

24th International Conference on Flexible Automation & Intelligent Manufacturing 2014 (FAIM 2014)

Capturing Competitive Advantage via
Advanced Manufacturing and
Enterprise Transformation

San Antonio, Texas, USA
20 – 23 May 2014

Volume 1 of 2

Editor:

F. Frank Chen

ISBN: 978-1-5108-2428-7

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.

Copyright© (2014) by DEStech Publications, Inc.
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact DEStech Publications, Inc.
at the address below.

DEStech Publications, Inc.
439 North Duke Street
Lancaster PA 17602-4967

Phone: (717) 290-1660
Fax: (717) 509-6100

info@destechpub.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Contents

<i>FAIM 2014 Conference Committee</i>	<i>xi</i>
<i>Preface</i>	<i>xiii</i>
<i>Acknowledgements</i>	<i>xv</i>
ADDITIVE MANUFACTURING, BIO AND BIOMEDICAL MANUFACTURING, WEB AND CLOUD-BASED MANUFACTURING	
3D Printing with Reusable Voxels: A Faster and Greener Future.	3
Audrey Stipe and HungDa Wan	
Manufacture and Instrumentation of Bio-Mechanical Shoulder Testing Rig for Medical Applications	13
David Hughes, Farhad Nabhani and Simon Hodgson	
Study of Network Capability for Cloud Based Control Systems.	21
Jan Schlechtendahl, Zhiqian Sang, Felix Kretschmer, Xun Xu and Armin Lechler	
Integrated Monitoring and Control System for Production, Supply Chain and Logistics Operations	29
Sobhi Mejjiaouli and Radu F. Babiceanu	
Adaptive Robotic Control in Cloud Environments	37
Goran Adamson, Lihui Wang, Magnus Holm and Philip Moore	
Model for Quality Tracing of Agricultural Products Using RFID and Internet Systems	45
Meng Yu, Xiejun Zhang, Bhaba R. Sarker, Hui Zhi Yi and Cunrong Li	
Design of a Cost-Effective Wireless System for Estimating Solar Photovoltaics Generation	53
James Farris, Binbin Li, Tongdan Jin and Heping Chen	
Modeling and Simulation of Web-Based Virtual Turn-Milling Center	61
Xue-Wei Zhang, Tian-Biao Yu, Wan-Shan Wan and Wei-Li Liang	
CAD/CAM/CIM/FMS AND ROBOTICS	
Making Product Customization More Feasible for Flexible Manufacturing Systems	71
Hoejin Kim and David E. Culler	
Analysis of CNC Software Modules Regarding Parallelization Capability	79
Matthias Keinert, Benjamin Kaiser, Armin Lechler and Alexander Verl	
Advanced 3D Robot Simulation for Flexible Interactive Manual Robot Guidance—An eRobotics Approach	87
Eric Guiffo Kaigom and Jürgen Roßmann	
Implementation of a Force Controller Based on Fuzzy Rule Emulate Networks for Soft Contact with an Object with Unknown Mechanical Properties	95
Augusto Carreon, Chidentree Treesatayapun and Arturo Baltazar	
A Fast and Accurate Recognition System for Flexible Grasping of Electronic Goods	103
Ch. Woegerer, M. Rooker, A. Angerer, Ch. Kopf and A. Pichler	
Technologies Guiding the Future of Robotics in Manufacturing	109
William C. Flannigan, Paul T. Evans, Shaun M. Edwards and Paul B. Hvass	

Tool Path Generation Considering NC Block-Based Machining Stability 117
 Cheol-soo Lee, Eun-Young Heo, Dong Yoon Lee, Jong-Min Kim and Dong-Won Kim

Communication Architecture for Robotic Applications 123
 Gabriel Tamashiro, Kelen C. T. Vivaldini, José Martins Junior and Marcelo Becker

