

Table of Contents

Preface

Chapter 1: Technologies of Sustainable Development in Civil Engineering, Transportation and Urban Planning

Sustainable Development of Concrete Using GGBS: Effect of Curing Temperatures on the Strength Development of Concrete G. Turu'allo	3
Properties of Sand Sheet Asphalt Mixture Incorporating Waste Plastic I.N.A. Thanaya, I.G.R. Purbanto and I.G. Wikarga	9
Asphalt Pavement Temperature Profile for Tropical Climate in Indonesia I.M.A. Ariawan, B.S. Subagio and B.H. Setiadji	17
The Development of Slurry Seal Design with Ordinary Portland Cement Replacement by Low Calcium Fly Ash A. Setyawan, D. Sarwono and M.S. Adnan	24
The Structural Properties Assessment of Thin Hot Mixture Asphalt for Pavement Preservation A. Setyawan, A.H. Mustafa Elshawesh and S. As'ad	30
Mechanical Strength of Hydraulic Binder Made by Blending Type I Portland Cement and Pozzolan I.M.A.K. Salain	36
Laboratory Tests on Failure of Retaining Walls Caused by Sinusoidal Load A.M. Hidayati, R.W. Sri Prabandiyani and I.W. Redana	41
Deformation Behavior of Concrete due to the Influence of the Steel Ring Width Variations as the External Confinement E. Safitri, I. Imran, Nuroji and S. Asa'ad	47
Evaluation of High Grade Recycled Coarse Aggregate Concrete Quality Using Non-Destructive Testing Technique N.N. Kencanawati, J. Fajrin, B. Anshari, Akmaluddin and M. Shigeishi	53
Experimental and Theoretical Investigation of Bolted Bamboo Joints without Void Filled Material G.M. Oka, A. Triwiyono, A. Awaludin and S. Siswosukarto	59
The Significant Importance to Measure Road Safety S.A. Caroline	66
Accessibility to Location of Activities in Denpasar City, Bali-Indonesia P.A. Suthanaya	74
Travel Time Estimation Based on Spot Speed with Instantaneous and Time Slice Model A.M.H. Mahmudah, A. Budiarto and S.J. Legowo	80
Port Location Selection Model: Case Study of Tourism Sector in Bali R.M.N. Budiarta, T. Achmadi and P. Harmi Tjahjanti	87
Determining Passenger Car Equivalent for Motorcycle at Mid-Block of Sesetan Road I.G.R. Purbanto	95
Readiness Criteria: Indonesias' New Initiative to Ensure Sustainable Development Program A. Merthayasa	101
Conceptual Framework of Bidding Strategy in Order to Improve Construction Project Performance I.N.Y. Astana, H.A. Rusdi and M.A. Wibowo	108
The Conceptual Framework of Design Change Effects in Some Project Delivery Systems A.A.G.A. Yana, H.A. Rusdi and M.A. Wibowo	114
An Identification of Construction Project Overheads for Sustainable Cost Management and Controlling Practices (CMCPs) N.M. Jaya and A. Frederika	121
Risk Analyses for Riau Regional Water Supply Projects (SPAM), Indonesia A. Sandhyavitri	127

Modeling Discharge of the Bangga Watershed under Climate Change I.W. Sutapa, M. Bisri, Rispiningtati and L. Montarcih	133
Water Resources Management of Subak Irrigation System in Bali I.N. Norken, I.K. Suputra and I.G.N.K. Arsana	139
Study of the Evolution of Sanur Beach Nourishment Project for Beach Enhancement I.G.B.S. Dharma and S.S. Efendi	145
Numerical Simulation of Breaking Waves in a Wave Group by SPH N.N. Pujianiki	151
The Study on Bore Piles Foundation of the Reinforced Concrete Arch Bridge Beams of Tukad Pekerisan and Tukad Penet I.N. Sutarja and I.W. Wayan Redana	157
The Importance of the Physical Boundary Line on Bali Coastal Tourist Resorts A. Rajendra, N. Temple and R. Nicholls	163
Comparative Analysis of Traditional House at Taman Mini Indonesia Indah with Modern House S. Purnawan, I.W. Sukania and L. Widodo	169

