

CONFERENCE PROGRAM

Day 1, Monday, May 16, 2022

Time	Event	Room / Info
11:00–15:00	Registration / Conference Office opening hours	Hall
12:00–14:00	<p>Opening Ceremony</p> <p>Master of Ceremony: Magdalena DIERING, Chair</p> <p>Conference Opening & Best Paper Awards Ceremony: Olaf CISZAK, FME Dean Teofil JESIONOWSKI, PUT Rector Adam HAMROL, General Chair</p> <p>Keynote Speakers</p> <p>Ralf WOLL, CTB, Cottbus, Germany <i>Some quality trends, a German view</i></p> <p>Adam GAŚKA, Jerzy SŁADEK, Cracow University of Technology, Poland <i>In-line and in-process metrology systems: perspectives and challenges</i></p>	<p>On-site: Room CW7</p> <p>Remotely: BBB platform</p>
14:00–15:00	Lunch	053
15:00–16:00	<p>Keynote Speakers</p> <p>Piotr HOFFMANN, Barlinek Inwestycje, Barlinek, Poland <i>Challenges for the research and development activity in the wood flooring industry</i></p> <p>Adam HAMROL, Poznan University of Technology, Poland <i>Humanity in pursuit of quality</i></p>	<p>On-site: Room CW7</p> <p>Remotely: BBB platform</p>
18:00–20:00	<p>Ice Breaker Party – Bowling & Billiards and Pizza 😊</p> <p>Meeting Point: Gravitacja Posnania</p>	Gravitacja Posnania

Day 2, Tuesday, May 17, 2022

Time	Event	Room / Info
09:00–13:00	Conference Office opening hours	Hall
09:00–09:30	Morning Coffee and Snacks	053
09:30–11:00	<p>Session 1: <i>Manufacturing and management approaches and tools for companies in era of digitalization</i></p> <p>Session Chair: Justyna TROJANOWSKA</p> <ol style="list-style-type: none"> Oleg KROL, Volodymyr SOKOLOV, Aleksander GOLUBENKO, <i>Multicriteria Optimization of the Worm Gearing Drive for Tool Magazine</i> Oleg KROL, Volodymyr SOKOLOV, <i>Modification of the Spindle Head for a Milling Machine with Increased Load Capacity Drive</i> Alessandro ALESSIO, Khurshid ALIEV and Dario ANTONELLI, <i>Robust Adversarial Reinforcement Learning for Optimal Assembly Sequence Definition in a Cobot workcell</i> Alla POLYANSKA, Svitlana SAVCHUK, Ivanna ZAPUKHLYAK, Yaroslav ZAIACHUK and Irina STANKOVSKA, <i>Digital maturity of the enterprise as an assessment of its ability to function in Industry 5.0</i> Jan DUDA, Sylwester OLESZEK and Krzysztof SANTAREK, <i>Product Lifecycle Management (PLM) in the context of Industry 4.0</i> Reggie DAVIDRAJUH, Damian KRENCZYK and Bozena SKOLUD, <i>Modeling Production Systems as Modular Systems: A Petri Nets based Approach</i> 	<p>On-site: Room CW7</p> <p>Remotely: BBB platform</p>
11:00–11:30	Coffee Break	053

