

REVIEW

**SCIENTIFIC ACHIEVEMENTS,
EDUCATIONAL ACHIEVEMENTS AND ORGANISATIONAL,
REPRESENTATION OF POLISH SCIENCE AND INTERNATIONAL
COOPERATION**

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In connection with academic degree Habilitate Doctor

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1. Janusz Mleczek biography, career and overview of the merits

Janusz Mleczek Ph.D. was born in 7.11.1964 in Oświęcim. In 1983 was graduated from secondary school (Liceum Ogólnokształcące im. Stefana Żeromskiego) in Bielsko-Biała. In 1983-1988, he studied at the Faculty of Mechanical Engineering of Łódź Technical University branch in Bielsko-Biała. Received a master's degree at the field of Mechanics, specialty Machine Construction.

Ph D thesis under the title of "Multicriterial optimization of management of machine parts production processes" was defended in 19.04.2000, at the Organization and Management Faculty in Bielsko-Biała. Prof. Józef Matuszek was the dissertation supervisor.

Janusz Mleczek Ph D. began working professional in 1988 in OBR Redor Bielsko-Biała as a technologist and later as IT administrator. In 1998-2000, he worked in ZM Trzebinia, first as specialist for IT, then as IT manager.

In 1996 he took a job at Łódź University (branch Bielsko-Biała) as an assistant in Production Engineering Department. After PhD defending and organizational changes he was employed at University of Bielsko-Biała.

At the same time Dr Janusz Mleczek cooperated with manufacturing enterprises. Between 1998-2000 he was vice-president of GT System Poland, Polish representative of Slovak enterprise in IT industry from Detva. He was also the principal consultant for production management systems in the company Record SI.

His scientific research activity focuses on computer-aided production management in enterprises, particularly on the issue of computer-aided management of single and small-batch production. His another interests are mass customisation, ERP systems applications, and utilitarian informatics methods for manufacturing assisting.

During his work, until now, he published 59 scientific publications (56 after PhD defenses). Thereby significantly exceeds the required number of publications (40 publications have been listed in the category "minimum expectations" the rest is shown on a separate list).

13 publications were published in journals rated with a range both national and international. One publication was printed in the journal from Philadelphia list (impact factor 0,98) Janusz Mleczek is an author of 2 scientific monograph and co-author of academic handbook and 2 textbooks.

He participated in 3 projects, in one project as an expert of Cross Border Polish-Slovak Network of Innovation and New Technologies (Cezhranicna Polsko-Slovenska inovacna a novych technologii siet).

He participated in 18 scientific conferences (4 international). He is the member of Scientific Committee of Applied Computer Science.

An important aspect of his business activity is cooperation with companies in the field of implementation and training. He has conducted 9 lectures and supervised 81 engineering projects for enterprises. His practical skills were presented in the Production Manager Guide (in Polish: Poradnik Kierownika Produkcji).

Results achieved in habilitation and presented as habilitation thesis were applied in Anvis Włocławek enterprise for customized products.

He is a member of Polish Association of Production Management and Polish Society for Informatics.

2. Evaluation of scientific, didactic and organizational achievement

2.1 Research activity

Since beginning Janusz Mleczek's interest were connected with computer assisting in the field of production management. He was an expert in this area and based on skills and experiences coming from a cooperation with industry he prepared and defended PhD thesis "Multicriteria optimisation of manufacturing processes of machine elements management".

After defending his PhD Janusz Mleczek continued his research in the field of computer-aided production management, focusing on companies operating under the single and small batch production.

1. *Zarządzanie produkcją w warunkach jednostkowej i małoseryjnej produkcji / Józef Matuszek, Janusz Mleczek. In: Komputerowo Zintegrowane Zarządzanie : III konferencja zbior referatów, (ed.:Ryszard Knosala). Warszawa, WNT 2000 ISBN 83-204-2513-1*
2. *Kilka aspektów modelu zarządzania produkcją jednostkową i małoseryjną -wykorzystywanych w pakiecie REKORD.ERP / Janusz Mleczek. In: Zarządzanie przedsiębiorstwem Vol.2 (2002) ISSN 1643-4773 s. 63-71*

In 2006 he was invited to develop chapters in Production Manager Guide, where his experience in the production practice are presented.

