Northern Technical University - Kirkuk Technical Engineering College - Department of Surveying Engineering Technology

Graduation groups and student names 2025-2026

Project beneficiary	Project Overview	Student names, Research title in English, Supervisor's name			Search name in Arabic	T
	For sustainable water resource management in the Hawija/Kirkuk regions of Iraq, accurate mapping of groundwater quality is crucial. The reliability of spatial projections is significantly influenced by the choice of interpolation. (Ministry of Irrigation, Ministry of Municipalities, Ministry of Agriculture, and Ministry of Higher Education and Scientific Research) technique.This study evaluates four alternative interpolation methods in an scientific area of western Kirkuk Province, Iraq: IDW, ordinary kriging, spline, and C-kriging. The performance of the interpolation models is assessed via the root mean square error, coefficient of determination, and mean absolute percentage error.	Osama Essam Khalaf Mohammed Anas Saddam Mohammed Badr Mohammed Jalal Nasser Mohammed Mustafa Muhammad Aydin Shakir Abdul-Mumin Muhammad Kanaan Omar	Dr. Qahtan Ahmed Muhammad + Ms Vian Farhad Salahuddin (A)	Assessing Interpolation Techniques for Groundwater Quality Mapping: A Comparison for Accurate Spatial Projections in Water Resource	Evaluation of interpolation techniques for groundwater quality mapping: A comparison For accurate spatial forecasting in water resource management in regions Hawija/Kirkuk, Iraq	1
Ministry of Electricity	The project includes a detailed study of the water bodies in the city of Kirkuk. And to utilize them in the construction of solar power plants	Akoh Saman Muhammad Sharif It has Rosh Pashtiwan Khaled Anwar Ayman Daher Mustafa Ahmed Barham Dilshad Mahdi Hama Youssef Shorsh Ahmed Omar Ali Jaafar Abdullah	Ezzat + M.M. Dr. Ahmed Qader Israa Najm Al-Din Shaker (B)	Analytical study for the establishment of solar power plants on water bodies in the city of Kirkuk	Analytical study of the construction of solar power plants on flat surfaces Water in Kirkuk city	2
Various government departments and the private sector	This project aims to extend service lines across rivers using horizontal directional drilling (HDD) technology, which It allows for the installation of pipes or cables below the river's surface without impacting the surrounding environment. The project includes A precise topographic survey of the site using advanced technologies such as GPS and LiDAR, and the creation of engineering maps showing The ideal drilling path. The drilling path is carefully designed to minimize environmental impacts and ensure pipe stability. Monitoring the process using modern technologies ensures accurate route execution. Finally, the final maps are produced. To document the project and use it in future maintenance.	Hussein Jassim Mohammed Hashem Ghaith Ghassan Bakr Juma Youssef Chahine Naji Taha Abdul-Moneim Ahmed Saleh Mohammed by Mohammed Abbas Mohammed Najaf / Hosted	+ Dr. Deler Abdullah Omar M.M. Karzan Rashid Hamad (C)	HDD River Crossing — Survey Works Required & Produced Layout	Required surveying work and map production for extending service lines across Rivers using horizontal directional drilling techniques	3
Kirkuk Municipality Department Municipal departments, where the system helps them manage topographic data. Analyzing and presenting them in an accurate and fast manner contributes to improvement Planning and decision-making processes in infrastructure and development projects Urbanism.	This study focuses on creating a web-based system for managing and visualizing topographic survey data using Geographic Information Systems (GIS) technology. The system aims to make it easier for surveyors, engineers, and planners to store, analyze, and display spatial data through an interactive online platform. By integrating GIS tools, the system allows users to view maps, contours, elevations, and other survey information in real time. This enhances data accessibility, accuracy, and decision-making in civil engineering and land management projects.	Ahmed Faleh Hassan Hanash (A.M.) Pearson Najdat Ezz El-Din (A.M.) + Faris Sabah Abdul Jabbar (A.M.) Hamza Sharif Khurshid (A.M.) Malik Abdul Hamid Ali Abdul Jabbar +	Dr. Muntazer Eidi Sharif + (D) Nanah Hamid Ahmed	Creating A Web-Based System for Managing and Visualizing Topographic Survey Data Using GIS	Creating a web system for managing and displaying topographic survey data Using Geographic Information Systems (GIS)	4
