



# ZIMBABWE EZEKIEL GUTI UNIVERSITY

---

## FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD SYSTEMS DEVELOPMENT

---

### DEPARTMENT OF INFORMATION SYSTEMS

#### EXAMINATION PAPER

#### DIPLOMA IN GEOGRAPHICAL INFORMATION SYSTEM

COURSE CODE : GISRS 113  
COURSE TITLE : GEOREFERENCING AND COORDINATE SYSTEMS  
SPECIAL REQUIREMENTS : None  
DURATION : 2 Hours  
LEVEL : 2.2  
DATE 28 JUL 2025 : 2025

#### INSTRUCTIONS TO CANDIDATES:

#### INSTRUCTIONS TO CANDIDATES:

- 1. Section A: Question 1 is compulsory (40 marks).*
- 2. Section B: Answer any 3 questions from Questions 2 to 6 (20 marks each).*

**Overall Total Marks: 100 Marks**

#### ADDITIONAL MATERIALS

- *Answer Booklet.*

**Section A: Compulsory Question (40 Marks)**

**Question 1: Georeferencing and its importance in GIS.**

a. Define georeferencing and discuss the process of georeferencing, including the role of ground control points (GCPs) and coordinate systems.

[15 marks]

b. Explain the challenges associated with georeferencing and propose solutions to address them.

[10 marks]

c. Provide examples of how georeferencing is applied in real-world scenarios, such as integrating historical maps or aligning satellite imagery.

[15 marks]

**Section B: Optional Questions (Answer Any 3; Each Question Carries 20 Marks)**

**Question 2:**

a. Differentiate between geographic and projected coordinate systems. Discuss how each system represents the Earth's surface.

[16 marks]

b. Explain the effects of map projections on data accuracy and visualization using specific examples.

[4 marks]

**Question 3**

a. Describe the UTM coordinate system and its design.

[10 Marks]

b. Highlight the advantages and limitations of using the UTM system for spatial analysis.

[10 Marks]

**Question 4**

**Discuss the significance of map projections in GIS.**

a. Identify two commonly used map projections and their characteristics.

[14 Marks]

b. Explain how distortions in distance, area, or shape can affect spatial decision-making. [6 Marks]

### Question 5

a. Explain the steps involved in transforming data from one coordinate system to another. [10 marks]

b. Discuss the importance of datum transformations in maintaining spatial data accuracy. [10 marks]

### Question 6

a. Provide examples of how georeferencing is used in specific industries, such as urban planning, agriculture, or disaster management. Discuss the benefits of accurate georeferencing in these applications.

[15 marks]

b. Highlight the consequences of poor georeferencing practices.

[5 marks]

\*\*\*\*END OF EXAMINATION\*\*\*\*

