# CVEN90061 Freight Systems

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| **Credit Points:** | 12.5 |
| **Level:** | 9 (Graduate/Postgraduate) |
| **Dates & Locations:** | 2016, Parkville<br>This subject commences in the following study period/s:<br>Semester 1, Parkville - Taught on campus. |
| **Time Commitment:** | Contact Hours: 48 hours, comprising of 2 hours of lectures and 2 hours of practical per week<br>Total Time Commitment: 200 hours |
| **Prerequisites:** | None |
| **Corequisites:** | None |
| **Recommended Background Knowledge:** | This subject will use mathematical programming methods as well as statistical modelling and analysis techniques. |
| **Non Allowed Subjects:** | None |
| **Core Participation Requirements:** | For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: <a href="http://services.unimelb.edu.au/disability">http://services.unimelb.edu.au/disability</a> |
| **Coordinator:** | Assoc Prof Russell Thompson |
| **Contact:** | Assoc Prof Russell Thompson<br>Email: **rgthom@unimelb.edu.au (mailto:rgthom@unimelb.edu.au)** |
| **Subject Overview:** | **AIMS**<br>There is a need for civil engineers to increase their knowledge and skills in freight systems since they are actively involved in the planning, design, construction, maintenance and management of a range of freight infrastructure such as roads, bridges and ports. Civil engineers require expertise in freight systems to reduce the social and environmental costs from freight including safety, noise and emissions. Training in freight systems also provides opportunities for freight networks to become more productive and efficient increasing economic benefits for society.<br>Freight infrastructure allows the freight system to operate, facilitating vital components of our economy, including production, distribution and trade.<br>The purpose of the freight system relates to its role in providing a service for the economy. Freight transport is a derived demand; it does not exist for its own sake. The primary demand is for the consumption of goods where there is spatial separation. Goods are generally stored, processed and consumed at different locations. There is a need for goods to move to increase their value for producers, manufacturers and consumers. Freight can be considered as the economy in motion. Goods are transported as part of the economic activities of production, manufacturing and consumption.<br>**INDICATIVE CONTENT**<br>Freight networks provide a service for producers and manufacturers allowing access to markets for the consumption of goods. The benefit of goods being transported relates to their increased value at their trip destination. Reduced transport operation costs leads to lower production and distribution costs that creates opportunities for lower priced goods. |

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| **Learning Outcomes:** | **INTENDED LEARNING OUTCOMES (ILOs)**<br>On successful completion of the subject, students should be able to:<br>1 Analyse the major issues for key stakeholders in freight systems, including carriers, shippers, receivers, residents and administrators<br>2 Investigate the impacts of freight using data analysis methods<br>3 Evaluate options for increasing the sustainability of freight systems<br>4 Generate multi-modal freight networks for improving the sustainability of freight systems<br>5 Develop procedures for optimising distribution networks including fleet planning and management as well as warehouse and depot location<br>6 Investigate the effects of increased vehicle operating costs, vehicle axle loads and road pricing on the performance of freight systems<br>7 Synthesize the flow of commodities and freight vehicles in transport networks. |
| **Assessment:** | Tutorial problems (20%), derived from the lecture material, submitted weekly. Requires approximately 25 – 30 hours of work in total. Intended Learning Outcomes (ILOs) 1 - 7 are addressed in this assessment. A group assignment (30%), requiring 2000 words per student, on developing a proposal for increasing the sustainability of freight in Melbourne. Requires approximately 35 – 40 hours of work per student. Due in Week 12. ILOs 1, 2 & 3 are addressed in this assignment. A 2 hour end-of-semester examination (50%). Held within the examination period. ILOs 1 - 7 are addressed in this examination. |
| **Prescribed Texts:** | None |
| **Breadth Options:** | This subject is not available as a breadth subject. |
| **Fees Information:** | Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees |
| **Generic Skills:** | Having completed this subject, students are expected to be able to:<br>1 Execute basic research and problem-solving skills - including problem identification, data sourcing, analysis formulation and execution, and the nomination or provision of viable solutions<br>2 Organise themselves into effective working groups that replicate real-world (freight) project environments<br>3 Manage personal time and workload efficiently, to deliver needed outputs in a timely manner (as per real-world transport project environment)<br>4 Execute effective, professional-level verbal communication and discussion around current real-world freight issues and concepts, as well as professional-level written communication skills (for transport themes and projects)<br>5 Understand social, cultural, global, and environmental responsibilities and the relevance of sustainable development principles<br>6 Participate in projects which require team-work<br>7 Understand the significance and value of knowledge to the wider community (including business and industry)<br>8 Utilise a systems approach to complex problems and to design and operational performance<br>9 Communicate effectively, with the engineering team and with the community at large, and<br>10 Summarise and present design concepts and outcomes. |
| **Related Course(s):** | Doctor of Philosophy - Engineering<br>Master of Energy Systems<br>Master of Environmental Engineering<br>Master of Philosophy - Engineering<br>Master of Urban Planning |
| **Related Majors/Minors/ Specialisations:** | MIT Spatial Specialisation<br>Master of Engineering (Civil)<br>Master of Engineering (Environmental)<br>Master of Engineering (Spatial) |