

Table of Contents

Preface

Chapter 1: Modelling of Machines and Machine Parts

Design Optimization of Cold Air Intake (CAI) System with Valvetronic to Enhance Engine Performance and Efficiency: A Mitsubishi Lancer Evo VIII Study Addressing SDG 9.4 and 12

I.J. Aditya, Z.S. Lie and I. Mahardika 3

Sloshing and Stress Analysis of an API 620 Tank under Seismic Excitation Based on SNI 03-1726-2019: Numerical Evaluation of Code Provisions

A.P. Nabilah, R. Setiawan and A. Nadjuri 9

Efficiency of Buoyancy Force Generation in a Pump-Based Buoyancy Engine for a Small-Scale Underwater Glider

A.S. Jaya and Y.A. Putra 23

Analysis of Steam Turbine Generator Overhaul for Efficiency Enhancement at the Power Plant Center of Refinery Unit

N.A. Bahar, B.W. Riyandwita and S.J. Zakky 35

Chapter 2: Fault Detection

Integrity Assessment of Offshore Pipeline Subjected to Anchor-Induced Dents Using Finite Element Analysis

A. Arianta 47

Combination of Discriminant Analysis and Minimum Redundancy Maximum Relevance for Induction Motor Fault Diagnosis Using Stator Current Signals

D.Y. Kurniawan, D.S. Didik and J.W. Purwadi 59

Diagnosing Induction Motor Fault Based on ReliefF Feature Selection Algorithm and Support Vector Machine Model

F. Anta, D.D. Susilo and Z. Arifin 71

Chapter 3: Power Engineering

An Evaluation of System Record-Based Causes of System Collapse Incidences of Nigeria's Transmission Grid

S.O. Aremu, A.O. Melodi and M.R. Adu 83

Performance Evaluation of Reverse Power Flow on Electrical Power Network with Wind Energy Source

P.T. Ogunboyo, O. Ogunlade and F. Onime 91

Techno-Economic Modeling of Hybrid PV/Wind/Biomass Microgrid Renewable Energy Systems Using Load Following Dispatch Method

U.O.N. Ezeanyanwu, M.N. Eke, S.O. Enibe and T.C. Jen 103

MPC-Based Power Transmission Line Model for Fast Recovery from Perpetual Faults

M.I. Onimisi, Y.O. Adeiza, M. Hassan, I.I. Abubakar, I. Yusuf and A.D. Yahaya 117

A Compact Review on the Impacts of Integration of Large-Scale Renewable Energy Sources into Grid-Connected Power Systems

A.O. Banjoko, A.O. Melodi and M.R. Adu 125

Development of a Predictive Model for Monthly Electricity Consumption Using Population and Weather Data with Web-Based Programming Language

P.T. Ogunboyo, E.S. Magi and E.A. Ekson 139

Analysis of Metal Oxide Surge Arrester's Dynamic Performance for Lightning Protection

S.J. Terry, I.A. Adejumobi, O.I. Adebisi and F.G. Akinboro 147

Dependency of Soil Resistivity on Soil Factors for Optimal Grounding System Performance: A Case Study of Six Sites at Funaab, Nigeria O.I. Adebisi, M.A. Akinyemi, K.A. Amusa, F.M. Alayaki, T.C. Erinosho, P.O. Olaogun and M.A. Ita	163
---	-----

Chapter 4: Robotics and Automation

Optimized Design for the Flap Folding System of a Carton Sealer Machine by Automation L. Anggraini and B. Ardiansyah	177
Mobile Robot Selection Using AHP MOORA and Simulation Modelling for Material Handling Automation T. Frederick, A.S. Ratum and A. Tasilm	185
Design and Dynamic Characteristics of a Two-Legged Wheeled Self-Balancing Robot Platform A.S. Jaya and F.M. Akbar	199