Day 2, Tuesday, May 17, 2022

Time	Event	Room / Info
11:30–13:00	<p>Session 2: Cyber-Physical Production Systems: From Design to Applications</p> <p>Session Chair: Bartosz GAPIŃSKI</p> <ol style="list-style-type: none"> 1. Jacek FRAŃCZAK and Justyna PATALAS-MALISZEWSKA, <i>Design of Customized Sea Container House in the context of Industry 4.0 – a case study</i> 2. Josilene LIMA, Vaibhav SHAH, Leonilde VARELA, Goran PUTNIK, Katarzyna ANTOSZ, José MACHADO, <i>Analysing impact of the digitalization of cosmetic visual inspection process in smartphone manufacturing by using computer vision</i> 3. Filipe PEREIRA, Luis FREITAS, Rui OLIVEIRA, José VICENTE, Teresa MALHEIRO, A. Manuela GONÇALVES, José MACHADO, <i>Design of a vision system for needles' beds positioning inspection: an industrial application</i> 4. Florin POPIȘTER, Alexandru OARCEA, Sergiu-Dan STAN, Costan-Vlăduț TRIFAN, <i>Workspace analysis of a novel parallel kinematic machine with 6 Degrees of Freedom</i> 5. BUSHRA M.Z., Ahmad MAJDI A. RANI, Nu'man Al-Basyir Mohd Nuri Al-Amin, Mohd Norhisyam AWANG, M Nasir A RANI, Nur Athirah ISHAR, Harvey M. THOMPSON, Marek SZOSTAK, Krishnan SUBRMANIAM, <i>Analysis and Modelling of Intelligent Gate Valve with Fault Detection and Prevention System for Fabrication using 3D Printing Method</i> 	<p>On-site: Room CW7</p> <p>Remotely: BBB platform</p>
13:00–14:00	Lunch	053

Day 2, Tuesday, May 17, 2022

Time	Event	Room / Info
14:00–15:30	<p>Session 3: <i>Operational innovation and excellence in organizations of 21st Century. Lean Thinking, Kaizen Philosophy, and Toyota Production System</i></p> <p>Session Chair: Marta GRABOWSKA</p> <ol style="list-style-type: none"> 1. Fernando BANDA, Martín LUNA LÁZARO, Leticia NEIRA-TOVAR, Ana Karen LUNA TORRES, Said GONZALEZ, <i>Augmented Reality as a didactic resource: a proposal for computer equipment maintenance training</i> 2. Márcia Helena BORGES NOTARJACOMO, Bruna STRAPAZZON DO COUTO, Fernanda BICA DE ALMEIDA, Miriam BORCHART, GIANCARLO MEDEIROS PEREIRA, <i>Total Quality Management: practices to leverage its principles in distance higher education</i> 3. Manuel F. SUÁREZ-BARRAZA, Jose Angel MIGUEL-DAVILA, Manuel Francisco MORALES-CONTRERAS, <i>KAIZEN: An ancestral strategy for operational improvement: Literature Review and Trends</i> 4. Fernando GONZALEZ ALEU, Daniela GARZA GUTIERREZ, Edgar Marco AURELIO, Granda GUTIERREZ, Jesus VAZQUEZ HERNANDEZ, <i>Increasing Forklift Time Utilization in a Food Equipment Manufacturing Plant with a Kaizen Event</i> 5. Damjan MALETIČ, Matjaž MALETIČ, <i>Barriers to Digital Transformation in Asset Management</i> 6. Jakub DEMČÁK, Natalia LISHCHENKO, Ivan PAVLENKO, Ján PITEĽ and Kamil ŽIDEK, <i>The Experimental SMART Manufacturing System in SmartTechLab</i> 	<p>On-site: Room CW7</p> <p>Remotely: BBB platform</p>
15:30–16:00	Coffee Break	053

Day 2, Tuesday, May 17, 2022

Time	Event	Room / Info
16:00–17:30	<p>Session 4: <i>Augmented, Virtual and Mixed Reality Systems</i> Session Chair: Jozef HUSAR</p> <ol style="list-style-type: none"> 1. Fernando BANDA, Francisco Javier ESPARZA, Jesús MELENDÉZ and Melany ASCACIO, <i>Augmented Reality – a tool to support learning in engineering schools. Automation practice case</i> 2. Leticia NEIRA-TOVAR, Estefania SALISBURY FLORES, Sergio ORDOÑEZ, Aldo MARTINEZ, and Eduardo SANCHEZ-RENTERÍA, <i>A Development Method of a Virtual Reality Environment for Teaching in a Medical Technician School</i> 3. Paweł BUŃI, Jakub GAPSA, Jozef HUSÁR and Jakub KAŠČAK, <i>Mixed reality training in electrical equipment operating procedures</i> 4. Paweł BUŃI, Jozef HUSÁR and Jakub KAŠČAK, <i>Hand tracking in Extended Reality educational applications</i> 5. Kateryna KOVBASIUK, Michal BALOG and Kamil ŽIDEK, <i>Designing an Automated Assembly Workplace in a Simulation Environment</i> 6. Leticia NEIRA-TOVAR, Edson E. CASTAÑEDA-MANCILLAS, Guillermo ROSSANO, Jorge CUPICH, and Hector CRUZ, <i>Implementation of Virtual Reality for Training in Education and Industry: A Forklift Case</i> 	<p>On-site: Room CW7</p> <p>Remotely: BBB platform</p>
18:30–23:00	Gala Dinner	053

