This course content will provide students with various examples and practical studies to improve their geographic information systems (GIS) application skills. The course will aim to put students' theoretical knowledge into practice with applied projects to solve real-world problems.

1. Purpose and Scope of the Course

The purpose of this course is to enable students to analyze various geographic data sets and solve real-world scenarios using GIS software and tools. Students will improve their practical use of GIS by learning data loading, visualization, analysis and reporting processes in practice.

2. Course Content and Activities

A. Data Loading and Visualization

Data Loading

Task: Students will load geographic datasets provided in different data formats (shapefile, GeoJSON, KML) into GIS software.

Tools: ArcGIS

Datasets: City boundaries, transportation networks, land use data

visualization

Task: Visualize the loaded data on the map, add layers, and customize data icons.

Tools: ArcGIS

Activities: Creating maps using different data layers and symbols, making thematic maps.

B. Spatial Analysis

Point to Point Distance Measurement

Task: Measure the distance between two points and show this distance on the map.

Tools: ArcGIS

Datasets: School and hospital locations

Buffer Analysis

Task: Identify and analyze areas within a certain distance from a given center.

Tools: ArcGIS,

Data Sets: Parking spaces, traffic accident points

Overlay Analysis

Task: Identifying areas of overlap between two or more data layers and analyzing those areas.

Tools: ArcGIS

Datasets: Land use and protected areas

C. Thematic Map Creation

Data Querying and Filtering

Task: Querying and filtering data according to certain criteria.

Tools: ArcGIS,

Datasets: Population data, crime rates