1. *Organizacja produkcji / Józef Matuszek, Janusz Mleczek. In Poradnik Kierownika Produkcji. Wydawnictwo Forum Sp. z o.o., ISBN 83-7412-426-1. Poznań 2006. pp. from. 4/1-1 to 4/6.1-2 .*
2. *Realizacja procesu wytwarzania w produkcji projektowanej na zamówienie / Janusz Mleczek. In Poradnik Kierownika Produkcji. Wydawnictwo Forum Sp. z o.o., ISBN 83-7412-530-6. Poznań 2006. pp. from. 4.9.1.1-1 to 4.9.1.1-15*
3. *Realizacja procesu wytwarzania w produkcji realizowanej na zamówienie w przemyśle maszynowym / Janusz Mleczek. In Poradnik Kierownika Produkcji. Wydawnictwo Forum Sp. z o.o., ISBN 83-7412-527-6. Poznań 2006. pp. from. 4.9.1.2-1 to 4.9.2.3-18*
4. *Produkcja na zamówienie w przemyśle maszynowym / Józef Matuszek, Janusz Mleczek In Poradnik Kierownika Produkcji. Wydawnictwo Forum Sp. z o.o., ISBN 83-7412-489-X. Poznań 2006. pp. from. 4.9.1.3-1 to 4.9.1.3-21*
5. *Produkcja w partiach elementów i podzespołów u poddostawcy przemysłu samochodowego- część I / Janusz Mleczek. In Poradnik Kierownika Produkcji. Wydawnictwo Forum Sp. z o.o., ISBN 978-83-7412-715-8. Poznań 2007. pp. from 4/9.2-1 to 4/9.2-17*
6. *Produkcja w partiach elementów i podzespołów u poddostawcy przemysłu samochodowego- część II / Janusz Mleczek. In Poradnik Kierownika Produkcji. Wydawnictwo Forum Sp. z o.o., ISBN 978-83-7412-672-4. Poznań 2007. pp. from. 4/9.2.1-1 to 4/9.2.1-24*
7. *Produkcja w branży meblarskiej w małych i średnich firmach / Janusz Mleczek. In Poradnik Kierownika Produkcji. Wydawnictwo Forum Sp. z o.o., ISBN 978-83-7412-831-5. Poznań 2007. pp. from 4.9.3-1 to 4.9.3-23*
8. *Produkcja na zlecenie (MTO) czy produkcja na magazyn (MTS) a może hybryda MTO i MTS / Janusz Mleczek. In Poradnik Kierownika Produkcji. Wydawnictwo Forum Sp. z o.o., ISBN 978-83-7412-831-5. Poznań 2008. pp. from 4/9.4-1 to 4/9.4-63*

In particular the last item cited above met with great interest of managers responsible for the organization of the manufacturing process, and subsequent chapters were issued until 2008.

Since 2008, the increase in the number of his publications are observed. These scientific publications are the result of research in areas related to the production management problems in today's enterprises, such as: bottle neck identification in term of single or small batch production; dynamic classification, machine element grouping of various industries.

1. *Production control in moving bottlenecks in conditions of unit and small-batch production / Józef Matuszek, Janusz Mleczo. In: Bulletin Of The Polish Academy Of Sciences - Technical Sciences 2009. ISSN 0239-7528 Vol. 57 No. 3. - pp. 229-239. (on the Philadelphia list): IMPACT FACTOR - 2009: 0,626 in 2012: 0,980*
2. *PRODUCT FAMILY MANUFACTURING BASED ON DYNAMIC CLASSIFICATION / Janusz Mleczo In: - Management and Production Engineering Review, Kwartalnik Komitetu Inżynierii Produkcji PAN 2011, ISSN 2080-8208 Vol. 2, No. 2, pp. 29-38.*
3. *Dynamic classification of tasks in condition of unit and small batch production / Janusz Mleczo In: - Management and Production Engineering Review, Kwartalnik Komitetu Inżynierii Produkcji PAN 2010, ISSN 2080-8208 Vol.1, No. 3 pp. 41-55.*
4. *Specificity of bottlenecks in conditions of unit and small-batch production / Józef Matuszek Janusz Mleczo, In: Journal of Automation, Mobile Robotics & Intelligent Systems 2009 ISSN 1897-8649 Vol.3, No. 3. - s. 102-109.*
5. *Grupowanie zadań w operacyjnym planie produkcji wycinarki laserowej / Janusz Mleczo, In: Inżynieria Maszyn Vol. 14, No. 3. (2009) ISSN 1426-708X pp. 139-157*

In 2008, he also published two monographs as a summary of his current research in the field of computer-aided management:

1. *Komputerowe wspomaganie planowania przebiegów procesów produkcyjnych/ Janusz Mleczo. Wydawnictwo Fundacji Centrum Nowych Technologii, Bielsko-Biala 2008 - 181 p. : il. ; 24 cm. ISBN 978-83-927531-0-0.*
2. *Komputerowo wspomagane zarządzanie wytwarzaniem: (na przykładzie oprogramowania REKORD.ERP)/ Janusz Mleczo. Wydawnictwo Fundacji Centrum Nowych Technologii, Bielsko-Biala 2008 - 179 p. : il. ; 24 cm ISBN 978-83-927531-1-7.*

In 2011-2013, his research has focused on issues of mass customization, and production of a variant adjusted to customer needs. The work was carried out in a team of prof. Józef Matuszek. The study focused on both the technological, organizational and cost in enterprises where habilitation thesis were verified. Part of the publication has been developed with the participation of employees of the Department of Production Engineering at the University of Zilina.