Day 3, Wednesday, May 18, 2022

Time	Event	Room / Info
09:30–13:00	Conference Office opening hours	Hall
09:30–11:30	Poster Session* with Breakfast and Morning Coffee Session Chair: Michał JAKUBOWICZ	On-site: Room 053 Remotely: BBB platform
11:30–13:00	Session 5: <i>Intelligent Methods Supporting Manufacturing Systems Efficiency</i> Session Chair: Anna BURDUK and Andre BATAKO 1. Suthep BUTDEE, <i>A Prediction Approach for Aluminum Extrusion Processing using Neuro-Fuzzy Based Decision Making</i> 2. Marcin HINZ, Jannis PIETRUSCHKA, Stefan BRACKE, <i>Application of Random Forest Algorithm for the Quality Determination of manufactured Surfaces</i> 3. Grzegorz BOCEWICZ, Izabela NIELSEN, Robert WÓJCIK and Zbigniew BANASZAK, <i>Declarative models of periodic distribution processes</i> 4. Eva Michelle SEDLÁČKOVÁ, Jiří KUCHAR, Viktor KREIBICH, Jakub HORNÍK, <i>A comparative experimental study of acids used for anodic oxidation for the purposes of aerospace industry</i> 5. Jakub KRAJANOWSKI-KALETA, Przemysław ZAWADZKI, Krzysztof ŻYWICKI, Maciej SZYMAŃSKI, Adrian MRÓZ, <i>Comparison of the tools for design process automation in popular CAx systems</i>	On-site: Room CW7 Remotely: BBB platform
13:00–14:00	Lunch	053

Day 3, Wednesday, May 18, 2022

Time	Event	Room / Info
14:00–15:30	<p>Session 6: <i>Sustainability on Production in the aspect of Industry 4.0</i> Session Chair: Izabela ROJEK</p> <ol style="list-style-type: none"> 1. Justyna PATALAS-MALISZEWSKA, Sławomir KŁOS and Ewa DOSTATNI, <i>Integrating the Assessment of Sustainability and an ERP System in Small and Medium Manufacturing Enterprise – a case study</i> 2. Anna KARWASZ, Filip OSIŃSKI, <i>Analysis of emission solid particles from the 3D printing process</i> 3. Wiesław URBAN, Elżbieta KRAWCZYK-DEMBICKA and Krzysztof ŁUKASZEWICZ, <i>Product co-design supported by Industry 4.0 in customized manufacturing</i> 4. Wiesław URBAN, Krzysztof ŁUKASZEWICZ and Elżbieta KRAWCZYK-DEMBICKA, <i>Development process of customised products, supported by technologies, a case of tailor-made furniture</i> 5. Andrea BONCI, Dorota STADNICKA and Sauro LONGHI, <i>The overall labour effectiveness to improve competitiveness and productivity in human-centered manufacturing</i> 6. Kristina BERLADIR, Justyna TROJANOWSKA, Vitalii IVANOV, Ivan PAVLENKO, <i>Materials Selection in Product Development: Challenges and Quality Management Tools</i> 	<p>On-site: Room CW7 Remotely: BBB platform</p>
15:30–16:00	Coffee Break	053

