Fundamentals of GIS and Spatial Analysis.

Course	**Fundamentals of GIS and Spatial Analysis.**
Scheduled date	4th June -22nd June 2024
Time	5.00 pm- 8.00 pm (3hrs)
Venue:	GIS Centre Room 1022, ground floor, CEDAT New Building Makerere University Main Campus

1.1 Introduction

Analysing and manipulating spatial data is critical across many disciplines, including healthcare, Urban Planning and Architecture, Cadaster, Land Management, Geography, Business, Ecology, Civil engineering, water resources, transport and Logistics, Agriculture, Forestry, Biology, computer science, and military intelligence.

The demand for skilled GIS analysts is projected to grow rapidly in the coming years as this specialised area of data analysis is leveraged in an expanding number of fields.

In this introductory course, participants will learn the fundamentals of geographic information systems (GIS). Upon completing the course, the participants will have **hands-on experience using the Geographical information systems to display, analyse, and store spatial data.** This course provides an overview of GIS applications in various sectors.

1.2 Objectives of the course

This course aims to:

1. Introduce participants to GIS concepts, applications, trends and software
2. Enable participants to develop skills to acquire geospatial data
3. Develop a foundation for solving basic spatial problems with GIS at a workplace
4. Develop participant skills in communicating with maps

1.3 Learning outcomes

At the end of this course, the participants will be able to:

1. Collect spatial data using different data collection techniques
2. Organise this data in a spatial database
3. Carry out basic spatial analysis in GIS software for decision-making
4. Present understandable, cartographically correct and meaningful maps.

1.4 Course content

	topics	***Contact Hours***
1	Introduction to GIS – Definitions of GIS, Why GIS is hot, Applications of GIS, representing GIS data, Coordinate Systems and Map projections,	*4*

2	Working with Vector and Raster Data in GIS software – Querying data for spatial and attribute selections, Data formats for GIS, Projection systems	*4*
3	Spatial Database Management Operations	*8*
4	Spatial Data capture and integration in GIS	*7*
5	Spatial data analysis	*12*
6	Basic remote sensing and satellite image Interpretation	*6*
7	GIS Visualization and map compositions	*4*
	Total	*45*

1.5 Hardware and software: The GIS centre has 40 functional computers, fully installed with GIS and remote sensing software. Data and software for practical sessions will be shared with the participants.

1.6 Award

Certificate of Completion will be provided after completion of the course.

1.7 Target Group: undergraduate and postgraduate students, private-public-sector professionals, and others with little or no prior experience using GIS and Earth Observation.

1.8 Registration: https://forms.gle/7HRzSB21C1uuZpV79

1.9 Course Fees

One Million Uganda Shillings payable to the CEDAT college Account with the following details:

Bank: Standard Chartered Bank Uganda Limited
Branch: Speke Road
Account Name: Makerere University College of Engineering, Design Art and Technology
Account Number: 8705612273400

1.10 Next steps: After completing this course, consider taking Advanced Geospatial Data Analysis to continue learning.