ENTERPRISE ENGINEERING, KNOWLEDGE MANAGEMENT, PRODUCTION STRATEGY AND ECONOMIC ANALYSIS

Ontology Based Virtual Enterprise System Domain Modeling 133
 B. Lotfi Sadigh, H. Ö. Ünver, E. Dogdu and S. E. Kiliç

The Economics of Gas Flaring in Oil and Gas Processing Environments: A Case Study of Electric Power Station in a Developing Country 143
 Emeka Ojjiagwo and Chike F. Oduoza

Application of Design Elements for an Engineering Community in a Multi-Sector Engineering Company 153
 Johannes Goetz, Joerg Franke, Andreas Mueller-Martin, Markus Forthaus and Boris Grobholz

Supplier Discovery and Assessment Based on Ontology Models for Mold Manufacturers in Korea . . . 161
 Sangil Lee, Kwangyeol Ryu, Moonsoo Shin and Hyunbo Cho

MES Functionality Extraction Through Ontology Mapping 169
 Hwaseop Lee, Kwangyeol Ryu, Yongju Cho and Hyunjei Jo

Using GRAIMOD for Improving Performance of Multi-Product Companies. 177
 Paul-Eric Dossou and Philip Mitchell

An Ontological Model and Method for Obsolescence Resolution and Management 185
 Liyu Zheng, Peter Sandborn, Janis Terpenney and Nihal Orfi

Plant Location-Allocation for Bio-Methane Gas Production Systems 193
 Bingqing Wu, Bhaba R. Sarker and Krishna Paudel

Methodology for Project Risk Assessment Using Bayesian Belief Networks in Engineering Construction Projects 201
 O. O. Odimabo and C. F. Oduoza

Production as a Key Factor for Driving Competitiveness in Manufacturing Industry 209
 Matti Majuri, Mikko Tapaninaho, Reijo Tuokko and Seppo Torvinen

How to Use the Management Tools in Enterprises: Initial Evidence About Use and Key Drivers of Management Tools Among Employees 215
 V. Potocan and Z. Nedelko

A Framework to Support the Lifecycle of Virtual Manufacturing Enterprises 223
 Américo Azevedo, Filipe Ferreira and José Faria

GREEN MANUFACTURING, SUSTAINABILITY AND ENERGY EFFICIENCY

Economic and Ecologic Assessment within Small and Medium-Sized Enterprises to Increase Industrial Resource Efficiency. 233
 Dennis Bakir, Horst Meier and Bjorn Krückhans

Structuring Energy Efficiency Measures in Manufacturing Industry 241
 Manuela Krones and Egon Müller

A Foresight Study on Future Trends Influencing Material Consumption and Waste Generation in Production. 249
 Sasha Shahbazi, Carina Sjodin, Marcus Bjelkemyr and Magnus Wiktorsson

A Novel Engineering Method for the Power Flow Assessment in Servo-Actuated Automated Machinery. 259
 Enrico Oliva, Giovanni Berselli and Marcello Pellicciari

Optimization of Cutting Parameters for Parallel Machine Scheduling with Constrained Power Demand Peak 267
 Yi-Chi Wang, Ming-Jun Wang and Sung-Chi Lin

Waste Minimization at Abattoir and Processor End in Beef Supply Chain 275
 Akshit Singh, Nishikant Mishra and Steve McGuire

Sustainability and Performance Indicators Landscape 283
 Minna Lanz, Eeva Järvenpää, Hasse Nylund, Reijo Tuokko, Seppo Torvinen
 and Konstantinos Georgoulas

Constant Power Production and Harvesting Using Roof Ventilation Systems. 291
 S. Aslan, B. Asiabanpour, H. Salamy, J. Jimenez and R. Cook

Research on Green Innovation of the Tyre Manufacturers in China Based on System Dynamics. 299
 Zhang Jian and Hong Yang

INDUSTRY SAFETY, ERGONOMICS AND HUMAN FACTORS

A Comparative Study Between PSI and AHP in the Selection of Safety Devices in Industrial Environments 309
 Tarek Al-Hawari and Ahmad Mumani

