# 10th International Conference of DAAAM Baltic INDUSTRIAL ENGINEERING

Tallinn, Estonia
12-13 May 2015

**Editors:**

**Tauno Otto**

ISBN: 978-1-5108-2263-4

**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© (2015) by Danube Adria Association for Automation and Manufacturing (DAAAM)
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact DAAAM International Vienna
at the address below.

DAAAM International Vienna
Karlsplatz 13/311, A-1040
Wien, Austria, European Union

Phone: 0043-1-58801-31121
Fax: 0043-1-58801-31199

secretary@daaam.info

**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

**CONTENTS**

**I PRODUCTION ENGINEERING & MANAGEMENT .....9**

**Chval, Z.; Cechura, M.; Raz, K.**
Analysis of the guidenance of mechanical presses with regard to new forming technologies……...….11

**Fulemova, J.; Hnatik, J.; Kozmin, P. & Sklenicka, J.**
Influence of cooling methods on tool life during machining with imachining strategy……...15

**Haavajõe, A.; Mikola, M.; Herranen, H. & Pohlak, M.**
Manufacturing of steered fiber composite laminate..……21

**Harf, M. & Grossschmidt, G.**
Multi-pole modeling and intelligent simulation of a hydraulic drive with three-directional flow regulating valve…….…....27

**Kaganski, S.; Paavel, M.; Karjust, K.; Majak, J.; Snatkin, A.**
Difficulties in smes and kpi selection model as a solver……..……33

**Logins, A. T. Torims, S. C. G. Rubert, P. R. Castellano, R. Torres Carot, F. Sergeyev.**
Study of combined machining parameters on 3d roughness behaviour in moulds and dies……...…….…39

**Mahmood, K., Shevtshenko, E.**
Productivity improvement by implementing lean production approach……...……45

**Melichar M., Kutlwašer J., Kubátová D.**
Influence of initial setup of parts before roughness evaluation……....52

**Milsimerova, A.**
Sharpening hobbing worm milling cutters issue……...57

**Mägi, P.; Krumme, A. & Pohlak, M.**
Material recycling and improvement issues in additive manufacturing…….....…63

**Paavel, M.; Kaganski, S.; Karjust, K.; Lemmik, R. & Eiskop, T..**
Analysis model development to simplify plm implementation……....69

**Pabut, O.; Kirs, M;. Lend, H. & Tiirats, T.**
Optimal structural design of a slotless permanent magnet generator……...…75

**Raz, K.; Cechura, M.; Chval, Z.; Zahalka, M.**
Improvement of mechanical press productivity and accuracy by compensation of frame opening……...…...……82

**Sedláček, F.; Lašová, V.; Kottner R. & Bernardin P.**
Comparison of numerical simulation and experiment of a flexible composite connecting rod…….....86

**Stepans Sklariks and Toms Torims**
Laser cladding technology implementation for in-situ refurbishment of ship diesel engine crankshaft journals…….…...92

**Tikal, F.; Špirk, S. & Šedina, J.**
Backstop and bullet trap design…….....…99

**Õunapuu, E.; Velsker, T.; Eerme, M.**
Design optimization of glass canopy panel subjected to snow load…….....104

**II MECHATRONICS & SYSTEM ENGINEERING.....109**

**Airola, A.; Jousimaa, O.; Niemi, K.; Vuokko, S.; Kiviluoma, P. & Kuosmanen, P.**
Integration of household appliances to the existing internet infrastructure….....111

**Bhatt, N.; Räsänen, N.; Lehtinen, J.; Tervamäki, T.; Salerto, S.; Kiviluoma, P. & Kuosmanen, P.**
Two degree-of-freedom upper limb exoskelton trainer for elderly people……..…...117

**Dhoska, K.; Hofer, H.; López, M.; Rodiek, B.; Kübarsepp, T. & Kück, S.**
High accuracy filter transmission measurement for determination of the detection efficiency calibration of si-spad detectors……..……...123

