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«Infrastructure and Construction Project Management»

**Postgraduate Diploma Thesis**

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***Risk Management in Offshore Wind Farm Construction***

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**Abstract**

This master's thesis examines risk management during the construction phase of offshore wind farms, a subject of significant concern to both the international construction and energy communities. As the expansion of offshore wind energy accelerates, the need for effective risk management strategies becomes increasingly critical due to the numerous challenges associated with environmental conditions, technical requirements, and organizational complexities inherent in offshore construction.

The research is based on an extensive literature review aimed at identifying and categorizing the risks that may arise during the construction of offshore wind farms. To assess their significance, a questionnaire was developed and distributed to specialized engineers with experience in construction, marine and wind energy projects. The responses were analyzed using the **Relative Importance Index (RII)**, while the correlation of risk assessments among different professional groups, based on their expertise in specific project types related to offshore wind farms, was examined through non-parametric statistical methods.

The findings of the study highlighted **environmental risks** as the most critical, followed by **accident-related risks** and **political risks**, based on their nature. Furthermore, through interviews with experienced engineers, specific risk mitigation measures were proposed, contributing to the development of a comprehensive risk management framework for offshore wind farms.

Overall, this study provides a systematic and well-documented framework for identifying, assessing, and addressing risks associated with the construction of offshore wind farms. Its findings serve as a valuable foundation for further research and development in the field of risk management for renewable energy projects, enhancing the potential for the safe and efficient implementation of such projects in the future.

**Keywords:** Risk Management, Offshore Wind Farms, Construction Phase, Relative Importance Index (RII), Non-Parametric Statistical Methods, Risk Identification, Risk Response.