



Lecture
Notes

EGB123 Notes

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Chapter 1

First Chapter

1.1 Unit Introduction

1.1.1 Unit Motivation

*Engineers have the task of creating, maintaining and extending the physical infrastructure that allows society to function. This infrastructure has developed over many generations, in response to the needs and demands of society, and has become more complex over time. **Planning** and **design** are the key activities that are used, together with management, to bring projects through to successful completion.*

Definition 1.1.1: Unit Overview

This unit introduces the knowledge and skills used to undertake site investigations and project assessments as part of infrastructure planning and management activities to meet stakeholders' needs.

1.1.2 Assessment Overview

The units assessments will consist of the following:

- Assessment 1: **Study Area Investigation** - You will work in a group of four:
 - to investigate functions of a real world engineering system at an urban study area.
 - with co/leadership of sub tasks preassigned to specific members with contribution by all other members.
 - 15% individual across two sub tasks, 15% group (30% total)
 - **Submission:** Group submits, each individual submits a text response on own contribution (Same Due Date).
- Assessment 2: **Major Project Assessment** - Work in a group of four:
 - Prepare a major project assessment that reviews and analyses prescribed technical aspects of two real world major civil engineering projects.
 - 20% individual across two sub tasks, 15% group (35% total)
 - **Submission:** Group submits, each individual submits a text response on own contribution (Same Due Date).
- Assessment 3: **Final Exam** - Individual (35%).

1.2 Urban Study Area Investigation

You will be provided a study area investigation brief that contains backgrounds as well as directions on how to conduct investigation. Will work in a group of 4 to complete:

- 4 items in Sub Task A (Each led by one group member)

- 2 items in Sub Task B (Co led by two group members)
- 1 Technical report in Sub Task C (All group members contribute).

1.2.1 Investigation

The project will involve three sub tasks:

1. Topography and Water Utilities

- Topography
- Stormwater
- Sewer
- Water Reticulation

2. Bridge Approaches and Bridge Structure

- Bridge Approaches and Abutments
- Bridge Structure

3. Engineering Technical Report

For each item in sub task A, the item will ask you to

- explain the typology of the system with definitions and roles of components.
- Locate certain features on spatial layer documents.
- Annotate responses to queries on spatial layer documents.
- Interpret the system under investigation and discuss how that system relates to street layout, build form, ease of movement.

For sub task B, you will be asked to:

- **B1** Consider bridge approaches and abutments, and how they relate to the street layout and build form. This will be done using six tables, each containing a series of stated forms or stated considerations about bridge approaches and abutments.
- **B2** Consider the bridge structure for a real bridge in the study area.

1.2.2 Information Sources

Throughout the unit, the following sources of information will be used:

- Spatial information on Community maps, nearmap, google street view.
- Government and agency documentation from Austroads.

Theorem 1.2.1 Theorem Name

Theorem Statement

Corollary 1.2.2 Corollary Name

Corollary Statement

Lemma 1.2.3 Lemma Name

Lemma Statement

Claim 1.2.1 Claim Name

Claim Statement

Example 1.2.1 (Example Name)

Example explained

Open Question 1.2.1: Open Question Name

Question Statement

Note:-

Special Note

Wrong Concept 1.1: Wrong Concept topic

Explanation

Chapter 2

Second Chapter

2.1 Section 1