

The Islamic University of Gaza- Civil Engineering Department

Infrastructure planning and management

(ENGC 6342)

Course Objectives and Outline

**By
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Course Description

This course reviews the status of infrastructure and infrastructure management, the analytical methods, tools, data, technologies, and political and financial framework and constraints for managing infrastructure systems and facilities as assets. Topics covered include condition assessment, deterioration modeling, engineering economics, evaluation of project alternatives, optimization and ranking, sustainability, and strategic environmental assessment for infrastructure decision-making.

Course objectives

- Enable students to focus on infrastructure as an integrated system.
- Inform students of the social, political, and economic contexts in which infrastructure is provided and decisions are made.
- Prepare students for managing public works budgets, large capital investments, and maintenance expenditures.
- Provide students with background on intergovernmental relationships and governance structures that affect the construction and operation of public works systems.

Course Outline

- Planning Context, perspectives, and Objectives
- Planning and Appraisal of Major Infrastructure Projects
- Screening Projects and Master Planning
- Municipal Infrastructure Systems: Performance and Prioritization
- Comparison of Infrastructure Alternatives
- Planning Aid
- Financial Analyses
- Economical Analyses: Concepts & Applications
- Environmental and Social Impact assessment
- Public Involvement
- Legal and Institutional Aspects

Contribution of course to meeting the professional component

This course contributes primarily to the students' knowledge of engineering topics, but does not provide design experience.

The following statement indicates which of the following considerations are included in this course: economic, environmental, ethical, political, societal, health and safety, manufacturability, sustainability.