All government departments, both public and private sectors	This project aims to analyze the extent to which the locations of Chinese schools in Kirkuk comply with urban development standards. Sustainable. Geographic and environmental data are collected to study the impact of sites on environmental and social sustainability. Economically, the distribution of schools is analyzed using Geographic Information Systems (GIS) techniques, and the extent of school activity is determined. The availability of basic amenities such as public transportation and healthcare facilities. The impact of these locations on The local environment and community life. Ultimately, recommendations are made for site improvement in line with development standards. Sustainable to achieve a healthy and safe learning environment.	Adib Muhammad Saeed Muhammad Ali and Youssef Al-Zankana Shawan Asaad Hassan Abdel Mohamed By Lin Ahmed Mohamed Saber Alaa Ismail Ibrahim Hassan Kosrat Hassan Hama Saleh Suhaib Shaker Saleh Muhaimid Al-Osaibi Makhlaf Saad Musa Jassim Al-Obaidi	M.D. Nabeh Z. Yassin Ezz El-Din + M.M. Arjan Sharaf Al-Din Omar)E	Analysis of the compatibility of Chinese school sites in Kirkuk with sustainable urban development standards	Analysis of the extent to which the locations of Chinese schools in Kirkuk comply with standards Sustainable urban development	5
Kirkuk Governorate Ministry of Water Resources and Ministry of Planning and	This project aims to identify potential groundwater areas in the city of Kirkuk using various technologies. Remote sensing and geographic information systems (GIS). Satellite data is collected and analyzed. Spectral indices such as NDVI and MNDWI are used to identify water-related soil characteristics. Subsurface. This data is combined with geohydrogeological maps to analyze the topography and type. Soil. Classification algorithms are used to analyze the probability of groundwater in specific areas. The project contributes to identifying optimal drilling areas to improve water resource management in the city.	Ahmed Hamid Ahmed Ali Amer Jumaa Muhammad Mahmoud Shaima Salman Hassan Abdullah (Parallel)+ Haneen Adnan Mahmoud Mantiqa + Hashim Qasim Hashim Ali (Nomination)	Dr. Qaisar Mahmoud Ajaj + Miss Aisha Kol Shahin Najm Al-Din (F)	identify the groundwater potential zones for kirkuk city using remote sensing and GIS	Identifying potential groundwater areas for the city of Kirkuk using Remote Sensing and Geographic Information Systems	6
Urban Planning Department and Kirkuk Municipality Directorate	Measuring the extent of urban development and changes taking place in the city of Kirkuk during this period Years and an overview of the problems and improvements taking place in the city using technology remote sensing	Omid Majeed Fattah Karim Huna R Mahmoud Amin Ahmed Aqeel Zaher Jassim Mohammed Al-Boumheidi Abdulwahed Abdullah Hussein Mal Nyan Ahmed Muhammad Nariman + Hammam Ahmed Mohammed	M.M. Arjan Sharaf Al-Din Omar + Dr. Nabeh Z. Yassin Ezz El-Din (G)	Urban development of Kirkuk city from 2001 to 2020 using remote sensing technology and ArcGIS software	Urban development of Kirkuk city from 2001 to 2020 Using remote sensing technology and ArcGIS software	7
Ministry of Construction, Housing, Municipalities and Public Works, General Directorate of Planning Directorate of Urban Planning	This project aims to study and monitor urban changes in the city of Kirkuk during In recent years, radar imagery (SAR) and geographic information systems (GIS) technologies have been used. The methodology relies on analyzing multi-time satellite imagery to extract... (GIS). These technologies enable the accurate detection and comparison of changes in urban expansion areas, even in harsh weather conditions, providing an effective tool to support planning decisions. Urban and sustainable land management. The project contributes to building a geographic database.	Ahmed Khader Kaka Khan Surkan Mariwan Othman Daoud Hussein Mal Surah Ahmad Hassan Ahmad	+ M.M. A.M. Abdul Ta'ma Jassim (H) Muhammad Abdul Salam Abdul Karim	Monitoring urban changes in Kirkuk using radar images and GIS techniques	Monitoring urban changes in Kirkuk using radar imagery Geographic Information Systems (GIS) technologies	8

Ministry of Construction, Housing, Municipalities and Public Works, General Directorate of Planning Directorate of Urban Planning	The methodology relies on the analysis of multi-time satellite imagery to extract data both temporally and spatially. These techniques allow for the accurate detection and spatial comparison of changes in urban expansion areas, even under challenging weather conditions, thus providing an effective tool to support urban planning decisions and sustainable land management. The project contributes to building a modern geographic database that helps relevant authorities understand the dynamics of urban growth in Kirkuk in a scientific and systematic manner.	Huna R Muhammad Omar Ahmad Haddad Hedy Qader Hamad Faqi Rasoul Surkan Asos Khader Ghafoor Nabi	Jassim A.M. Abdul Ta'ma + M.M. Muhammad Abdul Salam Abdul Karim (H)	Monitoring urban changes in Kirkuk using radar images and GIS techniques	Monitoring urban changes in Kirkuk using radar imagery and GIS techniques	8
