

## CONTENT

<b>FOREWORD .....</b>	<b>17</b>
<b>L. Dávid, K. György, L.-A. Galaczi</b>	
<i>Survey of Optimal Control and Model Predictive Control with State Estimation and     a Real-Time Applications.....</i>	<b>19</b>
<b>Gy. Bagyinszki, E. Bitay</b>	
<i>Educational Methods of Engineering Training.....</i>	<b>31</b>
<b>É. Beke</b>	
<i>The Relationship and Interaction Between Industry 4.0 and Education .....</i>	<b>36</b>
<b>R. Csongvai, Z. Torkos</b>	
<i>Innovation Design for Safe Products .....</i>	<b>40</b>
<b>A. Debreceni, T. I. Erdei, Sz. Tóth, G. Husi</b>	
<i>Reconstruction of Grinding Machine Intended for Thermo-Polymers, and Design of     Linux Based IOT Control System .....</i>	<b>45</b>
<b>H. Fábián, A. L. Gergely</b>	
<i>Design and Implementation of a Tensile Testing Machine .....</i>	<b>50</b>
<b>I. Faragó, T. I. Erdei, S. Zolnai, G. Husi</b>	
<i>Design of an IoT Smart Meteorological Station Complete with Data Acquisition and     Realising Test Measurements in Cyber-Physical Robotics Lab.....</i>	<b>54</b>
<b>B. Felvári, D. Dunavölgyi, J. Kuti</b>	
<i>Stainless Steel Plate One Side Welding .....</i>	<b>59</b>
<b>Z. G. Géresi, A. Gábora</b>	
<i>Casting Tool Design and Computer-Aided Manufacturing.....</i>	<b>63</b>
<b>F. Haraszti</b>	
<i>A Review of Difficulties in the Measuring Technologies of Thermography.....</i>	<b>68</b>
<b>N. Hodgyai, A. L. Gergely, R. L. Farmos</b>	
<i>The Design and Implementation of a Disk Electrospinning Device .....</i>	<b>72</b>
<b>L. Horváth</b>	
<i>Mechanical Resources Available at Middle Tisza District Water Directorate for     External Flood Protection and Outsourcing .....</i>	<b>77</b>

**I. Hrámcov, T. I. Erdei, R. Décsei, G. Husi**

<i>Design of Electron Tube and Semiconductor-Based and Voltage-Stabilised Amplifier Circuits .....</i>	81
--	----

**E. Hronyecz**

<i>V4 Security and Defense Policy – National and Allied Challenges in Member States.....</i>	86
--	----

**O. Kelemen, A. Izbékiné Szabolcsik, I. Bodnár**

<i>Investigation of Household Laundry Water as an Alternative Water Source .....</i>	91
--	----

**G. J. Kiss, F. Szigeti, D. Gergely**

<i>Development of the Production of Belted Air Spring .....</i>	95
---	----

**M. Kovács, P. Agg, Z. Cs. Johanyák**

<i>SDMN Architecture in 5G .....</i>	101
--------------------------------------	-----

**M. Laki, J. Kuti**

<i>Research on Cost-Effective Configuration of Rapid Weld Technology .....</i>	105
--	-----

**B. Leveles, A. Kemény, I. N. Orbulov**

<i>Investigation of Bimodal Aluminum Matrix Syntactic Foams Filled with Ceramic Hollow Spheres .....</i>	110
--	-----

**R. Lós, A. Izbékiné Szabolcsik, I. Bodnár**

<i>Investigations of Detergents and Metal Components for Supporting the Effective Treatment of Greywater .....</i>	114
--	-----

**N. L. Lukács, P. Ficzere, G. Szebényi**

<i>The Impact of Active Cooling on Heat Resistant PLA .....</i>	118
---	-----

**P. M. Máder, D. Szilágyi, O. Rák, I. E. Háber**

<i>Laser Survey Tool and Survey Methodology for Direct Architectural CAD Software Connection .....</i>	122
--	-----

**L. Márton, F. Szigeti, D. Gergely**

<i>Design of a Fabric Winding-up Unit.....</i>	126
--	-----

**P. Máté, A. Szekrényes**

<i>Numerical Modelling of the Three-Roll Bending Process of a Thin Plate.....</i>	133
---	-----

**K. Mihály, Gy. Kulcsár**

<i>Solving of Extended Project Scheduling Problems.....</i>	137
---	-----

**E. Molnár, Á. Borsos**

<i>The Catalog for Our Future Homes.....</i>	142
--	-----

<b>K. Muhi, Zs. Cs. Johanyák</b>	
<i>Dimensionality Reduction Methods Used in Machine Learning.....</i>	<i>148</i>
<b>A.-Cs. Nagy, H. Hajdó, Á. Kis, D. V. Moldovan</b>	
<i>Influence of the Degree of Compaction on the Bearing Capacity of a Road Structure</i>	
<i>Reinforced with Triaxial Geogrids .....</i>	<i>152</i>
<b>R. Nagy, M. Hartyányi, B. Nagy, Cs. Varga</b>	
<i>Determination of Free Diethanolamine Content.....</i>	<i>158</i>
<b>J. Novák</b>	
<i>Criteria for an Effective Environmental Education.....</i>	<i>162</i>
<b>A. Szántó, A. Szántó, G. Á. Sziki</b>	
<i>Review of Modelling Methods of Series Wound DC Motors.....</i>	<i>166</i>
<b>L. Tóth, Z. Nyikes, Mhatre Umesh</b>	
<i>Tool Steels Surface Wear Resistance Increasing by Surface Treatment.....</i>	<i>170</i>
<b>S. D. Asadi, M. Vogel</b>	
<i>A Learning Rate Method for Full-Batch Gradient Descent.....</i>	<i>174</i>
<b>LIST OF AUTHORS.....</b>	<i>178</i>