



### TABLE OF CONTENTS

#### SECTION A: BUILDING, CIVIL & GEOTECHNICAL ENGINEERING

Determination of Verticality of Reservoir Engineering Structure from Laser Scanner Data	R. Ehigiator-Irughe and M. O. Ehigiator	322
Structural Behavior of Metakaolin Infused Concrete Structure	J. O. Akinyele, S. O. Odunfa, A. A. Famoye and S. I. Kuye	331
Compaction and Consolidation Characteristics of Lateritic Soil of a Selected Site in Ikole Ekiti, Southwest Nigeria	A. Bolarinwa, J.B. Adeyeri and T. C. Okeke	339
Equilibrium Approach in the Derivation of Differential Equations for Homogeneous Isotropic Mindlin Plates	C. C. Ike	346
Kantorovich-Euler Lagrange-Galerkin's Method for Bending Analysis of Thin Plates	C. C. Ike	351
Solution of Free Harmonic Vibration Equation of Simply Supported Kirchhoff Plate by Galerkin-Vlasov Method	B. O. Mama, H. N. Onah, C. C. Ike and N. N. Osadebe	361
Models for Predicting Compressive Strength and Water Absorption of Laterite-Quarry Dust Cement Block using Mixture Experiment	F. O. Okafor and E. A. Egbe	366
Modified Water-Cement Ratio Law for Compressive Strength of Rice Husk Ash Concrete	M. Abdullahi, G. O. Ojelade and S. M. Auta	373
Experimental Validation of Optimum Resistance Moment of Concrete Slabs Reinforced With Carbon Fibre-Reinforced Plastic	E. E. Okoro, A. U. Nwafor and O. S. Abejide	380
Utilisation of Rice Husk Ash for Improvement of Deficient Soils in Nigeria: A Review	M. Alhassan and M. M. Alhaji	386
Evaluation of Land Surface Temperature Parameterization Approaches using Surface- Layer Observations	R.T. Akinnubi, and M. O. Adeniyi.	395

Performance of Concrete with Partial Replacement of Fine Aggregates with Crushed Waste Glass	A. W. Otunyo and B. N. Okechukwu	403
<b>SECTION B: CHEMICAL, INDUSTRIAL, MATERIALS, MECHANICAL, METALLURGICAL, PETROLEUM &amp; PRODUCTION ENGINEERING</b>		
Finite Element Analysis of Plastic Recycling Machine Designed for Production of Thin Filament Coil	P. K. Farayibi	411
Assessment of Some Mechanical Properties and Microstructure of Particulate Periwinkle Shell-Aluminium 6063 Metal Matrix Composite (PPS-ALMMC) Produced by Two-Step Casting	R. Umunakwe, D. J. Olaleye, A. Oyetunji, O. C. Okoye and I. J. Umunakwe	421
Optimised Intake Stroke Analysis for Flat and Dome Head Pistons	A. A. Ishola, A. M. Alsheri and A. I. Musa	428
Development and Evaluation of a Drill Re-Grinding Fixture	S. O. Ejiko, J. T. Adu and H. A. Owolabi	437
Organic Template Free Synthesis of ZSM11 from Kaolinite Clay	O. A. Ajayi, S. S. Adefila and M. T. Ityokumbul	444
Physico-Chemical Properties and Energy Potential of Wood Wastes From Sawmills in Benin Metropolis, Nigeria	E. P. Akhator, A. I. Obanor and A. O. Ugege	452
Comparative Evaluation of Pressure Distribution Between Horizontal and Vertical Wells in a Reservoir (Edge Water Drive)	I. Eiroboyi and S. I. Wikie	457
Analysis of Pressure Variation of Fluid in Bounded Circular Reservoirs under the Constant Pressure outer Boundary Condition	I. D. Erhunmwun and J. A. Akpobi	461
Comparative Analysis of Type 1 and Type 2 Cassava Peeling Machines	C. Nathan and U. J. Udosen	469
Design and Fabrication of a Multipurpose Railroad Hand Truck	C. N. Nwogu, B. N. Nwankwojike, C. Anyaregbu and C. Arisa	477
Optimization of Coagulation-Flocculation Process for Colour Removal from Azo Dye using Natural Polymers: Response Surface Methodological Approach	I. A. Obiora-Okafo, and O. D Onukwuli	482
Evaluation of Pawpaw Leaves Extract as Anti-Corrosion Agent for Aluminum in Hydrochloric Acid Medium	M. Omotioma and O. D. Onukwuli	496
Knock Characteristics Analysis of a Supercharged Spark Ignition Engine using Three Grades of Fuels	D. C. Uguru-Okorie, A. A. Dare and A. A. Burluka	505
Enhanced Oil Recovery using Local Alkaline	P. Akpoturi and S. F. Ofesi	515
Comparative Analysis of Diagnostic Applications of Autoscan Tools on Vehicle Systems	A. O. Ezeama, P. I. Obe, M. Aniago and E. O. Ede	523