Day 3, Wednesday, May 18, 2022

Time	Event	Room / Info
16:00–17:30	<p>Session 7: <i>Design and rapid manufacturing of customized medical products</i></p> <p>Session Chair: Filip GÓRSKI</p> <ol style="list-style-type: none"> 1. Nikola VITKOVIĆ, Miroslav TRAJANOVIĆ, Jovan ARANĐELOVIĆ, Razvan PACURAR and Cristina BORZAN, <i>The Extra-articular Distal Humerus Plate Contact Surface Model Parameterization</i> 2. Natalia RÓŽAŃSKA and Michal RYCHLIK, <i>FEM analysis of a scoliosis brace concept with 3D perforation for manufacturing using 3D printing technology</i> 3. Agata MROZEK, Ewa TOMASZEWSKA and Michal RYCHLIK, <i>Concept of individual orthosis with 3D pattern structure for upper limb using 3D printing technology</i> 4. Filip GÓRSKI, Radosław WICHNIAREK, Wiesław KUCZKO, Magdalena ŻUKOWSKA, Justyna RYBARCZYK and Monika LULKIEWICZ, <i>Evaluation of a prototype system of automated design and rapid manufacturing of orthopaedic supplies</i> 5. Magdalena ŻUKOWSKA, Renata JEZIŃSKA, Filip GÓRSKI, Wiesław KUCZKO, Radosław WICHNIAREK, Jacek BANASZEWSKI and Agata BUCZKOWSKA-ANDRUSZKO, <i>Methodology of the rapid manufacturing of an individualized anatomical model of the tongue with a tumor for the preparation of an organ reconstruction operation</i> 6. Filip GÓRSKI, Justyna RYBARCZYK, Przemysław ZAWADZKI, Wiesław KUCZKO, Natalia WIERZBICKA, Magdalena ŻUKOWSKA and Sabina SIWIEC, <i>Design and additive manufacturing of an individualized specialized leg orthosis</i> 	<p>On-site: Room CW7</p> <p>Remotely: BBB platform</p>
18:00–21:00	<p>Evening Reception – Burgers and Snacks 😊</p> <p>Meeting Point: 3 Kolory Malta restaurant</p>	3 Kolory Malta

Day 4, Thursday, May 19, 2022

Time	Event	Room / Info
09:00–13:00	Conference Office opening hours	Hall
09:00–09:30	Morning Coffee and Snacks	053
09:30–11:00	<p>Session 8: <i>Metrology and Statistical Analysis of Measurement and Control Systems</i></p> <p>Session Chair: Alejandro PEREIRA</p> <ol style="list-style-type: none"> 1. Zuzanna KONIECZNA, Frans MEIJER, Ewa STACHOWSKA, <i>Non-destructive Testing of Metal-Polymer Laminates by Digital Shearography</i> 2. Rogelio J. BAUTISTA-GARCÍA, Rosa Ma. SALINAS-HERNÁNDEZ, FIDEL ULÍN-MONTEJO and Manuel F. SUÁREZ-BARRAZA, <i>Quality Estimation on the Application Process of the Vaccination Scheme against COVID in Mexico</i> 3. Dominik BRÜGGEMANN, Jens KNEIFEL, Stefan BRACKE, <i>Fundamental analysis of a circular metal sawing process</i> 4. Łukasz MARCHEWKA and Marek GRUDZIŃSKI, <i>Calibration of the 3D scanner in the machine tool workspace</i> 5. Ryszard ZIĘTEK, Paweł HERBIN and Mirosław PAJOR, <i>Development of an algorithm for estimating skeletal muscle strength</i> 	<p>On-site: Room CW7</p> <p>Remotely: BBB platform</p>
11:00–11:30	Coffee Break	053