1. *High-variety products manufacturing based on dynamic classification/ Janusz Mleczo In: Advances in Manufacturing Science and Technology 2011, ISSN 1895-9881 Vol. 35, No 3, pp.71-86.*
2. *Design method of products' processes for group technology / Janusz Mleczo In: Journal of Machine Engineering 2012 ISSN 1895-7595. Vol.12, No. 3, pp. 7-19.*
3. *Uwarunkowania kosztowe wytwarzania wyrobów dostosowanych do potrzeb klienta Cost conditions of mass customization manufacturing. Branislav Mičieta, Janusz Mleczo In: Zarządzanie przedsiębiorstwem Vol.4 (2013) ISSN 1643-4773, pp. 15-22*
4. *Distribution of information and documentation for the manufacturing processes of the high-variety products – case study / Janusz Mleczo, Pavol Podhora, Jaroslav Patka In: Applied Computer Science Lublin, Lublin University of Technology. Institute of Technological Systems of Information. ISSN 1895-3735 Vol. 9, No. 2 (2013), pp. 20-33*

5. *Cost of products manufactured in organizational similar groups - case study / Janusz Mleczko In: - Advances in Manufacturing Science and Technology = Postępy Technologii Maszyn 2013 Vol. 37 no 1. - ISSN 0137-4478 pp. 31-42.*

2.2. Didactic achievements

Dr. Janusz Mleczko lead classes of different type: laboratory lessons, seminars, projects, and also lectures after PhD thesis defenses. Currently, he teaches courses for full-time students and part-of 1st and 2nd degree in Production Engineering and Management. His subjects are:

- Computer Integration Manufacturing-lecture and lab
- Implementation of Information Systems - lecture and lab
- Management Information Systems-lecture and project
- Computer Techniques in the Production of food-lecture and lab
- Management Information Systems Business - lecture and lab
- Computer-Assisted Processes in Business Administration - lecture and lab
- Documentation in the company - project
- Integrated Management Systems-lecture and lab

Both lectures and labs were conducted based on the original program elaborated by Janusz Mleczko.

In 2011 a book: *Banaszak Z., Klos S., Mleczko J.: Integrated Management Systems (in Polish) PWE Warszawa 2011. ISBN 978-83-208-1937* has been published. The book is recommended for students majoring in Management and Production Engineering in the field of Computer-Aided Management Systems. Janusz Mleczko PhD is co-author of this book, he took part in 30% in this publication.

In 2012 two successive teaching manuals have been published:

1. *Wybrane zagadnienia zastosowania informatyki w administracji gospodarczej/ Janusz Mleczko; Wydawnictwo Naukowe ATH. Bielsko-Biala 2012. 100 s.; il. ; 24 cm. ISBN 978-83-63713-00-3.*
2. *Komputerowo wspomagane zarządzanie procesami w organizacji/ Janusz Mleczko; Wydawnictwo Naukowe ATH. Bielsko-Biala 2012. 103 s.; il. ; 24 cm. - ISBN 978-83-62292-99-8*

During last 10 years he was a supervisor of 52 master thesis and 33 engineering projects. He was reviewer of 25 (during last 5 years) engineering projects and 3 master thesis.

The high quality of his work with students provides prizes in competitions organized by the Polish Association of Production Management and Foundation Center of New Technologies.

First one "Calculations of cost of products with versions structures" was awarded and its author was the winner of the Competition for the Scholarship. The results have been implemented in one of the large enterprises in the region. The second one "Customization ERP management system for the execution of the manufacturing process chosen product"- was awarded and its author was the winner of the Competition, and work has been implemented in one of the companies from service industry.

Dr Janusz Mleczko has also received a certificate of appreciation for the care of students involved and the work of the implementation of software for computer-aided production management of animated cartoons.