On the Response of Impacting Compliant Flex Run	T. T. Akano and O. A. Fakinlede	528
Enhanced Ex-Situ Bioremediation of Soil Contaminated with Petroleum Refinery Waste Effluents by Biostimulation through Electrokinetics and Inorganic Fertilizer	S. E. Agarry	534
Bioelectricity Generation and Treatment of Petroleum Refinery Effluent by <i>Bacillus Cereus</i> and <i>Clostridium Butyricum</i> using Microbial Fuel Cell Technology	S. E. Agarry	543

### SECTION C: COMPUTER, TELECOMMUNICATIONS, SOFTWARE, ELECTRICAL & ELECTRONICS ENGINEERING

Modeling and Optimization of an Electric Power Distribution Network Planning System using Mixed Binary Integer Programming	L. Ogunwolu, O. Ero and O. Ibidapo-Obe	552
Analysis of Acidic Properties of Distribution Transformer Oil Insulation: A Case Study of Jericho (Nigeria) Distribution Network	D. O. Adekoya and I. A. Adejumobi	563
Grid-Connected Photovoltaic System Design for Local Government Offices in Nigeria	D. O. Johnson and A. A. Ogunseye	571
A Maximum Power Point Tracking Scheme for a 1kW Stand-Alone Solar Energy Based Power Supply	D. B. Nnadi, C. I. Odeh and C. O. Omeje	583
Control of a Dc Motor using Fuzzy Logic Control Algorithm	I. H. Usoro, U. T. Itaketo, and M. A. Umoren	594
Comparative Study of Moore and Mealy Machine Models Adaptation in Black Soap Production	S. A. Akinboro, A. Omotosho, J. A. Adeyiga and E. Effiom	603
Harmonics Mitigation on Industrial Loads Using Series and Parallel Resonant Filters	I. A. Adejumobi, O. I. Adebisi and J. E. Amatu	611

### SECTION D: AGRICULTURAL, BIORESOURCES, BIOMEDICAL, FOOD, ENVIRONMENTAL & WATER RESOURCES ENGINEERING

Separation of Oil Palm Kernel and Shell Mixture using Soil and Palm Ash Slurries	R. S. Agu, P.C. Eze and C. U. Omeje	621
Determination of Physicomechanical Properties of Velvet Bean ( <i>Mucuna Pruriens</i> ) from South Eastern Nigeria	P. C. Eze, C. N. Eze and R. S. Agu	628
Performance Evaluation of Magnus Screw Press (Model Ms-100) for Palm Kernel Oil Extraction	S. L. Ezeoha, C. O. Akubuo, E. U. Odigboh, and M. Arallo	636
Design and Determination of the Efficiency of a Slanting-Type Solar Water Distillation Kit	J. O. Ozuomba, A. Emmanuel, C. U. Ozuomba and M. C. Udoye	643

Climate Change and Lake Water Resources in Sub-Saharan Africa: Case Study of Lake Chad and Lake Victoria	A. D. Yunana, A. A. Shittu, S. Ayuba, E. J. Bassah. and W. K. Joshua	648
Physico-Chemical Characterization of Groundwater of Kaltungo, Gombe State, Nigeria and Treatment for Flouride Removal	S. B. Onoja, M. O. Isikwue, J. F. Malum	655

