics and planning. Importantly, it moves on to explain how these are applied in practical situations, and gives participants an opportunity to demonstrate their understanding through a range of exercises.

1.2. Pre-requisite units

There are no pre-requisite units for TPTM6222.

1.3. Assumed knowledge and/or skills

It is assumed that you will have a basic knowledge of operating MS Word.

1.4. Workload requirement

It is expected that you will spend approximately 150 hours on this unit (including lectures, preparing assessment) and produce approximately 9,000 words or equivalent of work. This time should be made up of reading research, working on exercises and problems and participating in classes. In periods where you need to complete assignments or prepare for examinations, the required workload may be greater.

2. Learning aims and outcomes

2.1. Aims of the unit

The key focus of this course is to provide insight into the application of transport management/ economic/ planning theory into practical contexts within the railway industry.

2.2. Learning outcomes

There are seven learning outcomes (LOs) for this unit of study. They are as follows:

LO1: Understand the concepts and vocabulary of the railway planning discipline.

LO2: Develop and apply research skills appropriate to the requirements of the unit and discipline.

LO3: Understand how the concepts of related management disciplines are applied in the development of railway planning problems.

LO4: Understand and apply the concepts learnt to railway problems and support their solutions with logical argument**.**

LO5: Communicate an understanding of the unit's concepts and their application in written and verbal/ presentation media.

LO6: Develop individual intellectual enquiry and application skills.

LO7: Demonstrate the realisation of these outcomes by achieving an adequate overall standard in the assessment process.

2.3. Links between learning outcomes and learning and teaching methods

This course is delivered primarily through a series of **lectures** which aim to introduce students to the key concepts and practical issues surrounding railway planning and operations. There will also be a series of practical **classwork** exercises during which students will learn to practise implementing theoretical knowledge.

There is also a **field trip** to provide a practical opportunity to illustrate many of the concepts in the unit of study. The aims of the field trip are to:

- Understand the scale and capital-intensive nature of a freight terminal
- Understand the level of operational exactitude required for high-frequency passenger operation.

The **student** commitment for this unit of study is to read text and other materials that are identified in this outline, monitor the business press for topics that are relevant applications of the unit concepts and to use the Internet to expand their knowledge of the unit concepts. More specifically to:

- Prepare for class sessions by reading relevant text chapters before class meetings
- Review and revise own notes after class sessions
- Participate in the lectures, seeking clarification where required
- Respond to questions in class sessions.

2.4. Links between learning outcomes and assessment

The assessment for this unit has been tailored towards providing scope for students to develop their ability to apply the material taught and to practise their communication skills in this area.

Students are expected to

- Participate in class exercise discussions
- Undertake a role in presentations when required
- Undertake adequate preparation for assessments
- Follow up assessment outcomes with unit lecturer.

3. Assessment

Assessment items	Relevant unit learning outcome/s	Word length	Weight	Due Date*
1. Generalised Cost Exercise	LO1, 3, 5	2 – 3 pages of calculations; 100-200 words of commentary	25%	Monday 18 July
2. Public Transport Network Modelling Exercise	LO1, 3, 5	2 – 3 pages of calculations; 300 words theoretical development	25%	Wednesday 20 July
3. Group Project Presentation: Business Plan	All	20 – 30 minute presentation	20%	Slides: 20 July Presentation: 22 July
4. Group Project Report: Business Plan	All	2,000 words	30%	Friday 22 July
Academic honesty module **		N/A	0%	15 July

* *The due date is also the closing date. This means that assessment items will not be accepted after the due date except by prior agreement.*

** *Students must complete the academic honesty module in Blackboard with a mark above 80% by the final day of exams, or an Absent Fail (AF) grade will be given for the entire unit. Students can complete the module multiple times until this grade is achieved. Students who completed the module with a score of 80% or above last semester do not need to do it again.*

All assignments must be submitted electronically via Blackboard. Assignments submitted electronically via Turnitin do not require cover sheets. Ensure that your student ID number (SID) is in the top right hand corner of each page for individual assignments and the Group name or number plus SID of all members is in the top right hand corner for group assignments. Full information about how to prepare assignments for electronic submission can be found in the Turnitin Student Guide: http://blackboard.econ.usyd.edu.au/webapps/portal/frameset.jsp?tab_tab_group_id=_20_1

Should submission problems occur, students should contact Faculty eLearning Support first on 9036 6433 or business.elearning@sydney.edu.au or the Unit Coordinator as soon as possible.

3.1. Detailed assessment information

1. Generalised Cost Exercise: This submission follows a classwork exercise which will be further explained during the classwork session. The submitted work will consist of 2-3 pages of worked example and approximately 100-200 words of explanatory text.