Chapter 2: Materials and Technologies for a Sustainable Development

The Property and Applicability to Auto Industry of Natural Fiber Reinforced Composites R.H. Hu, Z.G. Ma, S. Zheng, C.L. Zheng and A.J. Jiang	179
Fracture Parameters of Short Carbon Fiber Reinforced Polycarbonate Composite Fabricated by Injection Molding Process M.G. Hwang, G.H. Kim, H.J. Park, Y.G. Lee, C.M. Yang, J.K. Lim and H.Y. Kang	186
Effect of Polar Extract of Cocoa Peels Inhibitor on Mechanical Properties and Microstructure of Mild Steel Exposed in Hydrochloric Acid Gunawarman, Y. Yetri, Emriadi, N. Jamarun, Ken-Cho, M. Nakai and M. Niinomi	193
Hardness Distribution and Effective Case Depth of Low Carbon Steel after Pack Carburizing Process under Different Carburizer D.N.K.P. Negara, I.D.M.K. Muku, I.K.G. Sugita, I.M. Astika, I.W. Mustika and D.G.R. Prasetya	201
The Effect of Solidification on Acoustical of Tin Bronze 20Sn Alloy I.K.G. Sugita and I.G.N. Priambadi	208
Morphological Analyses and Crystalline Structures of Anodic TiO₂ Thin Film on Ti6Al4V Alloy Using Phosphate and Calcium Containing Electrolyte under Different Voltage and Calcium Molarity I.N.G. Antara, K.I.M. Gatot, I.M. Budiana and D.K. Choi	215
Determination of Optimal Clinker Factor in Cement Production by Chemical Grinding Aids Addition T. Eryanto and E. Amrina	223
Wear of Carbon Steel (0.65%C) in Rolling-Sliding Contact with Creep Ratio I.M. Widiyarta, T.G.T. Nindhia and H. Mudiastrawan	229
Hardness Prediction Based on P-h Curves and Inverse Material Parameters Estimation I.N. Budiarsa	233
The Influence of Austenisation Temperature and Holding Time on Mechanical Properties, Scale Thickness, and Microstructure in Alloy Steel A. Aziz, M. Hidayat and I. Hardiyanti	239
Hardness, Density and Porosity of Al/(SiCw+Al₂O₃p) Composite by Powder Metallurgy Process without and with Sintering K. Suarsana and R. Soenoko	246
Development of Fiberglass Woven Roving Composite as an Alternative Material for the Hull of Fishing Boat Winarto, E. Widiyono, R. Liza and H. Syamsul	253
Tensile Strength of Banana Fiber Reinforced Epoxy Composites Materials A.P. Irawan and I.W. Sukania	260
Green Composites Based on Recycled Plastic Reinforced Local Sisal Fibers N.P.G. Suardana, N.M. Suaniti and I.P. Lokantara	264
Cement Bonded Sol-Gel TiO₂ Powder Photocatalysis for Phenol Removal N. Hafizah and I. Sopyan	271

Review on Zn-Based Alloys as Potential Biodegradable Medical Devices Materials M.S. Dambatta, D. Kurniawan, S. Izman, B. Yahaya and H. Hermawan	277
Bone Implant Materials from Eggshell Waste I. Sopyan	282
Boiling Phenomenon of Tabulate Biomaterial Wick Heat Pipe W.N. Septiadi and N. Putra	289
Fluidization Characteristic of Sewage Sludge Particles I.N.S. Winaya, R.S. Hartati and I.N.G. Sujana	294
Design of Fluidized Bed Co-Gasifier of Coal and Wastes Fuels I.N.S. Winaya, R.S. Hartati, I.P. Lokantara, I.G. Subawa and I.M.A. Putrawan	300