Creating Realistic Human Model Motion by Hybrid Motion Capturing Interfaced with the Digital Environment 317
 Jochen Bonig, Jerome Perret, Christian Fischer, Holger Weckend, Florian Dobereiner
 and Jorg Franke

Applied Human Factors Engineering in Advanced Vehicle Design for Elder and Handicapped People 325
 Qili Chen and Seng Fat Wong

FACTORY CONTROL AND PLANNING, SMART AND DIGITAL FACTORY

H_{∞} Fault Detection Filter Design for Networked Control Systems in the Continuous-Time Domain 335
 Liu Yunxia, Wang Huijing and Liu Junyao

Methodological Implementation of Sensor Networks for Smart Manufacturing and Smart Factories. 343
 André Hurzig and Egon Müller

Methodology for the Development of Modular Factory Systems 353
 Achim Kampker, Hanno Voet, Peter Burggräf, Moritz Krunke and Kai Kreiskother

Benefit of Integrated Agent-Based Simulation in Smart Factories to Reduce Resource Consumption of Interlinked Production Lines. 361
 Bjorn Krückhans, Horst Meier and Dennis Bakir

Learning Factories as Enablers of a Smart Production 369
 Dennis Bakir, Bjorn Krückhans, Sebastian Freith and Dieter Kreimeier

Using Innovative Transportation Technologies and Automation Concepts to Improve Key Criteria of Lean Logistics 377
 Tomáš Kamaryt, Vladimír Kostelný, André Hurzig and Egon Müller

Type-Oriented Approach for the Value-Optimized Application of Heuristics in Factory Planning 385
 Günther Schuh, Achim Kampker, Peter Burggräf, Moritz Krunke and Matthias Backs

INDUSTRIAL AUTOMATION AND PROCESS CONTROL

Towards Proper-Inconsistency in Weldability Prediction Using k-Nearest Neighbor Regression and Generalized Regression Neural Network with Mean Acceptable Error. 395
 Junheung Park, Kyoung-Yun Kim and Raj Sohmshetty

Controlling of Diagnostic Process when Failures in Manufacturing Process Occur 403
 Martina Winkelhoferova and Jiri Tupa

An Artificial Neural Network Based on Adaptive Resonance Theory for Fault Classification on an Automated Assembly Machine 411
 Heshan Fernando and Brian Surgenor

SUPPLY CHAIN AND LOGISTICS

A Preliminary Study of the Impact of the Genotype Representation of a Genetic Algorithm on the Supply Chain Design Performance 421
 Krystel K. Castillo-Villar and José F. Herbert-Acero