Task: Assuming that Newcastle is 400km from London, that the fares elasticity is -0.5, and that one million rail trips are undertaken each year on an hourly service, estimate the impact on demand of increasing maximum speed from 225km/h to 300km/h. Then calculate the impact of doubling the frequency of this faster service to half-hourly. Make any other assumptions you need to, as appropriate.

1. Write out a Generalised Cost function for the base case and document and explain any assumptions you have made.
2. Calculate Generalised Cost for the base case.
3. Write out and calculate Generalised Cost for the 2 scenarios (increasing speed, doubling the frequency)
4. Calculate the change in patronage by using the change in Generalised Cost and elasticity of demand.
5. Write 100-200 words commenting on the results.

Time guidance: 2 hours' revision of lecture material + 2.5 hours other reading + 2 hours calculations and writing time.

2. Network Modelling Exercise: This submission follows a classwork exercise which will be further explained during the classwork session. The submitted work will consist of 2-3 pages of worked example and 300 words (approximately) of explanatory text. The task will be provided in class.

Time guidance: 2 hours' revision of lecture material + 2.5 hours other reading + 3 hours calculations and writing time.

3. & 4. Group Project: Project groups and the topic will be advised and posted during the first day of the course. The case study is completed in groups of four to six students to develop valuable communication and collaboration skills.

Task: Develop a strategic business plan to improve the profitability of a railway of your choice. What are the fundamental strengths and weaknesses, opportunities and threats to that railway? Most importantly, what are you going to do to improve matters?

Time guidance: 2 hours' revision of lecture material + 2.5 hours other reading + 20 hours research and writing time.

3.2. Referencing style and style guide

For this unit the referencing style is the Harvard Referencing Style. Students should download and adhere to the 'How to write a paper at the Institute of Transport and Logistics Studies' report available at http://sydney.edu.au/business/itls/courses/transport_and_logistics/student_resources.

3.3 Feedback on assessment

Students will be able to immediately assess their ongoing learning via the practical class exercises and in class discussions. If students are encountering difficulties they should utilise the discussion boards or speak to the teaching stuff for further feedback.

Grades for the assessment will be posted on blackboard within three weeks of submission. Marks will not be given over the phone or via email. Errors made in your assignments are typically identified on the paper. A marking sheet will be the main way to communicate feedback on the assignment. For each assessment task you will get an overall comment as well as an indicator against the level of achievement against each of the assessment criteria. If you would like further feedback on the assessment task, you are encouraged to ask during consultation hours. This can be done in pairs or groups if you have similar issues to discuss.

3.4. Academic honesty, plagiarism, legitimate cooperation and groupwork

Commencing students should complete the academic honesty module available via Blackboard before their first assessment submission. Students should refer to Business School and University policies on academic dishonesty and plagiarism (sydney.edu.au/business/currentstudents/student_information/student_administration_manual), copyright (sydney.edu.au/senate/policies/Intellectual_Property_Rule.pdf) and the 'All your own work website' (sydney.edu.au/student_affairs/plagiarism_index.shtml) for information about legitimate cooperation, group work, how to reference correctly and how to avoid plagiarism.

Academic honesty is important to protect students' right to receive due credit for work submitted for assessment. It is clearly unfair for students to submit work for assessment that dishonestly represents the work of others as their own and gain marks and degrees, which are not based on their own efforts and abilities. Deliberate breaches of academic honesty constitute academic misconduct. These breaches include: plagiarism, fabrication of data, recycling previously submitted material, engaging someone else to complete an assessment on one's behalf and misconduct during supervised assessments.

The penalties for academic misconduct may include: a mark of zero on the assessment; a fail grade in the unit of study, additional assessment (including an unseen exam), and reference of the matter to the University Registrar.

All assessments will be checked for plagiarism. Where plagiarism is suspected, the assessment will be fully checked and monitored using manual process, Google checks and also electronic plagiarism detectors. In order to do this, the Business School may reproduce the assessment, provide a copy to another member of the Business School, and/or communicate a copy of this assignment to a plagiarism checking service (which may then retain a copy of the assignment on its database for the purpose of future plagiarism checking).

Academic dishonesty involves more than just copying material. Cooperation and helping other students may at times trigger academic dishonesty proceedings if it appears you have worked too closely with another student.

In this unit, only the group project should be completed in groups. All other assessment should be completed individually.

