

International Conference on Recent Advances in Industrial Engineering and Manufacturing (ICRAIEM 2018)

IOP Conference Series: Materials Science and Engineering
Volume 530

Penang, Malaysia
12 - 13 December 2018

Editor:

Mani Maran Ratnam

ISBN: 978-1-5108-9380-1
ISSN: 1757-8981

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence. Licence details:
<http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed by Curran Associates, Inc. (2019)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Table of contents

Volume 530

International Conference on Recent Advances in Industrial Engineering and Manufacturing

12–13 December 2018, Penang, Malaysia

Accepted papers received: 31 May 2019

Preface

[International Conference on Recent Advances in Industrial Engineering and Manufacturing](#)

[Peer review statement](#)

Papers

Additive manufacturing/Sustainable/Green manufacturing

[Optimization of The FDM Parameters to Improve The Compressive Strength of The PLA-copper Based Products](#)

N H Huu, D P Phuoc, T N Huu and H T T Thu.....1

[Experimental Investigation of Recycled Machining Coolant Mixed with Nanofluids Based Al₂O₃](#)

S K Lim, N Z Mohamad and A R Yusoff.....11

[Vegetable Oil-Based Lubrication in Machining: Issues and Challenges](#)

M A Mahadi, I A Choudhury, M Azuddin, N Yusoff, A A Yazid and A Norhafizan.....18

[Energy Efficiency Assessment in Production Line: An Approach towards Sustainable Manufacturing](#)

C Saleh, R Prasetyo, A P Hendradewa and A B Hassan.....27

[An Application of Cutting-Stock Problem in Green Manufacturing: A Case Study of Wooden Pallet Industry](#)

P Wattanasiriseth and A Krairit.....36

Tool condition monitoring/Machining & forming technology

[Minimization of Cutting Force by Optimizing the Cutting Parameters Using Taguchi Method in Turning](#)

M S H Bhuiyan.....45

[Chipping Detection in Ceramic Insert during Turning by Analysis of Workpiece Surface Profile Using Cross-Correlation](#)

N A Mohamad and M M Ratnam.....52

[Effect of Machining Parameters on the Surface Roughness for Different Type of Materials](#)

M H M Ghazali, A Z A Mazlan, L M Wei, C T Tying, T S Sze and N I M Jamil.....61

[Study on Effect of Tool Nose Radius Wear on Hybrid Roughness Parameters during Turning Using Vision-Based Approach](#)

B M Kumar and M M Ratnam.....73

[Effect of Main Cut and Multiple Trim Cuts on Surface Integrity of 2379 Steel](#)

N A Jaafar and A B Abdullah.....83

[Effect of Rake Angle and Feed Rate on Chip Segmentation in Machining Carbon Steel 1050](#)

M F Zamri and A R Yusoff.....95

Modeling & simulation

[Finite Volume Method Study on Contact Line Jump Phenomena and Dynamic Contact Angle of Underfill Flow in Flip-Chip of Various Bump Pitches](#)

F C Ng, A Abas and M Z Abdullah.....101

[Research on Determination of Optimum Parameters for The Lower Extremity Exoskeleton](#)

N H Tho, T T T Vu and H H Nghi.....111

[Numerical Investigation of Continuous Damping of The Semi-Active Suspension System for Passenger Car](#)

M R Ahmed, A R Yusoff and F R M Romlay.....122

[Pre-Forming Inspection System to Detect Deep Drawing Defect Due to Punch-Die Misalignment using Image Processing Technique](#)

A A Ghafar and A B Abdullah.....134

[Thermo-Mechanical Simulation of Temperature Distribution and Prediction of Heat-Affected Zone Size in MIG Welding Process on Aluminium Alloy EN AW 6082-T6](#)

Z Samad, N M Nor and E R I Fauzi.....142

[Effects of Multi-stack Ball Grid Array on Multi-stack Printed Circuit Board](#)