An Approach of One-Item-Multiple-Code for Logistics Management in International Power Generation EPC Projects	429
Shan-Shan Wu and De-Yuan Wang	
A Model for Integrating Shipment Consolidation and Pricing Decisions in Perishable Product Supply Chains.	435
Jing Chen, Ming Dong and F. Frank Chen	
Integration of Machine Learning and Mathematical Programming Methods into the Biomass Feedstock Supplier Selection Process.	443
Amin Mirkouei and Karl R. Haapala	
An Intercontinental Multi-Modal Distribution Model for Containerized Goods	451
Krishan Rana	
A Multi-Objective Model for Solar Industry Closed-Loop Supply Chain by Using Particle Swarm Optimization	459
YiWen Chen, Li-Chih Wang, Tzu-Li Chen, Allen Wang and Chen-Yeng Cheng	
A New Stochastic Simulation Optimization Methodology for Supply Chain Inventory Optimization with Imperfect Quality Items	467
Qinglin Duan and T. Warren Liao	
Impact of Finite Life Cycle to a Consignment Stocking Supply Chain with Uncertain Demand	475
Hui Zhi Yi, Bhaba R. Sarker and Cun Rong Li	
Simulation-Based Optimization Model for Supply Chains with Disruptions in Transportation.	483
Hernán Chávez, Krystal K. Castillo-Villar, Luis Herrera and Agustín Bustos	
INVENTORY CONTROL, LAYOUT AND WAREHOUSING	
A Study of the Performance of Bucket Brigades when Dealing with Multiple Aisles in Warehouses	493
Sadia Quader and Krystal K. Castillo-Villar	
User Phase Information Based Inventory Policy for Supply Chain Systems with Remanufacturing.	501
Ming Dong, Feng Zhu and Dali Zhang	
Role of Port Management in Intercontinental Distribution.	509
Krishan Rana and Esther Rodriguez-Silva	
Procurement Policy of Vulnerable Parts with Jointly Distributed Lifespan.	517
Cun Rong Li, Bhaba R. Sarker, Hui Zhi Yi and Meng Yu	
Genetic Algorithm-Based Insulation Box Line Layout Optimization for LNG Ship	525
Shu-Xia Li, Ti-Jun Fan, Lin Li, Chen-Hao Fang and Hao Yang	
LEAN AND AGILE MANUFACTURING AND OPERATIONS	
Senior Leader Commitment to Continuous Process Improvement: An Exploratory Study of a Military Organization.	535
Robert E. Hamm Jr.	
Analysis of a Worker Assignment Model in a Lean Manufacturing Environment	543
Matthew Waltz and Tom McDonald	
Evaluation of Frameworks Development which Assist SMEs to Adopt Best Practices	551
Osama Alaskari, M. Munir Ahmad and Ruben Pinedo-Cuenca	
An Implementation Procedure for Global Value Stream Management	559
Patrik Spalt, Anja-Tatjana Braun, Oliver Schollhammer and Thomas Bauernhansl	
Development and Implementation of Value Stream Income Statements in Support of a Company's Lean Transformation.	567
Chris Bain and F. Frank Chen	
Value Stream Mapping and Discrete Event Simulation Applied to Reduce Waste in a Company that Manufactures a Family of Automotive Parts	575
Tatiany M. da Silva and Joao C. E. Ferreira	
Application of Lean Manufacturing Concepts and Value Stream Mapping to a Company that Manufactures Engineering to Order Road Transportation Products	583
Fernanda A. Breitenbach and Joao C. E. Ferreira	

Applying Lean Manufacturing Tools to the Management of Operational and Network Risks 591
 Leonardo Rivera

Implementing Lean Manufacturing to Improve Compressed Gas and Liquid Filling Efficiency 599
 Jun-Ing Ker, Chandra Mani Shrestha, Yichuan Wang and Hung-Yu Lee

Effectiveness Comparison between Kanban and Scrum on Software Development Projects 607
 Farnaz Ganjeizadeh, Helen Zong, Pinar Ozcan and Erik Olivar

Applying Value Stream Mapping to Improve the Solid Waste Management in Small and Medium Sized Enterprises 615
 Oscar Rubiano-Ovalle, Claudia Peña-Montoya and Juan Paz-Roa

MACHINE TOOLS, MANUFACTURING PROCESSES AND TECHNOLOGIES

A Techno-Health Study of the Use of Cutting Fluids and Future Alternatives 625
 Alborz Shokrani, Vimal Dhokia and Stephen T. Newman

A Systematic Design Methodology for Reconfigurable Machine Tools and Controllers for Use with Hybrid Manufacturing Processes 633
 Joseph M. Flynn, Vimal Dhokia and Stephen T. Newman

Continuous Learning Support Vector Machine to Estimate Stability Lobe Diagrams in Milling 641
 Jens Friedrich, Henning Hartmann, Alexander Verl and Armin Lechler

Sensitivity Analysis of Wall Coating Thickness to Paint Characteristics in the Spray Painting Process Phase 1: Paint Characterization 649
 Barry Moore, Farhad Nabhani, Vahid Askari and Desmond McMenamim