Day 4, Thursday, May 19, 2022

Time	Event	Room / Info
11:30–13:00	<p>Session 9: <i>Analytical and Computational Methods in (Bio-) Mechanical and Material Engineering</i></p> <p>Session Chair: Tomasz STRĘK</p> <ol style="list-style-type: none"> 1. Marcin GRABOWSKI, Sebastian SKOCZYPIEC, Dominik WYSZYNSKI, <i>Effect of combined mechanical and electrochemical action on surface roughness in microturning process</i> 2. Nejc NOVAK, Oraib AL-KETAN, Matej VESENJAK and Zoran REN, <i>Testing, modelling and applications of TPMS cellular structures in biomechanical engineering</i> 3. Jakub MICHALSKI, Tomasz STRĘK, <i>Response of a Sandwich Plate with Auxetic Anti-tetrachiral Core to Puncture</i> 4. Šárka HOUDOVÁ, Zdeněk ČESÁNEK, Pavel POLACH, <i>Performance of Selected Thermally Sprayed Coatings for Power Applications</i> 5. Diana BĂILĂ, Răzvan PĂCURAR and Ancuța PĂCURAR, <i>Thin-film protective coatings on samples manufactured by Direct Metal Laser Sintering technology used in dentistry</i> 6. Maria BALANOU, Panagiotis KARMIRIS-OBRTAŃSKI, Nikolaos E. KARKALOS, Emmanouil L. PAPAZOGLU, Angelos P. MARKOPOULO, <i>On the machining of Aluminum Alloy Series 7 with EDM</i> 	<p>On-site: Room CW7</p> <p>Remotely: BBB platform</p>
13:00–14:00	Lunch	053
13:00–14:00	<p>Closing Remarks</p> <p>Master of Ceremony: Magdalena DIERING, Chair</p> <p>Best Poster & Best Presentation Awards Ceremony: Olaf CISZAK, FME Dean</p> <p>Announcement >>> MANUFACTURING 2024: Adam HAMROL, General Chair</p>	053

POSTER LIST*

Time	Event	Room / Info
Day 3 Wednesday May 18, 2022 09:30–11:30	Poster Session* with Breakfast and Morning Coffee Session Chair: Michał JAKUBOWICZ	On-site: Room 053 Remotely: BBB platform

** BR – Breakout Room number on a [BBB web platform](#)

No	BR**	Authors	Poster Title
P.01	Breakout Room 1	Joanna KRAJEWSKA-SPIEWAK, Józef GAWLIK, Marcin GRABOWSKI, Piotr TYCZYŃSKI, Małgorzata KOWALCZYK	Impact of the type of tool holder on the surface finish during precision machining of WCLV hardened steel with carbide milling cutters
P.02		Mirosław RUCKI, Yaroslav GARASHCHENKO, Ilja KOGAN, Tomasz RYBA	Evaluation of the Fidelity of Additively Manufactured 3D Models of a Fossil Skull
P.03		Edwin GEVORKYAN, Mirosław RUCKI, Volodymyr NERUBATSKYI, Zbigniew SIEMIATKOWSKI, Dmitrij MOROZOW, Hanna KOMAROVA	Theoretical Model of the Densification during Hot Pressing and its Verification
P.04		Dominika RYSINSKA-WOJTASIK, Artem BALASHOV	Risk analysis as a way to improve the efficiency of production processes – case study
P.05		Klaudia TOMASZEWSKA	Production flow between workstations using the Kanban & DBR methods – comparative study
P.06		Agata KULIBERDA, Tomasz STREK	Mechanical properties of novel device for treatment of neuropathy

No	BR**	Authors	Poster Title
P.07	Breakout Room 2	Ondrej MIZERA, Jiri HAJNYS, Lenka CEPOVA, Jan ZELINKA, Jakub MESICEK	Laser measurement by angle accuracy method in additive technology SLM 316L
P.08		Bartłomiej KRAWCZYK, Krzysztof SMAK, Piotr SZABLEWSKI, Bartosz GAPIŃSKI	Review of measurement methods to evaluate the geometry of different types of external threads
P.09		Diogo COSTA, Vaibhav SHAH, Leonilde VARELA, Caetano MONTEIRO, Goran PUTNIK, José MACHADO	Evaluating the Statistical Process Control Data Acquisition System in a Heat Exchanger Factory
P.10		Norbert KAWĘCKI, Arkadiusz GOLA	Pick Performance System as an IT Support for Order Completing – a Case Study
P.11		Jan KUDLÁČEK, Jakub SVOBODA, Michal ZOUBEK, Henryk KANIA, Mariola SATERNUS	Technology of repairs of anticorrosion protection of smaller parts of historic steel structures using hot-dip galvanizing
P.12		Anna DUDKOWIAK, Ewa DOSTATNI, Izabela ROJEK, Dariusz MIKOŁAJEWSKI	The environmental analysis of a product manufactured with the use of an additive technology
P.13	Breakout Room 3	Mariusz SALWIN, Andrzej KRASLAWSKI, Michał ANDRZEJEWSKI, Jan LIPIAK	Product-Service System for the pharmaceutical industry - a new opportunity for machine manufacturers
P.14		Paulina REWERS, Przemysław PALUSZYŃSKI	Analysis and improvement of the foreman's work methods
P.15		Maciej KOWALSKI, Przemysław ZAWADZKI	Advantages of automatic CAM programming in industrial practice – a case study
P.16		Marek RYBICKI	New methodology of face mill path correction based on machined surface measurement to improve flatness
P.17		Zuzana TATÍČKOVÁ, Michal ZOUBEK, Jan KUDLÁČEK, Jiří KUCHAR, Viktor KREIBICH	Smart interactive paints - the effect of dispergation on color characteristics
P.18		Adam GÓRNY	The use of quality tools to improve the risk management cycle in the work environment shaping

