## **Table of Contents**

**Preface and Organization Committee** 

## **Chapter 1: Properties of Materials, Technologies of Production and Processing**

Effect of Alkaline Treatment on Tensile and Impact Strength of Kenaf/Kevlar Hybrid Composites	
N.H. Bakar, K.M. Hyie, A. Jumahat, A. Kalam and Z. Salleh	3
Influence of Radiation-Induced Defects on Magnetic Properties of Co <sub>x</sub> Ni <sub>1-x</sub> Fe <sub>2</sub> O <sub>4</sub> Nanomaterials	
S. Omarov, S. Baishan, S. Nyssanbayeva, G. Aldjambekova, K. Nurahmetova and G. Turlybekova	9
The Compressive Properties of Kevlar/Kenaf Hybrid Composites K.M. Hyie, N.H. Bakar, R. Jazlan, A. Jumahat and A. Kalam	19
Tensile and Impact Strength of Coir Fibre Reinforced Polypropylene Composites: Effect of Different Temperature Conditions  Z. Salleh, K.M. Hyie, S. Yunus, Y.M. Taib, M.N. Berhan and A. Kalam	25
Effect of Calcination Temperature on Various Concentration of Zinc Substituted Calcium Phosphate Ceramics C.M. Mardziah, M.F. Abdul Wahid, K.M. Hyie and N.R. Nik Roselina	30
Effect of Single Based Binder Palm Stearin on Sintered Properties of Hydroxyapatite	30
Scaffold	2.6
S.N. Abd Aziz, M.A. Abu Bakar and I. Muhammad Hussain	36
Effect of Metashaleas SCM on Mechanical and Thermal Properties in Concrete Production D. Koňáková and E. Vejmelková	41
Modeling and Optimizing the Hardness of the Melted Zone in Submerged Arc Welding Process Using Taguchi Method H. Shahverdi Shahraki and H. Mozafari	47
Modeling and Optimizing of Submerged Arc Welding Process by Taguchi Design of Experiments in Presence of Magnesium Oxide Nano-Particles H. Shahverdi Shahraki and H. Mozafari	52
Electronic Structure of Chlorophyll a Solution Investigated by Photoelectron Yield	32
<b>Spectroscopy</b> Y. Takeda, H. Ezawa, T. Miyauchi, H. Kinjo, K.R. Koswattage, Y. Nakayama and H. Ishi	58
1. Takeda, 11. Ezawa, 1. Wilyaucili, 11. Kilijo, K.K. Koswattage, 1. Nakayalila alid 11. Islii	36
Chapter 2: Design and Research of Machines and Mechanisms, Mechatronics and Control	
DSP-Based on Brushless DC Motor Speed Control by PI Controller Using Back EMF Detection	
D. Kumpanya, C. Kiree, S. Tunyasrirut and D. Puangdownreong	63
The Study of the Synchronization Process in the Gearbox with Automatic Control A. Blokhin, E. Denisenko, A. Kropp and A. Nedialkov	71
Electromechanical Complex of Test Loading Stand of Multistage Transmissions with Automatic Control A. Blokhin, S. Dobryaev, A. Plekhov and V. Titov	78
Reduction of Cogging Torque and Torque Ripple in Exterior Rotor Type BLDC Motor for EV/HEV Battery Cooling System J.H. Jeong, K.C. Min and H.W. Cho	86
To the Question of Determining the Plasticity Zones of a Welded Joint of Large Diameter	
<b>Pipes</b> Y.I. Pashkov, M.A. Ivanov, Y.V. Bezgans and T.V. Bezgans	92

A Study on a Primary Suspension for Improvement of Curving Performance of an Active	
Steering Bogie K.S. Sim, T.W. Park, I.K. Hwang, M.J. Kim and H.M. Hur	97
Acoustic Luneburg Lens as a New Sonar System S.H. Kim	101
Green Ventilation System Design for Underground Garage S.M. Chen, Y.Y. Huang and Y.H. Perng	105
Base Algorithms of the Direct Adaptive Position-Path Control for Mobile Objects Positioning	110
V. Pshikhopov, M. Medvedev, V. Krukhmalev and V. Shevchenko  A Linear CCD Spectrometer Based on FPGA for Light-Source Characterization	110
R.O. Ocaya	120
Chapter 3: Safety and Reliability of Industrial Objects	
In Situ Damage Assessment on Supporting Structure of Coal Conveyor M. Nurbanasari	129
A Case Study on a Fire Disaster in a Textile Factory	
C.S. Lin, M.G. Wu and S.M. Tsai	134
Inter Laboratory Comparison of Testing Procedure of CIPP Liners According EN ISO 11296-4	
O. Cigler, P. Waldstein and K. Kubečka	140
<b>Measurement of Air Traffic Control Students Proportion Depending on their Attitude to Risk at 10-km. Flight Norms Violation</b> S.P. Borsuk	146
Chapter 4: Signal and Data Processing, Computer Algorithms	
Multi-Train Movement Simulation Using MATLAB Object-Oriented Programming C. Sumpavakup and T. Kulworawanichpong	153
A Stream Data Processing Framework for Location-Based Service Using NoSQL	
Technology N.J. Kim and E.I. Choi	159
The Development of the Intellectual System Optimization Search Operations A. Koshurina, M. Krasheninnikov, S. Kaniskin, R. Dorofeev and V. Obrezkova	164
A Meshless Semi-Analytical Method for Solving Convection Problems in Complex-Shaped Closed Cavities  M. Basarab and V. Matveev	170
A New Approach Hybrid Based in Artificial Neural Networks to Detection and	1/0
Classification of Failures in Aeronautical Structures S.S.F. Souza, F. Parra dos Anjos Lima and F.R. Chavarette	175
Design of Microstrip Triplexer Using Common Dual-Mode Resonator with Multi-Spurious Mode Suppression for Multiband Applications T. Sugchai, I. Nattapong and C. Apirun	182
Review of Single Cycle Shifter for Structured LDPC Encoder	102
S. Anggraeni, F.A. Hussin and V. Jeoti	189