Hilbert-Huang Transform Based Tool Wear Feature Extraction 657
 Huibin Sun and Weilong Niu

Optimization of Plastic Injection Moulding Process Using Data Mining: A Case Study 663
 Mohd Azlan Suhaimi, Nita Solehati, Joonsoo Bae and Dong-Won Kim

Balancing Tradeoffs Between Machining Time and Energy Consumption for Impeller Rough Machining 671
 Oscar Velásquez Arriaza, Dong-Won Kim, Jong-Yeong Lee and M. A. Suhaimi

Roughing an Impeller: A Review 679
 M. A. Suhaimi, Dong-Won Kim and Besmir K. Cuka

Rough-Cut Machining an Impeller with 3-Axis and 5-Axis NC Machines. 689
 M. A. Suhaimi, Dong-Won Kim, Jong-Yeong Lee and Oscar Velásquez Arriaza

Auto-Recovery from Machining Stoppages Based on STEP-NC 697
 Zhiqian Sang and Xun Xu

Eutectic Reaction Diffusion Brazing Process for Joining Aluminum Laminae Microreactors. 705
 Paul A. Wilson, Richard E. Billo, John R. Durret and John W. Priest

Slump Molding Inexpensive Soda-Lime Glass to Produce Microchannel Arrays. 713
 Richard E. Billo, Paul A. Wilson, John W. Priest, Mario Romero-Ortega, Shannon Brunskill and David Keens

ANFIS Based Modeling for Processing Variables' Effects on Coating Properties in Plasma Spraying Process 721
 Zhenhua Wu

Analyses of Online Monitoring Signals for a GMAW Process Before and After Improvement 731
 Aniruddha Joshi, T. Warren Liao and Lampros Kompotiatis

Selective Laser Melting of Aluminium Metal Matrix Composite. 739
 Omotoyosi H. Famodimu, Mark Stanford, Lijuan Zhang and Chike F. Oduoza

Predicting Material Properties of Flow Formed Work-Piece Based on a Finite Deformation Method 747
 Gyeong-Bok Lee, Cheol-Soo Lee, Eun-Young Heo and Dong-Won Kim

The Machining Parameter Design Using Fuzzy Theory in Electrical Discharge Machining Drill. 755
 Kyung-Tae Byun, Jong-Min Kim, Eung-Young Heo and Cheol-Soo Lee

AC-Pulse Modulated Electrohydrodynamic (EHD) Direct Printing of Conductive Micro Silver Tracks for Micro-Manufacturing 763
 Hantang Qin, Chuang Wei, Jingyan Dong and Yuan-Shin Lee

