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| C:\Users\Ram Computer\Downloads\qqqqqqqqqqqqqq.png | **TISHK INTERNATIONAL UNIVERSITY****Civil Engineering Department****Graduation Project Proposal Form** |

**Project Information**

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| **Title of the Project** |
| Design and Analysis of Earth Dam with Variable Permeability using Geo-Studio Software. (Case Study: Bastora Dam) |
| **Project Description** |
| 1. Literature Review:
	1. Review existing literature on earth dam design, seepage analysis, permeability, and spillway design.
	2. Explore previous studies related to Bastora Dam and similar projects.
	3. Prepare the corresponding references.
2. Reservoir Survey:
	1. Conduct a detailed survey of the Bastora Dam reservoir area, including bathymetric measurements and sediment analysis.
	2. Gather hydrological data, including rainfall patterns and inflow sources.
3. GeoStudio Modeling:
	1. Develop a comprehensive 2D or 3D numerical model of Bastora Dam using GeoStudio software.
4. Incorporate geological and geotechnical data into the model.
	1. Assume variable permeability values for the dam's core and out-shells.
5. Seepage Analysis:
	1. Simulate seepage patterns within Bastora Dam under various conditions.
6. Evaluate the impact of different permeability values on seepage flow rates, directions, and potential risks like piping and internal erosion.
7. Stability Analysis:
	1. Conduct stability analyses to assess the safety of Bastora Dam under different loading scenarios.
	2. Investigate the influence of permeability variations on dam stability.
8. Spillway Structural Design:
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**Project’s Supervisor**

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| Name | Assoc.Prof.Dr.Thamir Mohammed Ahmed | E-mail | thamir.ahmed@tiu.edu.iq |
| **Project Justification/Characteristics** |
| New Aspects/Challenging Problems and Issues (if any) | The proposal you provided outlines a comprehensive and well-structured research project on the design and analysis of an earth dam with variable permeability using Geo-Studio software, with a focus on the Bastora Dam in Erbil, Iraq. |
| Related Civil Engineering Science Fields and Subfields | The project is concerned to the one of major pillars of Civil engineering. |
| Tools | Geostudio SoftwareGIS |
| Labs Needed for this Project | No |