No	BR**	Authors	Poster Title
P.19	Breakout Room 4	Edson E. CASTAÑEDA-MANCILLAS, Eduardo SANCHEZ-RENTERÍA, Francisco TORRES-GUERREO, Paweł BUŃ	A Design Proposal: Virtual Reality Environment for a safety Training in Electrical Substations
P.20		Marcin RADZKI, Jacek DIAKUN	Comparative analysis of the environmental assessment of an exemplary product in selected IT tools
P.21		Bartosz KORZENIEWSKI, Natalia ŁOŻYKOWSKA, Karol BULA	Surface structurization of metallic inserts for enhancement of polymer-metal joints
P.22		Dariusz PLINTA, Aleksandra GREŃ	Application of the PFMEA for risk assessment in the production process
P.23		Diana BĂILĂ, Răzvan PĂCURAR, Ancuța PĂCURAR	Sintered compacts of Co-Cr powders doped with HAp and ZrO2 used in implantology
P.24		Jakub PIZOŃI, Arkadiusz GOLA, Antoni ŚWIĆ	The Role and Meaning of the Digital Twin Technology in the Process of Implementing Intelligent Collaborative Robots
P.25	Breakout Room 5	Łukasz PAŠKO, Katarzyna ANTOSZ	Neural model of manufacturing process as a way to improve predictability of manufacturing
P.26		Jakub KAŠČAK, Jozef HUSÁR, Lucia KNAPČIKOVÁ, Justyna TROJANOWSKA, Vitalii IVANOV	Conceptual Use of Augmented Reality in the Maintenance of Manufacturing Facilities
P.27		Katarzyna ANTOSZ, Arkadiusz GOLA, Łukasz PAŠKO, Teresa MALHEIRO, Arminda MANUELA GONÇALVES, Leonilde VARELA	Six Sigma and Random Forests Application for Product Quality System Control Development
P.28		Michał WIECZOROWSKI, I.P. YAGO, Alejandro PEREIRA DOMÍNGUEZ, Bartosz GAPIŃSKI, Grzegorz BUDZIK, Magdalena DIERING	Comparison of measurements realized on computed tomograph and optical scanners for elements manufactured by Wire Arc Additive Manufacturing
P.29		Bartosz GAPIŃSKI, Michał WIECZOROWSKI, Patryk MIETLIŃSKI, Thomas G. MATHIA	Verification of Computed Tomograph for Dimensional Measurements