Improving Lumber Yield Using a Dual System	771
R. Edward Thomas, Omar Espinoza and Urs Buehlmann	
Design of a Low-Cost Fiber Optical Occlusion Based Automatic Tool Setter for Micro Milling Machine	777
Xinyu Liu and Weihang Zhu	
Parameters Design Using Fuzzy Theory in Laser Cutting	785
Tae-gyeong Lee, Jong-min Kim, Eung-young Heo and Cheol-soo Lee	
A Prototype Web Based Decision Support System for Cutting Parameters Selection Based on Machining Features.	793
Chong Peng, Lun Wang and T. Warren Liao	
MANUFACTURING SYSTEMS AND PERFORMANCE MEASUREMENT	
Advantages of Using Hybrid Manufacturing Platforms to Realize Decentralized Manufacture	803
Blake A. Kendrick, Vimal Dhokia and Stephen T. Newman	
A Modular Flexible Scalable and Reconfigurable System for Manufacturing of Microsystems Based on Additive Manufacturing and E-Printing.	811
Christian Woegerer, Matthias Plasch, Wolfgang Heidl, Markus Dickerhof, Daniel Kimmig, Steffen Scholzf, Raphael Adamietz and Tobias Iseringhausen	
Applying Theory of Constraints to Moving Assembly Lines	817
Trumone Sims and Hung-da Wan	
Hierarchical Management of a Heterarchical Manufacturing Grid	825
Daniël Telgen, Leo van Moergestel, Erik Puik, Alexander Streng, Roy Scheefhals, Tommas Bakker, Alexander Hustinx, Laurens van den Brink and John-Jules Meyer	
Comparative Analysis between Small Displacement Torsor and Model of Indeterminate Applied on Generated Solution of Reconfigurable Manufacturing System	833
Arsalan Safiq, Aamer Baqai, SajidUllah Butt	
Evaluating the Role of Product Design and Process Time Variability in Determining a Configuration of Disassembly Stations	841
Daniel W. Steeneck, Jonathan G. Flittner and Subhash C. Sarin	
A Performance Estimation Framework for Complex Manufacturing Systems	849
António Almeida and Américo Azevedo	
Classification of Reconfiguration Resources and Lead Time for Reconfigurable Manufacturing Systems	857
Erik Puik, Daniel Telgen, Leo van Moergestel and Darek Ceglarek	
MODELING, SIMULATION AND DECISION SUPPORT SYSTEMS	
A Bayesian Network Based Decision Support System	865
Wen-Hsin Chen and Wei-Hua Andrew Wang	
Hardware in the Loop Simulation-Based Training for Automated Manufacturing Systems Operators	873
Alberto Vergnano, Marcello Pellicciari and Giovanni Berselli	
An Integrated Web-Based Scheduling and Quality Decision Support System (SQDSS)	881
Krisnan Krishnaiyer and F. Frank Chen	
On a Paired-t Confidence Interval Based Ranking and Selection Method.	889
Yifan Wu, Liping Liu and Shuxia Li	
Chances of the Application of Multi-Domain Simulation Tools in the Field of Train System Engineering	893
David Meinel, Paryanto and Jorg Franke	
Harmonized Decision Modeling Process for Smart Grid Component Allocation	901
Seung Yup Lee, Kyoung-Yun Kim and Evrim Dalkiran	
A Constructive Cooperative Coevolutionary Algorithm Applied to Press Line Optimisation	909
Emile Glorieux, Bo Svensson, Fredrik Danielsson and Bengt Lennartson	
Simulation Metamodelling of Chosen Production System	917
Silvia Furtáková, Milan Gregor and Jozef Hnát	

Resolving Waiting Time Issue in Healthcare: A Simulation Modelling Approach 927
 V. Kumar, A. Kumari, M. Brady, J. A. Garza-Reyes, A. Bhattacharya and L. Rocha-Lona
Using Adaptive Neuro-Fuzzy Inference Systems to Monitor Non-Linear Quality Profiles. 935
 Adel Alaeddini

PRODUCT DEVELOPMENT, DFM&A AND MATERIALS

Evaluation Framework for Crowdsourced Design Concept Management. 945
 Jihoon Kim, Kyoung-Yun Kim and Ohbyung Kwon
Creating a Flexible Data Management Environment in CAD/CAE/CAM for Product Lifecycle Management 953
 David E. Culler and Noah Anderson
Value Stream Mapping Along the Product Development Process 961
 Uwe Dombrowski, David Ebentreich and Stefan Schmidt
Considering Assembly Requirement Specifications in Product Development: Identification and Approach 969
 Narges Asadi, Joel Schedin, Anders Fundin and Mats Jackson
3-D Biocompatible Microneedle Arrays with Nanoporous Surface 977
 Po Chun Chen and Sheng Jen Hsieh
Optimizing the Morphing Displacement of Sandwiched Nanotube Buckypaper Actuators via Design of Experiments Methodology 983
 Yueh-Shao Lin, Ming-Chia Yang, I-Wen Peter Chen and Yi-Wen Chen
Optimum Constant-Stress and Step-Stress Accelerated Life Tests Under Time and Cost Considerations 991
 David Han
Sustainable Design and Innovation for Office Furniture and Its Implementation 999
 N. Seyajah, K. Cheng and R. Bateman

