## **Table of Contents**

## **Preface**

## I. Theory, Diagnostics and Operational States of Machines

Diagnostic of Manufacturing Devices Operational States by Smart-Phones Application with Use of Augmented Reality Methods	
J. Novak-Marcincin, P. Szentivanyi, M. Janak and J. Barna	3
Use of Diagnostic Methods for Monitoring of Disorder State of Production Machines and	
Equipment S. Šoltésová, P. Baron and P. Adamčík	11
Interactive Monitoring of Production Process with Use of Augmented Reality Technology J. Novak-Marcincin, J. Torok, M. Janak and L. Novakova-Marcincinova	19
<b>Bearing Units and Surface Micro-Geometry of Rolling Races in Textile Machinery</b> Z. Murčinková and J. Murčinko	27
Implementation of Method and Structure Handling Manipulation Operations to Hydroabrasive Process	
A. Vagaská, J. Kmec, M. Gombár and P. Michal	35
Modelling of the Anisothermal Phase Transformation of Austenite by Electromagnetic	
Sensor R. Chotěborský, M. Linda, J. Ružbarský and M. Müller	44
Degradation Process in Area of Connecting Metal Sheets by Adhesive Bonding Technology	
in Agrocomplex M. Müller, J. Ružbarský and P. Valášek	52
Mathematical Modelling and Optimization of Technological Process Using Design of	0-
Experiments Methodology P. Michal, A. Vagaská, M. Gombár and J. Kmec	61
Boroscopy Application in Assurance of Technological Equipment Operational Capability	01
J. Žarnovský, R. Drlička, J. Ružbarský and J. Žitňanský	69
<b>Diagnostics of the Arm Actuator Position Using Incremental Measurement</b> R. Krehel' and E. Straka	77
Experimental Investigation and Analysis of the Impact in Abrasive Mass Flow Changes with and without the Use of Sieve Analysis on Technological Head Vibrations at Hydroabrasive Cutting S. Fabian and Š. Salokyová	85
Design of Module of Moving Robot	0.5
M. Hatala, M. Mičko, Ľ. Olexa, P. Michalik, J. Čisár and P. Kokuľa	93
Operating Characteristics of Antagonistic Actuator with Pneumatic Artificial Muscles J. Pitel' and M. Tóthová	101
Using Atomic Spectrometry and Volumetry Method for Determination of Bearing Corrosion in Tribotechnical Diagnostics of Engines J. Mihalčová	110
Determination of the Suitability of the Method Used for Evaluation Measurement	110
Equipment Capability L'. Straka and R. Krehel'	118
Ensuring the Reliability of an Aircraft Engine Hydraulic System J. Mihalčová and P. Šmeringai	126
Loops Control Structure and Solar System Control of a Multivalent Laboratory under Real-Time Mode M. Rimár and Š. Kuna	135
Monitoring of Biomass-Based Heat Production System J. Mižáková	143
Impact of Lubrication Interval to Operating Status of Bearing P. Čačko and T. Krenický	151

Analysis of Technological Head Working Pressure, Tilt Angle and Shift Impact to its Vibrations Using AWJ Technology L. Bicejova and S. Fabian	159
New Methods of Obtaining Input Data of Numerical Computations by Using Heat Treatment Simulator	
J. Moravec, J. Dobránsky, J. Bradáč and I. Nováková	167
Technological Head Tilt Angle Influence Analysis to Generation of Vibration during Ceramics Material Machining by Means of AWJ Technology S. Fabian and L. Bicejova	175
Progressive Technology Diagnostics and Factors Affecting Machinability A. Panda, M. Prislupčák and I. Pandová	183
<b>Diagnostic and Experimental Valuation on Progressive Machining Unit</b> M. Prislupčák, A. Panda, M. Jančík, I. Pandová, P. Orendáč and T. Krenický	191
Analysis of the Damage Causes of High Speed Bearing Failure V. Simkulet, M. Kočiško, Z. Hutyrová and V. Fečová	200
Monitoring of the Influence of Moisture Content in Thermoplastic Granulate on Rheological Properties of Material J. Dobránsky, P. Baron, M. Kočiško and E. Vojnová	207
Dynamic Analysis of Worm Gear Boxes A. Šmeringaiová and P. Šmeringai	216
II. Operation of Production Systems	
Diagnostics of Errors at Component Surface by Vision Recognition in Production Systems K. Židek, V. Maxim and R. Sadecký	227
Short-Term Testing of Cutting Materials Using the Method of Interrupted Cut J. Zajac, D. Mital', S. Radchenko, P. Kokul'a, L'. Olexa and R. Čep	236
<b>Dynamics of Core Taking out at Die Casting</b> J. Ružbarský	244
<b>Diagnostics of Strain Hardening Exponent and Material Constant of Steel Sheets</b> E. Fechová and J. Kmec	252
Using Recycled Rubber Particles as Filler of Polymers P. Valášek, M. Müller and J. Ružbarský	260
Up Milling Technology and its Outputs V. Fečová, P. Michalik, J. Zajac, J. Berthoty and E. Hanisko	268
Assessment of Micro-Geometric and Macro-Geometric Parameters after Machining Composite Material with Natural Fibres Z. Hutyrová and I. Orlovský	276
Comparison Measurement of the Distance between Axes of Holes with the Roundtest RA- 120 and Thome Präzision-Rapid	
P. Michalik, J. Zajac, M. Hatala, Z. Hutyrová, D. Mital' and J. Olhova Impact of Cutting Speed on the Resultant Cutting Tools Durability in Turning Process of	284
Steel 100CrMn6  J. Duplák, P. Michalik, M. Kormoš, S. Jurko, P. Kokul'a and Ľ. Olexa	292
Comparison of Theory and Practice in Analytical Expression of Cutting Tools Durability for Potential Use at Manufacturing of Bearings  A. Panda and J. Duplák	300
Analysis of Selected Properties of Cutting Ceramics at Machining Process of Bearing Steel 100Cr6	
A. Panda, J. Duplák, M. Prislupčák and P. Kokul'a	308
Chilled Ceiling Adaptive Control with Application of Parameters Gained from the Chilled Ceiling System Proposal Algorithm I. Čorný, M. Fedák and M. Rimár	317
Crystallization of Polylactic Acid Composites with Banana and Hemp Fibres by Means of DSC and XRD Methods	
L. Běhálek, M. Seidl and J. Dobránsky	325

Influence of Processing Parameters Production of Sandwich Composite Structures Designed	
Especially for the Construction of Machine Tool Parts	222
S. Řusnáková, D. Kučerka, M. Podařil, J. Kmec, V. Rusnák and L. Bicejova	333
Microstructural Characteristics Investigation of the Chip-Making Process after Machining I. Vojtko, V. Simkulet, P. Baron and I. Orlovský	344
Stroke Design for the Press Roller on the Curling Twincylinder Machine E. Vitikáč Batešková and A. Panda	351