Individual assignments must be written and prepared alone. You may consult with other students about ideas and possible research sources but the analysis and writing of the assignment must be done alone. Group assignments should be prepared within the group. Students should contribute fully to the group and take part in all group activities, contributing ideas, analysis and writing to the final product. While students within the group should assist each other freely, students should not carry this level of cooperation outside the group. One group may cooperate and help another group about ideas and possible research sources but the analysis and writing of the assignment must be done by the group alone.

4. Texts and other resources

There is no text book for this unit. Suggested readings will be discussed in class and via Blackboard.

5. University and Business School policies and support

5.1. Business School policies

Business School policies are contained in the Administration Manual for Students: sydney.edu.au/business/currentstudents/student_information/student_administration_manual.

It is crucial that you take the time to consult this manual early in your studies in order to familiarise yourself with policies and procedures relating to critical issues such as the Business School's policy on special consideration (including requirements and timelines. e.g. lodging applications five working days after a missed assessment), appeals (lodge within 15 working days of the decision) and other policies such as enrolment, credit etc. Assistance is available from the Business School's Student Information Office (sydney.edu.au/business/student_information_office).

5.2. University policies

- **University policies**: sydney.edu.au/policy
- **Assistance** is available from the University's Student Centre: sydney.edu.au/current_students/student_administration
- **The code of conduct** is an important policy which outlines the University's expectations about treating all staff employees and students with respect, dignity, impartiality, courtesy and sensitivity and refrain from acts of discrimination, harassment or bullying: sydney.edu.au/ab/policies/Student_code_conduct.pdf

5.3. Student resources and services

Links to other student services and resources are included on Blackboard and on the learning and teaching section of the Business School website: sydney.edu.au/business/learning

6. Continual improvement of the Unit

6.1 Past Feedback

Previous feedback on this course has been positive regarding both the content, teaching activities and assessment. Comments have suggested that the course is of relevance both as a stand alone unit of study and as part of the degree programs.

6.2 Improvements made

The material covered, the assessment and the examples cited are reviewed annually to ensure that the unit keeps up with best practice.

6.3. How feedback will be collected

Please note that students are, at all times, encouraged to provide their teaching staff with feedback on course material, lecture notes, assessment items, or anything relevant to their learning and enjoyment of this course. Teaching staff sincerely appreciate suggestions on how the course may be improved, as well as comments on what is working well. Students will also have the opportunity to provide feedback via Unit of Study Evaluation forms at the end of the Winter School.

7. Topic schedule

Class	Date	Topic	Assessments Due (See Section 3)
1	Tuesday 28 June	Allocation to groups, discussion of group project and readings for Unit; Selection of appropriate railway for group project; Groupwork: Development of business plan for project Identify websites, literature & start work.	
2	Monday 11 July	Management & business planning Objectives, efficiency, ownership & structure, privatisation, fragmentation, franchising, funding, failure of Railtrack; Groupwork: Development of business plan.	
3	Wednesday 13 July	Rail freight Trends, costs, different types of operation; Safety & Signalling Historical development through to automatic systems, accident analysis, risk management; Major Schemes Capital costs, rolling stock, systems engineering, technology, funding, public consultation; Groupwork: Development of business plan.	
4	Thursday 14 July	Macro-economics Cyclical issues, road v rail, factors driving profitability; Micro-economics Generalised cost, value of time savings, elasticities, fares policy; Classwork: generalised cost exercise	
5	Friday 15 July	Estimating the demand for new stations & services Typology of techniques, trip end modelling, gravity modelling, generalised cost comparisons, logit modelling, stated intentions & stated preference; Public Transport Network Models Elements, calibration, backcasting; Classwork: Network modelling example	
	Monday 18 July	09:00 Assessment 1. Generalised Cost Exercise due	1. Generalised Cost Exercise
6	Tuesday 19July	Infrastructure design line capacity, number of tracks inc.single-track lines, train graphs, junction & station layouts; Case study: Fen Line, England; Timetabling & rostering Appropriate frequencies, conflicting requirements, regularity & basic interval timetabling, inter-working, number of trains required, punctuality, rostering, systems; Classwork: train graph and train requirements.	
	Wednesday 20 July	09:00 assignment 2 Network Modelling Exercise Due	2. Network Modelling Exercise 3.Slides due

Class	Date	Topic	Assessments Due (See Section 3)
7	Thursday 21 July	Terminal & station design Purpose of stations, access requirements, constraints, costs, passenger flow, commercial considerations, design, managing station stops; Assignment feedback on generalised cost and network planning exercises. Classwork: final preparation of business plan presentations Field trip	
8	Friday 22 July	Group presentations of business plan Feedback on Train Graph & Train Requirements exercise Wrap-up: Nigel G Harris & Corinne Mulley	3.Group Presentation; 4. Group Report