PRODUCTION PLANNING AND SCHEDULING

A New Solution Representation for Developing Meta-Heuristic Algorithms to Solve Distributed Flexible Job-Shop Scheduling Problems. 1009
 Po-Hsiang Lu, Hao Tan, Yong-Han Peng, Chen-Fu Chen and Muh-Cherng Wu
Using Simulation to Determine the Batch Size for I/O Drawer Test Process in a High-End Server Manufacturing Environment. 1017
 Lawrence Al-Fandi and Faisal Aqlan
From Machine Utilisation to Flow Time: Effects of Lean Transformation on Scheduling 1023
 Henri Tokola, Esko Niemi and Pekka Kyrenius
Batch Size Optimization Based on Production Part Cost 1031
 Christina Windmark, Kathrine Spang, Fredrik Schultheiss and Jan-Eric Stahl
Minimization of Transportation and Installation Time for Offshore Wind Turbines 1039
 Tasnim Ibn Faiz and Bhaba R. Sarker
Concept of Semi-Autonomous Production Planning and Decision Support Based on Virtual Technology 1049
 C. Prinz, D. Jentsch, N. Kreggenfeld, F. Morlock, A. Merkel, E. Müller and D. Kreimeier
Factors for a Decentralized Production and Sequence Planning from the Perspective of Products and Resources. 1057
 Christoph Taphorn
Development of Predictive Production Model for Increasing Productivity of Oil Wells. 1065
 Saifaddeen Sallam, Mohammad Munir Ahmad and Mohamed Nasr

QUALITY CONTROL, TQM, PROCESS IMPROVEMENT, OPERATIONS MANAGEMENT AND PRODUCTIVITY

An Investigation into the Challenges of Implementing the EFQM Excellence Model. 1075
 Adeolu A. Adeyemi, Jose Arturo Garza-Reyes, Ming K. Lim, Vikas Kumar
 and Luis Rocha-Lona

Process Variability Reduction by Using the Design of Experiment—A Case Study	1085
Jan Machac and Frantisek Steiner	
Analysis of Internet Process Tool for Continuous Improvement and Productivity in a Manufacturing Environment.	1093
P. G. Smith and C. F. Oduoza	
E-Quality Control in Automotive Manufacturing—An Integrated Approach Using 3D Measurement and Photometric Stereo Reconstruction.	1099
Tzu-Liang (Bill) Tseng, Jun Zheng, Johnny C. Ho, Chun-Che Huang, Luis A. Ochoa, Yirong Lin and Richard Chiou	
An Empirical Study of TQM and Its Effect on the Organizational Sustainability Development: A Successful Model for Implementation.	1109
Redha M. Elhuni and M. Munir Ahmad	
Quality Measurement in the Supply Chain	1119
Omar Espinoza, Urs Buehlmann and Brian Bond	
Designing a Fuzzy Control System for Non-Random Pattern Detection in Individual Observation Control Charts	1127
Adel Alaeddini	
Requirements for Manufacturing Operations Management and Control Systems in a Dynamic Environment.	1135
Eeva Järvenpää, Henri Tokola, Tapio Salonen, Minna Lanz, Mikko Koho and Reijo Tuokko	
Research on Life-Cycle Process Management of Petroleum Geophysical Exploration Engineering Project in China.	1143
Huang Kun and Zhang Jian	
 EQUIPMENT MAINTENANCE AND EFFECTIVENESS	
Practical Evaluation Workover Framework (PEWF) for Evaluation and Process Improvement of Workover Rigs in the Oilfields	1153
Haitham Mansour, Munir Ahmad and Fadala Ahtita	
Improving Maintenance Processes with Socio—Cyber-Physical Systems	1163
Hendrik Hopf, David Jentsch, Thomas Loffler, Sebastian Horbach and Angelika C. Bullinger-Hoffmann	