Synopsis

This course covers all aspects of infrastructure management (IM). Students will gain an understanding of infrastructure management and how it relates to facility and asset management; the challenges facing infrastructure managers; tools used for effective IM; and the concept of total quality management (TQM) as it applies to IM. Economic analysis of maintenance, rehabilitation and reconstruction projects and the use of life cycle cost analysis in decision-making will be studied. Finally, the development and use of IM systems in both the public and private sectors will be presented.

Course Objectives

- Gain an understanding of infrastructure management and challenges facing infrastructure managers.
- Learn about effective infrastructure management tools used for inventory, investigation, condition assessment, and performance evaluation.
- Use economic analysis tool of life cycle cost analysis for decision-making regarding renewal plans.
- Implement the five aspects of infrastructure management (Inventory, investigation, condition assessment, performance evaluation, and renewal plans) on real project.

Course Content

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<td>Decision support systems - data and creation/use of databases</td>
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Recommended References

Course reference material


ASCE: Journal of Construction Engineering and Management
Journal of Infrastructure Systems
Journal of Performance of Constructed Facilities
Journal of Management in Engineering

Websites:
www.infraguide.ca
www.infrastructure.gc.ca
www.fcm.ca

**Grading and Weighting**

Grading and determination of course standing will be in accordance with the Academic Regulations of the University. The grade components and the weight of each are as follows:

- First assignments 15%
- Second Assignment 10%
- Participation in class 5%
- Group Project I 25%
- Group Project II 45%

Plagiarism WILL NOT be tolerated and will be dealt with according to University regulations (Graduate Calendar p 66). If a student has any concerns about how to properly reference material he/she should see the instructor prior to handing in the paper or assignment.

**Assignments**

The first assignment is about an infrastructure project for which the student is required to prepare an overall evaluation in a maximum of three (3) pages. The second assignment is about life cycle cost analysis of construction/rehabilitation plans. The due dates will be announce on the assignment sheet.

**Group Project I**

Groups of 4 students research four aspects of the five-aspect approach of infrastructure management including inventory, investigation, condition assessment, performance evaluation, and renewal plan (one phase for each student). Groups prepare and present 20-minute seminars.
Group Project II

Each group selects a real infrastructure project of your choosing and implements at least four aspects of the five-aspect approach of infrastructure management including inventory, investigation, condition assessment, performance evaluation, and renewal plan. Each group submits a report and presents a 20-minute seminar. The report should be about 40 pages and will be marked for technical content and presentation according to the following marking scheme:

**Technical Content – 75%**

- Overview of case
- Why selected
- Relevance to IM
- Outcome(s)
- Analysis
- Conclusions
- Appendices

**Presentation – 25%**

- Spelling
- Grammar
- Style & flow of ideas
- Uses of figures, tables, etc
- References (either Harvard system or CSCE system acceptable)

**Due date: Last class**

Note: As a part of the work in project II, Students will have to go outside to inspect real infrastructure projects. Thus, utmost precautions must be exercised to protect yourself from surrounding dangers.

**Administration**

**Request for Academic Accommodation for Students with Disabilities**

Students with disabilities requiring academic accommodations are required to contact a coordinator at the Paul Menton Center (see also carleton.ca/equity) to complete the necessary *letters of accommodation*. The student must then make an appointment to discuss his/her needs with the instructor at least two weeks prior to the first class or ivt test. This is to ensure sufficient time is available to make the necessary accommodations arrangements.

**Request for Academic Accommodation for Religious Obligations**

Students requesting academic accommodation on the basis of religious obligation should make a formal, written request to the instructor for alternate dates and means of satisfying academic requirements. Such a request should be made in the first two weeks of class, but no later than two weeks prior to the compulsory event.