M A F M Mukhtar, A Abas and W M E I W S Bahri.....156

[ABAQUS Simulation of Different Critical Porosities Cubical Scaffold Model](#)

Z Wahid, M K A M Ariffin, B T H T Baharudin, M I S Ismail and F Mustapha.....166

[Temperature Prediction on Flexible Printed Circuit Board in Reflow Oven Soldering for Motherboard Application](#)

A M Iqbal, M S A Aziz, M Z Abdullah and M H H Ishak.....173

[Optimization of Semiconductor Device Packaging Singulation Process](#)

T K Wei and M N Mahmud.....183

[Optimisation of Flame Holder Design for Micro Gas Turbine](#)

I I Enagi, K A Al-attab and Z A Zainal.....194

Machine vision & automated inspection/Micro- & nano-fabrication

[Evaluation of 3D Surface Roughness of Milled Surfaces using Laser Speckle Pattern](#)

S Bharathi and M M Ratnam.....206

[A 3-Pixel Fuzzy Mask for Edge Detection](#)

N H Seng, Z Samad and N M Nor.....217

[Fuzzy Control of a Low Cost Mobile Robot Based on Vertical Lines in An Edge Detected Image](#)

N H Seng, Z Samad and N M Nor.....229

[Study on End Brush Deburring and Sintered Diamond Ball Deburring of Micro-features Milled](#)

T K Sai, K Saptaji and N Fatchurrohman.....244

[Production and Verification of RFID MM2 Microchip with Bump and On-Chip Antenna](#)

A B Hassan and I S A Ali.....252

[Numerical Study of Composite Fiberglass Cross Arms under Statics Loading and Improvement with Sleeve Installation](#)

D Mohamad, A Syamsir, S Beddu, A Abas, F C Ng, M F Razali and S A H A Seman.....262

[Numerical Simulation on the Statics Deformation Study of Composite Cross Arms of Different Materials and Configurations](#)

D Mohamad, A Syamsir, Z Itam, H A Bakar, A Abas, F C Ng, M F Razali and S A H A Seman.....268

Manufacturing - Others

[Effect of Laminate Properties on the Failure of Cross Arm Structure under Multi-Axial Load](#)

D Mohamad, A Syamsir, S Beddu, N L M Kamal, M M Zainoodin, M F Razali, A Abas, S A H A Seman and F C Ng.....275

[Stacking Sequence Effects on Performance of Composite Laminate Structure Subjected To Multi-Axial Quasi-Static Loading](#)

D Mohamad, A Syamsir, S N Sa'don, N M Zahari, S A H A Seman, M F Razali, A Abas and F C Ng.....280

[Multi-objective Optimization of Vehicle Speed Control using Gravitational Search Algorithm for Electro-Mechanical Continuously Variable Transmission](#)

K Hudha, N R M Nuri and S A Mazlan.....286

[Comparison of Control Strategy on Magneto-Rheological Fluid Damper Performance for Impact Reduction](#)

M S Rahmat, K Hudha, Z A Kadir, N R M Nuri, N H Amer and S Abdullah.....294

Manufacturing system

[End-of-life Electrical and Electronic Equipment Remanufacturing Prospects in Malaysia](#)

A Shamee and A Shamsuddin.....305

[State of The Art Review of Quality Control Method in Automotive Manufacturing Industry](#)

M Hafizi, S N S Jamaludin and A H Shamil.....313

[General Process Change Qualification framework for Wafer Fabrication](#)

D S Nair and J F Chin.....321

Production improvement methods

[Workload Analysis and Improvement of the Nurses Duty in the Hospital](#)

H Soewardi and S R Kusuma.....333

[Hybrid Methods of MOST and 5S for Reducing Time Processing and Waste Motion in Milk SMEs Industry: A Case Study](#)

A D Sari, R Gumilar, N Setiawan, M R Salleh, M R Suryoputro and N Zhafira.....342

[A Collaborative Scheme with Vendor in Kaizen](#)

