

Editorial

I. From the Editor

The West Indian Journal of Engineering had made expeditious treatment of the backlog of publication submissions over the past two years. Some 22 articles had been published in the last two Volumes 32 and 33. This Volume 34 signals a new page for the Journal. Thereafter, the Journal will be coming off the press regularly with 2 issues per year, i.e., Issue No.1 in July and then Issue No.2 in January of following year.

The Editorial Office will be working with the Publications and Editorial Board and the International Editorial Advisory Committee for formulating workable strategies for taking the WIJE forward, particularly in regard to strengthening the support for the Journal and in improving a wider and more international reader and authorship.

As part of this WIJE initiative, proposals for special issues on topics of current interests in engineering, engineering management and related disciplines are always welcome. Please send a brief description of the concept for the issue to The Editorial Office, WIJE, c/o Faculty of Engineering, UWI (E-mails: uwije@sta.uwi.edu; KitFai.Pun@sta.uwi.edu). If the initial response is favourable, the Editor-in-Chief will request a specific plan and more detailed information to be used in the final decision about proceeding with the special issue.

II. About This Volume

This Volume incorporates two issues (i.e. Volume 34 Numbers 1 and 2). It includes twelve research articles. The relevance and usefulness of respective articles are summarised below.

R.A. Dawe, R. Hosein and J. Marcelle de Silva, “The Contribution of the Petroleum Studies Programmes at the UWI to the Local Oil and Gas Industry”, review the Petroleum Industry in Trinidad and Tobago (T&T), and provide the history of the Petroleum Studies (PS) Unit at The University of the West Indies (UWI). The Petroleum Studies programmes offered fill an important need by educating local professionals for employment in the oil and gas industry. The paper concludes with how the PS Unit has contributed to the industry within the Caribbean and T&T in particular.

D. Sinanan and R. Hosein, “Transition Probability Matrices and Revealed Comparative Advantage Persistence in a Small Hydrocarbon-based Economy”, explore the changing pattern of exports and calculate the Revealed Comparative Advantage (RCA) index using 3-digit export data of T&T for the period 1991-2008. The results indicated that the pattern of trade in T&T has become more specialised as the country focused on the export of petroleum products and has not placed as much

emphasis on the development of non-energy exports.

M.M.H. Sarker and M. Osman Tokhi, “Modelling and Control of a Water-based System of Multiple Mobile Robots for Unmanned Rescue”, discuss the need for a water-based system of Multiple Mobile Robots (MMR) for unmanned rescue. The modeling and control of the MMR system is based on laser optics and a prototype is developed. In this paper, the move-ability and inter-relationships of the MMR prototype are examined. Comparative assessments of the MMR performance with other systems are also presented.

M.G. Fletcher, “Effects of High Interest Rate on Technology Implementation in Jamaica”, examines how the adoption of a high interest rate policy has affected the affordability and implementation of technology in Jamaica. The paper discusses the effects of high interest and high currency exchange rates on the supply of funding that hinders technology growth, and concludes that only through technological means would Jamaica grow toward wealth creation.

A. Mwasha and J.R.F. Lalla, “Analysing the Strength Parameters of Concrete Manufactured Using Natural and Recycled Guanapo Aggregates”, investigate into the strength parameters of concrete using the compressive strength and splitting tensile strength tests (with ASTM C39 and ASTM C496). The paper provide the experimental findings that could validate the viability of using recycled Guanapo aggregates as a suitable substitute for natural aggregates in Trinidad and Tobago

R.J. Murray, S. Hosein and S. Kelly, “An Investigation of Methanol-Coconut Oil Fuel Blends in Diesel Engines for Caribbean Power Generation Using Bio-diesel as a Co-solvent”, explore two potential alternative fuel sources (i.e., methanol and coconut oil) that can be utilised diesel engines for power generation. It was found that the methanol blends had better engine performance when compared to neat coconut oil operation. Using coconut oil biodiesel as a co-solvent, methanol-coconut oil blends can serve as potential fuel replacements for diesel in the Caribbean.

A.M. Sharaf and A.A.A. El-Gammal, “A Hybrid Soft Regulating (Wind-FC-Diesel-Battery) Renewable Energy for Island/Village Utilisation Scheme”, present a hybrid AC-DC renewable energy scheme with two dynamic FACTS-based devices and a coordinated multi regulator dynamic controller. The unified scheme with multi-regulation dynamic gain scheduling controllers is validated for efficient energy utilisation and stabilised operation. The techniques of Multi-Objective Particle Swarm Optimisation and Multi-Objective Genetic Algorithm are used to adjust the regulator-control gains online to minimise a set of specified objective functions.

J.S.L. Ting and A.H.C. Tsang, “Design of an RFID-based Inventory Control and Management System: A Case Study”, propose an RFID-based system that collects

accurate real-time data relating to transactions of physical stock items for enhancing product life cycle management in manufacturing organisations. A case in the paper product industry is presented to illustrate the seven-stage framework for system implementation and the expected benefits after deployment of the proposed system.

K.K. Alaneme and A.O. Aluko, “Production and Age-Hardening Behaviour of SiC Reinforced Aluminium Composites Developed by Modified Stir-Casting Technique”, explore how to establish optimum processing and thermal ageing conditions required for the development of Al 6063/SiC_p composites. In this paper, the adoption of a two-step stir casting is presented. Micro-structural characterisation and density measurements are used to evaluate the production quality of the composites. The hardness measurements are used to determine the age hardening behaviour of the composites.

K.S. Chin and K.F. Pun, “Hierarchical Evidential Reasoning-based Assessments of New Product Development Strategies”, investigate into the relative importance of decision factors that affect the assessments of new product development (NPD) strategy for manufacturers. The development of a hierarchical evidential reasoning-based model is presented, and five distinctive evaluation grades of NPD strategies are introduced. The efficacy of the model depends on the establishment and customisation of a knowledge base to be built and validated for respective companies.

S. Bahadoorsingh, S. Sambharay, R. Balliram and C. Sharma, “Electrical Treeing Diagnostics - An Approach Combining Optical Measurements and Partial Discharge Statistics”, describe a consolidated approach to further study electrical treeing and improve in-situ diagnostics. The approach combines the laboratory constrained optical measurement techniques of electrical tree growth with the statistical analysis of associated captured partial discharge analysis.

K.D. Thomas, E. Omisca, J.A. Howard and M.A. Trotz, “A Proposed Methodology for Surface Water Quality Management for Sustainable Ecotourism in the Caribbean”, report the results of a longitudinal water quality monitoring study at Iwokrama, Guyana and Greencastle Estate, St. Mary, Jamaica. A proposal of a surface water quality management method is presented taking into the consideration of political, geographical/institutional, technical and economical issues. The paper also discusses how reliable data can be obtained through partnerships and training of local onsite staff.

III. Acknowledgements

On behalf of the Editorial Office, we gratefully acknowledge all authors who have made this special issue possible with their research work. We greatly appreciate the voluntary contributions and unfailing support that our reviewers give to the Journal. Our reviewer panel is composed of academia, scientists, and practising engineers and professionals from industry and other

organisations as listed below:

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KIT FAI PUN, *Editor-in-Chief*

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