



Volume 4(4) 2022

www.nipesjournals.org.ng

eISSN-2682-5821

pISSN-2734-2352



**Nigerian Institution of Professional
Engineers and Scientists (NIPES)**

Journal of Science and Technology Research



November, 2022

eISSN-2682-5821

pISSN-2734-2352



NIPES

Journal of

Science and Technology Research

Volume 4(4) 2022

The Nigerian Institution of Professional Engineers and Scientists

© 2022 NIPES Publications. All rights reserved

The Nigerian Institution of Professional Engineers and Scientists (NIPES)

The Nigerian Institution of Professional Engineers and Scientists (NIPES) is a research community consisting of field experts in engineering and science. It was founded by a group of researchers in the University of Benin, Nigeria. NIPES is a member organization of Crossref (USA) and the National Chapter of the International Association of Professional Engineers and Scientists which is registered in accordance with the provision of the Allied Matters Act, Cap. C20, Laws of the Federation of Nigeria through the Commission. NIPES stands to promote and facilitate the exchange of research information among engineers and scientists and provide opportunities for interaction among members in the field including those in academia, research institutions, government agencies and industry.

Our Mission

To promote engineering-science interaction and maintain very high standard research publications through critical review of manuscripts and ensure its entrenchment to reputable ethical code of practice

Our Vision

To be the leading gateway for disseminating high quality and innovative research in engineering and science across Africa

Journal Scope

The Journal of Science and Technology Research focuses on novel aspects of engineering, physical science and life science, especially in areas of modeling, optimization and experimentation.

Editorial Board Members

Chief Editor

Prof. F.F.O Orumwense

University of Benin

Associate Editors

Dr. K. I. Falade

Kano University of Science and Technology, Kano

Prof. S. Enibe

University of Nigeria, Nsukka

Dr. E. F. Uchenna

Nnamdi Azikiwe University, Awka, Anambra

Prof. B. Mohammed

Federal University of Technology, Minna

Prof. M.O Ibrahim

University of Ilorin, Kwara

Dr. P.E Amiolemhen

University of Benin

Prof. B. S Lawal

University of Ibadan

Dr. Rufai A. Abu

Abubakar Tafawa Balewa University, Bauchi

Dr. O. Ogbeide

University of Benin

Prof. K.O. Obahiagbon

University of Benin

Dr. A. Erameh

Igbinedion University, Okada

Executive Council Members

Dr. Collins Chike Kwasi-Effah University of Benin- Chairman /Managing Editor

Dr. Osarobo O. Ighodaro- University of Benin - Chief Executive Officer

Prof. Albert I. Obanor- University of Benin -President (Research)

Prof. Godfrey O. Ariavie- University of Benin -Executive Vice President (Research)

Dr. Godwin E. Sadjere- University of Benin -President (Operations)

Dr. Uche P. Onochie-Alex Ekweme University Ebonyi -Technical Associate (Research)

Engr. Osamudiamen Efofa University of Benin Executive Secretary

Correspondence:

C/o Department of Mechanical Engineering, University of Benin, Benin City, Nigeria

Email: nipesjournals@gmail.com Website: www.nipesjournals.org.ng Phone No: +2349057781486

The National Secretariat of NIPES, 22 Mashun Crescent, Cadastral Zone 4, Gwagwalada, Abuja

Editorial Office: Rm 137 Department of Mechanical Engineering, Faculty of Engineering, University of Benin, PMB 1154 Ugbowo, Edo

Table of Contents

Title	Author	Page
Long-Term Variation of Surface Water Quality at Bung Binh Thien, An Giang Province, Vietnam	<i>Nguyen Thanh Giao</i>	1-10
Investigating Sources of Surface Water Pollution in Dau Sau Canal, Can Tho City, Vietnam	<i>Nguyen Thanh Giao</i>	11-17
Neural Network Prediction of Self-Similarity Network Traffic	<i>Ikharo A. B. & Anyachebelu K. T.</i>	18-26
Integration of Unstructured Supplementary Service Data (USSD) Into A University's Portal	<i>Fidelis Odinma Chete and Roosevelt Abandy</i>	27-39
Oil Palm Plantation Detection in Satellite Image Using Deep Learning	<i>Fidelis Odinma Chete & Vincent Akinwande</i>	40-56
A Review of Hazards and Precautionary Measures in Science and Technology Laboratories	<i>Igbashio, Mercy Doofan, Obasuyi Emmanuel Idemudia, and Ochoyama, Haruna</i>	57-71
Strength Characteristics of Oyster Shell Ash and Periwinkle Shell Ash Stabilized Lateritic Soil for Pavement Construction	<i>J. A. Oke, N. O. Obaji & A. A. Ikoya</i>	72-89
Production of Local Soap Using Alkali Derived from Mango and Plantain Peel	<i>Igbashio, M.D & Obasuyi, E.I.</i>	90-95
Simulation Based Design of A 275kV High Voltage Bushing	<i>Ofuase C.J. & Aikhoje P. T.</i>	96-106
Performance Evaluation of A PV Solar Tracker Panel	<i>Oriaifo A. P. & Akahomen I. E.</i>	107-121
Design and Implementation of a Digital Video Broadcasting System Using Software-Defined Radio	<i>Bello N. & Obasohan O.</i>	122-136
Design and Construction of a Double-Sided-Double-Line LED Matrix Display	<i>Bello N. & Obasohan O.</i>	137-151
Design and Fabrication of An Automatic Temperature Control Lithium-Ion Battery Charger	<i>Oriaifo A. P. & Muhammed A. A.</i>	152-163
Characterized Indices of Bond Thickness Variation on RC Beams Strengthened Externally by Bonded Carbon FRP	<i>John A. TrustGod, Osuji S. Obinna, Nwankwo</i>	164-171
Effects of Procurement Documentation Errors on the Cost Performance of Construction Projects in Nigeria	<i>Chukwuemeka Patrick Ogbu, Winifred Enakeno Taigbenu, Christian Fidelis Asuquo</i>	172-185
Investigating the Effect of Flexural Strength of I and Box African Birch Built-up Beam on Nail Spacing	<i>U.N. Wilson, J.E. Sani, J.A. Sadiq, M.T. Abdulwahab, P. Abubakar, R.O. Rahmon</i>	186-197

Performance Evaluation of Photovoltaic System Using Different Cooling Methods	Golden Enobakhare, Emmanuel Esekhaigbe, Uche.D.Uzonitsha	198-214
Design and Construction of an RFID Based Drug Prescription Management System	Ojo Kennedy Odu, Izehise Lucky Igbinomwanhia, Ogieva Eghosasere Williams	215-225