

Table of Contents

Preface

Chapter 1: Production Technologies and Processes

A Method for Micro Powder Dispensing by Using DC Motor with a 2-Axis Vibration M.I. Badranaya, J. Pratama, U.A. Salim, S. Suyitno, B. Arifvianto and M. Mahardika	3
The Start-Up Phase of Aluminum Billet Production Using Direct Chill Casting K. Rajagukguk, S. Suyitno, H. Saptoadi, I. Kusumaningtyas, U.A. Salim, B. Arifvianto and M. Mahardika	11
Fatigue Crack Growth of AISI 1020 Steel Grade in Pre-Deformed Condition M. Badaruddin, J. Tiastuti, T.B. Utami, H. Supriadi and Z. Zulhanif	19
Rheology Investigation of Metal Injection Molding Feedstock Based on Powder Particle Shape and Solid Loading W. Widyastuti, B.A. Kurniawan, A.P. Wibowo, E.N. Falah, S.P. Wijaya, A. Aditya Pratama, N. Safrida and F. Ali	27
Preliminary Study on the Potential of Krueng Mane River Sand for Metal Casting Use M. Yusuf, S. Bahri, A. Agustinawati, M. Sayuti, I.M. Maulana and T.R. Bilza	35
Factors Affecting the Sustainable Secure Supply of Minerals M. Saleki and M.H. Mohd Hashim	41
Fabrication and Characterization of Colorant-Doped Glass Produced with Local Sand of Nong Phok Site W. Wongkamjan, P. Chanani, C. Boonruang, K. Won-In and P. Dararutana	49
Investigating the Impact of Short Burden and Spacing on Blasting Output in Zeberced Quarry M.B. Saka, S.O. Ayoola and M.H. Mohd Hashim	59
Design of Experimental (DOE) Analysis of Silica Sand Processing Using Spiral Concentrator P. Sinaiyah, S. Udayakumar, H. Hussin and S. Ramakrishan	65
Investigation of Phosphorus Spin on Dopant on SOI Wafer T.Y. Tian and K.A. Yaacob	75

Chapter 2: Battery Management System

The State of Charge Estimation of LiFePO₄ Batteries Performance Using Feed Forward Neural Network Model E.R. Dyartanti, A. Jamaluddin, M.F. Akshya, D.Z.F. Akhir, H.S.E.A. Gustiana, A. Purwanto, A.H.I. Abharan and M. Nizam	85
Implementation of Vue Js and Laravel on Monitoring Battery Management System F.A. Purnomo, D.M. Setyaningsih, G.M. Liset, R.A. Nurfi, S. Sulistyawan, W.G. Suci, A. Purwanto and H.K.K. Aliwarga	95
Modular Battery Management System Concept for Medium-High Voltage System M. Nizam, E.R. Dyartanti, A. Purwanto, F. Adriyanto, A. Jamaluddin, C.H.B. Apribowo, H.S.E.A. Gustiana, S. Adyatama, R.M. Irsyad, G.R. Illahi, H. Hafidzsyah and M.F. Akhsya	107
An Efficient Hybrid Energy Smart System Using Lithium Ion Batteries Integrated with Battery Management System E.H.A.N. Ma'rifah, S. Al Farisi, H.K.K. Aliwarga, A. Supriyanto, A. Purwanto and W.G. Suci	121

Chapter 3: Sensors

Development of Biosensor for early Detection of COVID-19 A.H. Abu Bakar, N. Mohamad Nor, Z. Lockman, N.A. Parmin and K.A. Razak	131
---	-----

Bismuth Nanoparticles Modified Indium Tin Oxide-Coated with Polyethene Terephthalate Electrode Using Hydrothermal Method for Pb Detection N.H. Ramli, N. Mohamad Nor, L.X. Yun and K.A. Razak	139
Malathion Detection Using Molecularly-Imprinted Polymer Quartz Crystal Microbalance Sensor M.D.L. Balela, G.Z.D. Vega and Y.Y.A. Suyat	147

Chapter 4: Technologies in Prosthetics

Investment Casting Simulation of ASTM F75 Acetabular Implant with Mold Pattern Orientation and Gating System Geometry Variation Y. Setiyorini, S. Pintowantoro, F. Abdul, Y.L. Novita and F. Ardian	157
Simulation of Design Optimization and Performance of CoCrMo Acetabular Hip Prosthesis Implants on Climbing Stairs Activity Using Finite Element Method F. Ardian, Y. Setiyorini, S. Pintowantoro, F. Abdul and K.D.A. Ilman	169

Chapter 5: Modelling and Performance Analysis of Technological Equipment and Machines

Comparison of Artificial Neural Fuzzy Inference System (ANFIS) and Response Surface Methodology (RSM) Model in Predicting the Outlet Flow Rate of Passive Treatment System Column K.E.H. Ku Ishak, O.W. Jie, K.Y.K. Anuar, S. Ismail and M.S. Mohd Halim	185
Simulation of Pressure Swing Adsorption for Oxygen Concentrator Using LiX Zeolite N.A. Fauziah, T. Kurniawan and A. Irawan	195
Dynamic Modeling Simulation of Regenerator for Glass Furnace Applications A. Kusnanto, T. Kurniawan and A.B. Pitaloka	205
Analysis of Flettner Rotor to Reduce Carbon Emissions in Container and Bulk Carriers M.F. Pradana, F.A. Ichsan and B. Noche	215
Simulation of Automatic Speed Control in Motor Vehicles (Cruise Control) Using Simulink PID Controller D. Desmira, M.A. Hamid, I.A. Darmawan, M. Martias and A.I. Mumin	225