UNIVERSITY OF SHARJAH

College of Science – GIS and Remote Sensing

Assignment 1: Topic Selection & Problem Definition

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Deadline: 21 September 2025

Chosen Topic:

Air Pollution and Health Risk Mapping

Project Title:

Analyzing Air Pollution Levels and Mapping Health Risk Zones Using GIS and Remote Sensing

Problem Definition:

Air pollution is one of the leading environmental health risks, causing respiratory diseases, cardiovascular issues, and lowering the quality of life in urban areas. In growing cities like Sharjah, vehicle emissions, industrial activities, and natural events such as dust storms can significantly raise pollution levels, especially near highways and factories. Without proper mapping, it is difficult to identify the most affected areas and protect vulnerable communities.

This project will use satellite data such as Aerosol Optical Depth (AOD) along with GIS layers of population density, road networks, and industrial zones to create a health risk map. The data will be classified into low, medium, and high exposure zones to visualize which areas are most at risk. The final output will help planners and decision-makers develop strategies like green buffers, better air quality monitoring, and emission control policies to reduce health impacts and improve urban living conditions.