Kirkuk Governorate, Ministry of Planning and	This project aims to develop a model for classifying surface soil properties using remote sensing indices and various classification methods. Remote sensing data, such as satellite imagery, are collected, and spectral indices like NDVI and EVI are analyzed to determine soil properties. Classification algorithms, such as Support Vector Machines (SVMs) or randomized forests, are then used to train the model to classify the soils. The model is evaluated using a range of metrics, including accuracy and reproducibility. The project aims to provide accurate maps of soil property distribution, contributing to improved environmental resource management and agricultural planning.	Ahmed Saleh Mohammed Rashid Hoshyar Hemat Abbas Hayas Mustafa Falih Fatih Wahab (A.S.) Mohammed Khalil Ibrahim Jalal By God, Nihad Taqi Musa	+ M. Sumaya Falih Hassan M.M. Banaz Adib Fattah (I)	Algorithm for Developing a Model and Classifying Surface Soil Properties Using Remote Sensing Indices and Various Classification Methods	An algorithm for developing a model and classifying surface soil properties using remote sensing indicators and various classification methods.	9
Kirkuk Public Transport Directorate	The project relies on creating an accurate spatial database of the road network, including speeds, section lengths, directions, and traffic obstacles, so that network analysis can then be applied to determine the shortest and fastest routes between important points within the city.	Saif Ali Obaid Mukhlif Kamal Dar'a Ubaid Mukhlif Mohammed Hassan Khalaf Hazza (Parallel) Mikhlif Radi Mikhlif Ahmed Issa Nayef Abdullah Hazza Al-Jubouri	M. Alaa Omar Najm M.M. Mustafa Adnan Mardan (J)	GIS based network analysis to optimize routes for emergency services and public transport	GIS-based network analysis for route optimization for emergency services and public transport	10
Kirkuk Municipality Directorate and General Planning Directorate	This project aims to monitor road expansion and urban growth dynamics using satellite imagery and deep neural network techniques. Multispectral images from satellites such as Landsat and Sentinel are collected and analyzed to extract indices like NDVI and NDBI, which indicate changes in vegetation cover and built-up areas. Convolutional neural networks (CNNs) are used to classify the images and identify areas of urban expansion and new roads. The project provides time-based maps to represent infrastructure development over time. This analysis helps support urban planning and understand the dynamic trends of urban growth.	Osama Mahmoud Saeed Mohamed Diyar Aram Asaad Tawfiq Zanyar Hussein Hassan Muhammad Ali Hussein Majeed Fattah Imran Abdul Karim Medhat Amin	Prof. Dr. Abbas Mohammed Nouri + M.M. Farman Ghalib Saeed (K)	Automated Detection of Road Expansion and Urban Growth Dynamics Using satellite imagery and Deep Neural Networks	Monitoring road expansion and urban growth dynamics using satellite imagery and deep neural networks	11
various state departments	This project aims to analyze temporal measurements of the Global Navigation Satellite System (GNSS) using both stationary and mobile observations. It relies on data collection from both fixed stations, such as ground stations, and mobile stations, such as vehicles and aircraft. Measurements are compared, and temporal and spatial variations are analyzed to identify errors and improve positioning accuracy. The project utilizes correction techniques such as DGPS to minimize errors in the measurements. By analyzing the accuracy of measurements over the long term, it contributes to improving the system's performance in navigation and geographic survey applications.	Ibrahim Muhammad Khalil Issa Anmar Yasser Mohammed Talab Mustafa Amer Mahdi Saleh (transfer) Mustafa Fares Ali Hussein Tayba Muzaffar Bakr Hassan (Parallel)+ Muzaffar Mahmoud Hussein Ali	+ Dr. Muntazer Eidi Sharif, M.M. Aiden Adnan Rashid (L)	A Time-Based Analysis of GNSS Based on Static and Kinematic Observations	Time-based analysis of satellite-based salinity system measurements based on stationary and mobile observations	12
Roads and Bridges Department, Kirkuk Municipality Directorate, and Housing and Reconstruction Department	The project aims to identify optimal locations in Kirkuk Governorate for using environmentally friendly building materials as an alternative to traditional cement, focusing on areas with high temperatures to reduce heat absorption and carbon footprint. The project relies on Geographic Information Systems (GIS) as a primary tool for analyzing spatial and environmental factors, such as raw material availability, distance from residential areas, and transportation infrastructure. The results of the analysis contribute to supporting sustainable planning and encouraging the use of low-emission building materials in environmentally and climatically suitable environments.	Ismail Emad Ismail Hussein (Parallel) Hawraa Jabbar Rahim Nomas + Abdul Hamid Khalid Muhammad Allah Werdi Muhammad Najm al-Din Abdullah Rashid Youssef Yaqoub Murtaza Ali (U.Sh.)	Dr. Arjan Fakhr Al-Din Abdullah + M.M. Maha Adnan Mutab (M)	Spatial Analysis for Selecting Suitable Sites for Using Environmentally Friendly Building Materials as an Alternative to Cement Using Geographic Information Systems (GIS): A Case Study in Kirkuk Governorate	Spatial analysis to select suitable sites for using environmentally friendly building materials as an alternative to cement using Geographic Information Systems (GIS). GIS: A case study in Kirkuk Governorate	13