CIVIL 766 – ROAD ASSET MANAGEMENT
(MEngSt, PGCertEng etc., 15 Points, FC 2017)

COURSE CO-ORDINATOR: Assoc. Prof. Seosamh Costello (Main Office, City 401.1116)

OTHER LECTURERS: Dr Theuns Henning (Main Office, Newmarket 906.424 and Shared Office in the City 401.1210)
Plus various guest lecturers from industry.

ASSESSMENT: Coursework (50%)
Final Exam (50%), 2 hours duration - minimum 50% marks required in the final examination to pass the course.

LEARNING OBJECTIVES:
This 15-point Masters paper is designed for road asset engineers and managers and is a core course in the Masters programme in Transportation Engineering. The course will cover the theories behind the appropriate management of road assets but will also provide practical tools and techniques for the actual management of, and planning for, maintenance of the assets. Such tools and techniques include using multi-year programming and predictive pavement deterioration modelling, with specific reference to the implementation of the dTIMS system in New Zealand and the latest variant of the World Bank’s HDM model. The course is a companion paper of CIVIL 765: Infrastructure Asset Management and will be particularly beneficial to those currently working in, or intending to work in, road and pavement asset management.

OUTLINE:
Some minor changes to these topics may be required depending upon staff resources and available time.

- **Road Asset Management**: An introduction to sound pavement management principles, road management vs road management systems, network versus project level, functions of road management and the management cycle.

- **Functional Data**: Requirements for data collection and analysis, high speed data (HSD) collection devices, RAMM.

- **Structural Data**: Falling Weight Deflectometer (FWD), Traffic Speed Deflectometer (TSD).

- **Maintenance Interventions**: When to intervene, what treatments to apply, treating symptoms versus causes.

- **Predictive Modelling**: Deterministic and probabilistic models, NZ Transport Agency’s Long-Term Pavement Performance (LTPP) Study.

- **Risk Management**: Probability and consequence, risk management application in road management.
• **Economics and Life Cycle Analysis:** Agency costs, road user costs, cost benefit analysis, economic indicators.

• **Business Case Approach:** NZ Transport Agency business case approach, how to build a better business case.

• **Prioritisation and Optimisation:** Prioritisation and optimisation of different project options, optimisation at the network level.

• **NZ dTIMS Project:** History, philosophy, NZ dTIMS unpackaged for asset managers.

• **Procurement Options:** Types of procurement options available in New Zealand, allocation of risk, private finance.

**FORMAT:**

The course will be taught in “block mode” so that practicing engineers are able to attend. This will consist of two teaching blocks of three days during the semester.

A detailed schedule will be supplied separately at the beginning of the course. This will set out the topics of the lectures and tutorials.

**PROJECT/ASSIGNMENT:**

More information will be provided on this during the course.

**TEXTBOOKS AND REFERENCES:**

There are no prescribed texts. The following are recommended for background reading and reference, and would form a useful personal library - copies are available in the School of Engineering Library or online.


**RELATED WEB SITES:**

The NZ dTIMS Project website - [www.ids.org.nz/](http://www.ids.org.nz/)