No	BR**	Authors	Poster Title
P.30	Breakout Room 6	Mateusz WIECHA, Mariusz R. RZAŚA, Karolina ADAMCZYK	Computer control systems used in precision agriculture
P.31		Kamil MUSIAŁ, Artem BALASHOV, Anna BURDUK, Andre BATAKO, ANDRII SAFONYK	Solving scheduling problems in case of multi-objective production using heuristic optimization
P.32		Adam HAMROL, Marta PAWELCZAK, Filip OSIŃSKI	Household Appliance Lifecycle And Sustainable Development
P.33		Adam HAMROL, Maciej CUGIER, Filip OSIŃSKI	Identification of the sensitivity of FDM technology to material moisture with a fast test
P.34		Jarosław SELECH, Robert SIKA, Mariola BIEDRZYCKA, Paweł POPIELARSKI, Jakub HAJKOWSKI, Andrii ZDOBYTSKYI, Mykhaylo LOBUR	The Triple Helix concept in the aspect of counteracting barriers in science, industry and the public sector
P.35		Tomasz MAZUR, Mirosław RUCKI, Michał JAKUBOWICZ, Lenka CEPOVA	Analysis of the Direction-Dependent Point Identification Accuracy in CMM Measurement
P.36	Breakout Room 7	Jacek ANDRZEJEWSKI, Marcin WĄTROBIŃSKI	Personalization of the technological cycle for the production of bioresorbable implants
P.37		Marin LAURENTIU	Superficial analysis of a graphite film deposited by means of the process of pulsed electric discharges in underexcitation mode by means of SEM Microscopy using pyrolytic graphite cathode
P.38		Agnieszka KUJAWIŃSKA, Adam HAMROL, Krzysztof BRZOZOWSKI	Waste minimization in the battery assembly process - case study
P.39		Agnieszka KUJAWIŃSKA, MICHAŁ ROGALEWICZ, Joanna POHL	Quality assessment of the cross-linking process of vascular prostheses
P.40		Mariusz BRYKE, Beata STARZYŃSKA	Relationships in the Human Lean Green areas for the benefit of sustainable production
P.41		Marta GRABOWSKA, Krzysztof ŻYWICKI, Mateusz BIEGAŁA	Employees motivation according to Ameba principles in production company

No	BR**	Authors	Poster Title
P.42	Breakout Room 8	Alicja PIETRZAK, Piotr BUDZISZ, Tomasz STREK	Design and analysis of mechanical properties of individualized limb prostheses for animals
P.43		Agata MROZEK, Tomasz STREK	Finite element analysis of the dynamic response of the auxetic structure
P.44		Elżbieta MALEC, Magdalena NIEMCZEWSKA-WÓJCIK	In search of efficiency improvement – a simulation model of a production company
P.45		Anna BORATYŃSKA-SALA, Monika WOŹNIAK, Magdalena NIEMCZEWSKA-WÓJCIK	Skills that generate innovation among IT project managers
P.46		Paweł BRZEK, Arkadiusz KROMA	Influence of surface roughness on stress concentration during tensile of MABS polymer
P.47	Breakout Room 9	Tomasz GÓRNY, Aleksandra PAWLAK	Imperfections in steel members with open cross-sections – literature review; years 2011-2021
P.48		Anh H.G. NGUYEN, Gwo-Ji SHEEN	Saving-based Genetic Algorithm for Parallel Batch Processing Problem with Incompatible Family and Time Window Constraints
P.49		Łukasz DOPIERAŁA	Composite reinforcement in a light stainless steel bus structure
P.50		Damian DZIADOWIEC, JACEK ANDRZEJEWSKI, Marek SZOSTAK	The processing of polypropylene-based films modified with biocarbon type of fillers/colorants
P.51		Piotr SZYMCZAK, Jacek ANDRZEJEWSKI, Marek SZOSTAK	The use of different types of chain extenders during reprocessing of PET bottle wastes
P.52	Breakout Room 10	Dawid SZATKOWSKI, Dominik RYBARCZYK	Development of two-wheeled self-stabilizing mobile platform
P.53		Jędrzej URBAŃSKI, Mateusz STACHOWIAK, Dominik RYBARCZYK	Development of the Globelike mobile robot with the manipulator set
P.54		Robert KUPIEC, Wiktor HARMATYS, Izabela SANETRA, Katarzyna SKŁADANOWSKA, Ksenia OSTROWSKA	Development of the handheld measuring probe for a 3d scanner
P.55		Jakub GRABIEC, Paweł DUNAJ, Mirośław PAJOR	Experimental modal analysis of the delta-type robot frame
P.56		Michał ZARZECZNY, Mirośław PAJOR	Concept of the system of automatic compensation of the tool position in the process of shaping the sphere in the lenses