

Editorial

This Volume 41 Number 1 includes eleven (11) research/technical articles and a memorial written for the late Emeritus Professor Harry Phelps who was Head of Department of Civil Engineering (1972-1984) of The University of the West Indies. The relevance and usefulness of respective articles are summarised below.

E.F. Ochulor *et al.*, “Potential of Green Sand Rice Husk Ash Mould as Carbide Deactivator in Thin Wall Ductile Iron”, explore the potential use of thin wall ductile iron (TWDI) components for automotive parts’ applications. In this paper, they present the effects of 1-6 wt.% rice husk ash (RHA) additions to moulding sand on microstructure (Optical and SEM) and mechanical properties of cast 2 mm TWDI. It was found that RHA significantly reduced carbide precipitates in microstructure of cast 2 mm TWDI parts, also castings with nodularity ratings ~ 90%, high nodule count > 1,000 nodules / mm² and high strength of 564 MPa were obtained at 4 wt. % RHA addition. High ductility of 4.7 occurred at 6 wt. % RHA addition.

In their article, “Predicting Student Performance in a Caribbean Engineering Undergraduate Programme”, **R. V. Adams and C.A. Radix** examine the degree to which the Caribbean Examinations Council (CXC) Advanced Proficiency Examination (CAPE) entry-grades predict both student final-graduating and in-programme course performance in a Caribbean engineering undergraduate programme. The data set included graduation, course and entry data for 140 students who graduated from the programme between 2014 and 2016. The results suggest that the entry criteria serve as a means of predicting the probability of achieving success, rather than the actual success level.

O.A. Irondi, M.O. Nwagbara, and M.A. Okon, “Spatial Variability of Soil Thermal Conductivities within a Horizontal Gas Flaring Site Owaza, Southeast Nigeria”, investigate the spatial patterns of soil thermal conductivity in agricultural meteorology. The study was conducted to determine the spatial pattern of soil thermal conductivities on sample distance points away from a horizontal gas flaring site. It was found that the geostatistical linear interpolation using kriging clearly conveys rare insight into the way predicted soil thermal conductivity varied within the horizontal gas flare site.

In the fourth article, “Spinach Pasta for Cerebral Palsy in Trinidad and Tobago”, **N. Hosein *et al.***, present the findings from a pre-study that was conducted to determine whether caregivers of Cerebral Palsy (CP) children/patients in Trinidad and Tobago (T&T) were willing to use nutrient dense spinach pasta. Spinach pasta was developed for oral and tube fed persons. It was found that inadequate information on CP negatively impacted support through Government funding and quality of life

for patients and caregivers. The influence on purchasing behaviour was nutritive value and not price, usually determined in consumer studies.

O.I. Oluwole, “Development of Oil Palm Fruit Fibre/Cementitious Based Composites for Building Applications”, explores the development of composite using ceramic matrix based material reinforced with oil palm fruit fibre (OPFF). It was found that both treated and untreated OPFF reinforced composite samples showed improved properties. The rate at which the treated OPFF within 0-10 % reinforced sample absorbed water is lower than that of unreinforced sample. Untreated OPFF reinforced composite samples demonstrated better compressive and bending strength potentials when compared to their treated counterparts.

A.L. Adejumo, F.A. Aderibigbe and R.U. Owolabi, “Chemical Composition and Characterisation of Skin Gelatins from Two Different Freshwater Fish Species in Osun State of Nigeria: A Comparative Study”, investigate into the extraction of gelatin from the skin of tilapia and catfish from Osun State of Nigeria. It was found that tilapia fish skin gelatin is more hydrogen bonded than that of catfish skin gelatin. The foaming properties of tilapia fish gelatin were higher than the foaming properties of catfish gelatin. Results show that gelatin from tilapia fish can act as better foaming agent as compared to gelatin extracted from its catfish.

In their article, “Design and Fabrication of a Moist Heat Therapy Device for Treating Non-specific Low Back Pain”, **O.O.E. Ajibola, K.O. Fagbolagun, and O.P. Folorunso**, describe the design and fabrication of an electronic moist heat therapy device for administering heat therapy treatment for non-specific low back pain (LBP). Results show its advantages over the use of traditional hot water bottles which temperature cannot be regulated. The device is capable of maintaining target temperature required for effective heat therapy for non-specific LPB, without any concerns of heat loss or subsequent fall in temperature.

J. Ramkissoon and U. Persad, “Evaluating the State of Product Design in Trinidad and Tobago”, describe a study of product design and manufacturing companies in Trinidad and Tobago. Design process and product audits were used to evaluate the current design practice and quality of the designed products. It was found that local design process capabilities and product quality are lacking within Small and Medium Enterprises (SME’s). Recommendations included design education workshops to sensitise business owners about product design techniques and audits, and national incentives to encourage and support the business of product design through product design partnerships.

In the eighth article, “A Rapid Post-Hurricane

Building Damage Assessment Methodology using Satellite Imagery”, **B. Ramlal, D. Davis and K. de Bellott.**, demonstrate the potential of Remote Sensing for rapid building damage detection using an automated approach in small island states in the Caribbean. Object-Based and Pixel based methods were compared with visually identified reference information from high resolution imagery for the 2004 Hurricane Ivan impact on Grenada. It was demonstrated that the object-based method achieved over 85% classification accuracy among a three damages grade classification scheme in two separate scenarios with different study area extents.

J. Barsatie and K.F. Pun, “Assessment of Smart Buildings in the City of Port of Spain, Trinidad and Tobago: Some Findings and an Approach” report the findings of a recent study on adopting a standalone versus integrated smart buildings (SB) strategy in Trinidad and Tobago (T&T). The findings provided some empirical ground for deriving a five-step SB assessment approach, comprising 1) building governance, 2) defining SB, 3) deriving SB indices, 4) developing component/attributes index, and 5) mapping building design. The proposed SB assessment serves as a practitioners-oriented approach to assess smart solutions of buildings in T&T.

M. Nathai-Balkissoon, “The Impact of an Occupational Safety and Health Module on University Students’ Safety Attitudes”, reports on how a taught safety module impacted the university student safety attitudes. The module addressed hazard identification and risk assessments, using face-to-face and online teaching and assessment modes along with real-world risk assessments. A t-test identified 15 statistically significant improvements to students’ safety attitudes within five areas, namely attitudes to learning about safety, personal safety outlook and behaviours, focus on safety of others, outlook on safety and safety leadership, and state of safety knowledge.

G.S. Shrivastava and C.A.C. Imbert, “Professor Emeritus Harry Orville Phelps (1929-2018): A Memorial”, speak about both academic and profession life, and recognise the commitments and contributions of late Professor Emeritus Harry Orville Phelps towards the development of civil engineering disciplines and professionals in Trinidad and Tobago and the wider Caribbean region.

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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