Chapter 3: Advanced Decisions in Mechanical Engineering

Magnetic Camera and its Applications in Aging Aircraft, Express Train and Pipelines for Green Technology J.Y. Lee and J.M. Kim	309
Buckling Analysis on Pechiko Field of Fixed Offshore Platform in Makassar Strait M.Z.M. Alie, Y.R. Palentek and D.G. Sesa	313
Simulation of a Differential-Drive Wheeled Mobile Lego Robot Mindstorms NXT I.W. Widhiada, C.G.I. Partha and Y.A.P. Wayan Reza	319
Design and Simulation of Five Fingers Gripper for Dexterous Pick-Up Various of Components I.W. Widhiada, E. Pitowarno, C.G.I. Partha and Y.A.P. Wayan Reza	325
Tar Balls Collector for Mechanical Recovery in Combating Oil Spill on the Marine Environment C.P. Mahandari, M. Yamin and D.S.A. Asandi	331
Three Wheel Bike as Physical Therapy Equipment for Post-Stroke Patient I.M.L. Batan, Rodika and M. Riva'i	337
Geometric Progression Application in Design Transmission Gear Ratio A.A.I.A.S. Komaladewi, I.G.A.K. Suriadi and I.K.A. Atmika	343
Role of Risk Management in Effective Maintenance H.A. Yuniarto and P.F. Paristiawati	349
Redesign Combustion Air Shelter of the Furnace to Improve the Performance in Melting Bronze for Manufacturing Gamelan I.G.N. Priambadi, I.K.G. Sugita, A.A.I.A.S. Komaladewi, K. Astawa and I.W.B. Adnyana	355
Model of Carbon Dioxide (CO₂) Emission from Motorcycle to the Manufactures, Engine Displacement, Service Life and Travel Speed A.M. Mulyadi and S. Gunarta	361
Experimental Study of Heat Transfer Characteristics of Condensed Flow on the Vertical Wave Plates W.H. Piarah and Z. Djafar	371
Forces Analysis on a Spherical Shaped Delivery Valve of Hydram Pump M. Suarda	377
The Influence of Distance Variation between Rings with Sloping Position on the Cylinder Surface to Drag Coefficient S.P.G.G. Tista, A. Ghurri and H. Wijaksana	384
Auto PID Tuning of Speed Control of DC Motor Using Particle Swarm Optimization Based on FPGA H. Tayara, D.J. Lee and K.T. Chong	390
Mobile Robot Motion Planning to Avoid Obstacle Using Modified Ant Colony Optimization N. Habib, A. Soeprijanto, D. Purwanto and M.H. Purnomo	396
Mobile Robot Motion Control Using Laguerre-Based Model Predictive Control M. Chipofya, D.J. Lee and K.T. Chong	403

Chapter 4: Application of Alternative Energy and Information Technologies

Experimental Investigation of Micro-Hydro Waterwheel Models to Determine Optimal Efficiency L. Jasa, A. Priyadi and M.H. Purnomo	413
Understanding Peak Average Power Ratio in VFFT-OFDM Systems N.M.A.E.D. Wirastuti	419
Fusing Multiple Inexpensive GPS Heading Data via Fuzzified Ad-Hoc Weighing F.P. Vista IV, D.J. Lee and K.T. Chong	425
Tree Data Structure Implementation in Android Base System of E-Ulambebanenan A.A.K.O. Sudana and A.A.G. Brampramana Putra	431
Design and Implementation of Web-Based Geographic Information Systems on Mapping Hindu's Temple N. Piarsa and K. Adi Purnawan	437
Improving Biogas Quality through Circulated Water Scrubbing Method H.S. Tira, Y.A. Padang, Mirmanto and Hendriono	443
Study on Solar Generating Apparatus for Solving Problem of Shadow J.W. Chang, S.S. Kim, J.K. Lim and J.J. Lee	449
An Experimental Study on the Thickness of Stainless Steel as an Electrode in Alkaline Fuel Cell M. Sucipta, I.M. Suardamana, I.K.G. Sugita, M. Suarda and K. Astawa	455
Transient Thermal Efficiency of Natural Hybrid Dryer System on Chimney Height Variation of Exhaust Moist Air M.R. Murti and C.W. Park	461