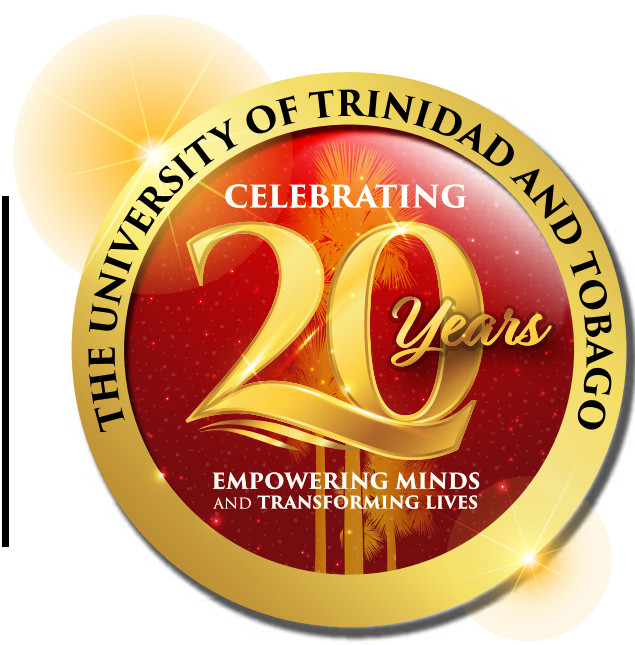




Office of Research, Impact and Postgraduate Studies

presents a **Postgraduate Seminar** titled

To Investigate Ocean Thermal Energy Conversion use in Tobago - Utilising AHP-TOPSIS Methodology to Select an OTEC Cycle Type

by **Mr Lynford Cheddie**

The ocean's vast expanse serves as a prime reservoir for solar energy, making it a key renewable energy source for many Caribbean islands. Ocean Thermal Energy Conversion (OTEC) leverages the temperature difference between warm surface water and cold deep-water to generate electricity sustainably. OTEC plants can meet base-load electricity demands year-round and can be constructed either onshore or offshore, utilising one of three primary OTEC cycles: the Open Cycle (OC), the Closed Cycle (CC), or the Hybrid Cycle.

This study aims to identify the most optimal OTEC system for the northeast region of Tobago, considering both onshore and offshore options and the use of OC, CC, or Hybrid cycles. Implementing an OTEC system involves evaluating numerous criteria. By employing a multi-criteria decision-making tool, specifically the AHP-TOPSIS model, the most suitable OTEC system for Tobago can be determined.

Experts consulted for this research identified four main criteria for evaluating OTEC plant implementation: Economic, Technological, Environmental, and Social Impact. Each of these main categories was further divided into subcategories. The results indicate that the onshore Open Cycle OTEC system is the optimal choice for the northeast region of Tobago. This study provides valuable insights that can guide the development of OTEC systems in Tobago and the wider Caribbean.



Mr LYNFORD CHEDDIE is a Senior Instructor in the Mechanical Engineering, Manufacturing and Entrepreneurship Unit at The University of Trinidad and Tobago (UTT). He is currently pursuing a Doctor of Philosophy (Ph.D.) in the use of Ocean Thermal Energy Conversion for Tobago and this is his second presentation. He holds a Master of Business Administration from Heriot-Watt University, Edinburgh Business School, an M.Sc. in Production and Engineering Management from the University of the West Indies and a B.Sc. in Mechanical Engineering from the University of the West Indies.

Mr Cheddie's research area is in renewable energy and emerging technologies. Apart from academia Mr Cheddie has over 20 years of Industry experience having worked in the field of Mechanical Engineering at Trinidad Cement Limited (CEMEX) and the ArcelorMittal Steel Plant. He is a registered engineer and member of The Board of Engineering of Trinidad and Tobago.

Friday 6th December, 2024 at 10:30 a.m.

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