**Karmin, M.; Ehrminger, R. ; Shatov, J. ; Mzhavia T. ; Vaher, O. ; Dihuliya D. ; Hiiemaa, M. & Tamre, M.**
Cubesat mission for multispectral earth observation from low earth orbit…….128

**Kokko, O.; Ahmad, B.; Aula, J.; Korpijärvi, J.; Kiviluoma, P.; Kuosmanen, P.; Sepponen, R. & Linnavuo, M.**
A method for estimating the relaxation of a person in an edutainment context……134

**Laitinen, H.; Vahtila,V.; Liski, T.; Komsi, P.; Klar,V.; Kiviluoma, P. & Kuosmanen, P.**
Device for wood fibre yarn based product manufacturing……..……140

**Laskina, L.; Musalimov, V. & Musalimova, L.**
Operating leverage as a factor of promoting investment in the engineering industry……146

**Liyanage, D.C., Aasmäe, E., Sutt, K.O., Tamre, M. Hiiemaa, M.**
Ship model basin carriage control system……....151

**Munigala,V.; Kemppainen,M.; Kärki, P.; Tudose, C.; Kiviluoma, P. & Kuosmanen, P.**
Development and design of a cylindrical 3d printer……...…156

**Nuzhdin, K.; Musalimov, V. & Sivitski, A.**
Application of memristor in simulation of friction processes…….……162

**Nylund, J.; Järf, A.; Kekäle, K.; Rönnskog, J.; Al-Neshawy, F.; Kiviluoma, P. & Kuosmanen, P.**
Implementation of a contour crafting system to a 3-dimensional concrete printer…….....168

**Peltonen, O.; Orhanen, S.; Venäläinen, J.; Auvinen, M.; Sepponen, R.; Kiviluoma, P. & Kuosmanen, P.**
Development of a nurturance evoking robot……...174

**Pomell,J.; Silvonen,A.; Lagus,N.; Kim,H.; Partanen,J.; Kiviluoma,P. & Kuosmanen, P.**
Adaptive selective laser sintering testing device for process research in 3d printing…….180

**Syvänen, J.; Karlén, N.; Salminen, P.; Kivekäs, K.; Kiviluoma, P.; Kuosmanen, P. & Partanen, J.**
The effect of filters on the accuracy of stereolithography……..186

**Zhigailov, S.; Verchenko, A.; Musalimov, V.; Aryassov, G.**
Calculation of plate plane motion parameters using inertial measurement system……....192

**Tammaru, T. & Kiitam, A.**
Use of excellence models as a tool for benchlearning and knowledge management.....199

**Vainikka, O.; Halinen, J.; Pajula, M.; Sarhaluoma, A.; Kiviluoma, P. & Kuosmanen, P.**
Implementation of a torsion testing device for 3d-printed plastic tubes…….205

**Vepsäläinen, J.; Peltola, M.; Nygren, T.; Mälkönen, J.; Heikkilä, E.; Kiviluoma, P.; Kuosmanen, P.; Socie, D.; Teerihalme, S.**
Effects of the angular velocity of a flywheel on the gyroscopic stabilization of a bicycle….211

**Vlasova, M.; Laskina, L.; Musalimov V., Musalimova L.**
The impact of taxation on the sustainability of machine-building enterprises: a case study..217

**Väisänen, J.; Hasu, O.; Hevonoja, T.; Mielonen, M.; Kiviluoma, P. & Kuosmanen, P.**
Pneumatic football kicking device based on human anatomy imitation…….……223

**III SUPPLY CHAIN MANAGEMENT.....229**

**Hurt, U.; Tomba, A. & Koppel, O.**
Value stream mapping as a tool in optimising production logistics. Case: he teletechnics....231

**Leppiman, A.; Kotka, T.; Kõrbe Kaare, K. & Koppel, O.**
Decision-making framework for industrial-size datacenters……..237

**Niine, T.& Koppel, O.**
The impact of technology trends on skills of logistics engineers – a novel competence approach……..……243