A D Peterson and J F Chin.....350

[Application of 5S and Visual Management to Improve Shipment Preparation of Finished Goods](#)

L K Yik and J F Chin.....359

[Deployment of an FMEA-Integrated Framework to Improve Operational Performance in Semiconductor Manufacturing: A Case Study](#)

C F Liew, J Prakash, S Kamaruddin and K S Ong.....372

[The Application of DMAIC to Improve Production: Case Study for Single-Sided Flexible Printed Circuit Board](#)

N Mohamad, S Ahmad, H A Samat, C K Seng and F M Lazi.....380

[Common Mistakes in Running PDCA: A Survey on University Student PDCA Projects](#)

Z K Wani, J F Chin and N A Muhammad.....391

Manufacturing strategies & optimization

[Heuristic Based Scheduling for Toothpaste Filling Problem](#)

S Promjun and P Jarumaneeroj.....399

[Performance Evaluation of Continuous and Discrete Particle Swarm Optimization in Job-Shop Scheduling Problems](#)

N I Anuar, M H F M Fauadi and A Saptari.....407

[Profit Optimization Through the Application of Theory of Constraints \(TOC\): A Case Study in Printing Company](#)

C Saleh, T Immawan, A B Hassan and M N Zakka.....415

[Integrating Activity-Based Costing and Computer Simulation to Investigate Thailand-Malaysia Cross Border: A Case Study of Sadao Customs House](#)

P Suttishe, W Kongkaew, L Treeranurat and N Sirivongpaisal.....424

Maintenance

[Maintenance for Energy efficiency: A Review](#)

N Firdaus, H A Samat and N Mohamad.....434

[A Review on Joint Optimization of Maintenance with Production Planning and Spare Part Inventory Management](#)

J Q Hwang and H A Samat.....449

[Knowledge Base and Rule Base Safety Management Systems Development Strategies and Applications for Petrochemical Industries: A Brief Outline](#)

M M Asad, R Hassan, B Sherwani and F Sherwani.....462

[Conceptual Analysis and Survey of Total Productive Maintenance \(TPM\) and Reliability Centered Maintenance \(RCM\) Relationship](#)

N A A Azid, S N A Shamsudin, M S Yusoff and H A Samat.....469

[Paper Machine Breakdown Reduction by FMEA and Preventive Maintenance Improvement: A Case Study](#)

S Wannawiset and S Tangjitsitcharoen.....482

Ergonomics

[Identification of Potential Ergonomic Risk Factors and Mitigating Measures for Malaysian Oil and Gas Drilling Industries: A Conceptual Research Proposition](#)

M M Asad, R Hassan, K Latif and F Sherwani.....491

[Development of the Ergonomic Wrist Posture Range for Indonesian in Typing Activity Using Electromyograph](#)

H Soewardi and N Zhafira.....497

[Food Container with Expiration Date Reminder \(OPTIMA\) as the Solution to Minimize Leftover Food](#)

O R Pertiwi, N Zhafira, A M Ma'arij and A D Sari.....505

[EASILY \(Easy to Use Kitchen Utilities\) Designing Cutting Boards Sets for Elderly and Arthritis Sufferers with Quality Function Deployment](#)

A M F Zubaidi, M K Sumitro and A S Husna.....511

[Ergonomics Redesign of the Effective Chopping Tool for Harvesting the Eucalyptus Plant](#)

H Soewardi and A S Husna.....517

Data mining

[Significance of Gender in Badminton Lunge Classification](#)

J J J Lee, W P Loh and Z W Ho.....526

[Segregating Offline and Online Handwriting for Conditional Classification Analysis](#)

L C Wong and W P Loh.....535

[Training Performance Measurement with Schema and Mental Rotation Test](#)

S Kaewprasert and A Jiamsanguanwong.....542

[Running and Cycling Induced Fatigue on Wrapper vs. BLR Feature Selection for IBk Classification](#)

S Tang, W P Loh and C F Lin.....548