2.3. Organizational activities

Janusz Mleczek PhD actively participated in the organization work at the Department and the University. He takes an active part in the events of a promotional nature, building a positive image of the University. For many years, leads workshops in the framework of open days and festivals of the faculty of arts and sciences. I've included some examples below:

1. *Prepare and conduct workshops in the framework of the Open Days Faculty of Mechanical Engineering and Computer Science: "Integrated Production Systems - Workshop" (Bielsko-Biala 28-30.09.2011)*
2. *Prepare and conduct workshops within Beskidian IX Festival of Science and Art: "The operational management of production - Workshop" (Bielsko-Biala 2008, 2009, 2010, 2011)*
3. *Prepare and conduct workshops within Beskidian IX Festival of Science and Art: „Theory of constraints in manufacturing -Workshop" (Bielsko-Biala 18.05.2012)*
4. *Prepare and conduct lectures and workshops for classes in electrical engineering on "Applications of IT systems in manufacturing enterprises" and "Computer Integrated Manufacturing" (Bielsko-Biala 2009)*

For his achievements can also be included: the development and implementation of new specializations and participation in the construction of the laboratory of computer technology in the Department of Production Engineering, University of Bielsko-Biala. He was a co-organizer of 6 scientific conferences 3, of which were organized in collaboration with University of Zilina.

2.4. Other activity

His work also relates to collaboration with an industry. Combining theory with practice completed lectures and training for businesses (9) and up to 81 projects implemented solutions to problems in companies.

3. Habilitation thesis

In addition to the documentation provided about academic, organizational, and educational evaluation the Habilitation thesis has been submitted for evaluation. The topic is "Manufacturing processes creating with use of dynamic classification in condition of unit and small-batch production".

Author focuses on manufacturing conditions in the small and medium-sized enterprises in the tendency of mass customization. The author proposed an automatic grouping of machine parts at the level of operative planning of production flow.

The use of the dynamic classification for designing manufacturing processes for the single and small batch production is the new look at the issue of the search for savings in the production of dedicated individual needs. Therefore, brings to maximize repeatability of manufacture by grouping products into sets of a certain similarity.

Presented approach based on methodology of the Theory of Constraints is applied to the task scheduling. The unit production limits are variable in nature. Their identification, elimination or reduction is the analyzed issue. This method becomes the basis for the construction of the concept of a unique solution. It was established on the basis of ERP databases and analyzes the shortcomings in supporting enterprise management.

Built planning system uses data derived from the ERP system and provides dynamic grouping of machine parts taking into account the features of structural, technological, and organizational affecting retooling times on the bottle neck. Obtained solution has many variants. The choice of variant takes place at the operational level and is dependent on the current load.

The developed methodology has been used in conditions of real enterprises. Presented examples justify the practical suitability of the developed methodology.

The method allows for the unification of the components making up the products, and hence to reduce the manufacturing costs and delivery period. This approach is important because today, manufacturers more frequently offer products with the same high quality, and the competitiveness of products is determined by terms of delivery (timeliness).

I would like to stress that both methodology and project of computer application and its development are the original author's achievements.

4. Conclusion

Dr Janusz Mleczo professional activity in cooperation with various universities, research development centers and production companies has led to the improvement of qualification and competence in the production practice. Hence his scientific activity is characterized by very practical approach to scientific and research results. His goal is to bring research to the practical results, which find application in the industry.

Dr Janusz Mleczo has an important achievements in all areas of research activity, has rich academic achievements and teaching results. His scientific publication and elaborations are highly rated, as comprehensive elaboration, important for managers of manufacturing processes, engineers, researchers and students, postgraduate students and employees of manufacturing companies.

He is well-known in the scientific and manufacturing enterprises of different industries for their creativity in solving real problems. The achievements of Dr. Eng. Janusz Mleczo is located in Production Engineering discipline, the results of his research contribute to its development and are known in Poland and abroad. The results of his work are characterized by a high level of scientific and very high level of applications.

On the basis of the documentation, knowledge of practical achievements, implementations, based on observations of scientific development, I can say that Dr Janusz Mleczo:

- has large scientific achievements in the form of original publications, which are essential for the development of scientific research area concerning the organization of the manufacturing processes.
- has achieved a significant position in the national scientific community in research and development of production management.

It has high academic achievements and implementations in cooperation with business entities.

In conclusion, I express with conviction my opinion that Dr. Eng. Janusz Mleczo is a recognized personality in the Polish scientific community. It is characterized by large organizational abilities. Can objectively and substantially interact with other teams and

research centers. It can effectively combine creative scientific work of organizational activities and its implementation.

I wanted to point out that Dr. Janusz Mleczko willingly and effectively collaborates with industry, and it should be characterized by a modern scientist seeking applications for their new solutions.

On the basis of both presented in documentation: characteristics, professional development and research of Dr. Eng. Janusz Mleczko and my observation of his scientific progress I can conclude that a characteristic feature of his work is the focus of scientific research and the development of new methods for needs of modern industry. He uses in their implementation the latest scientific achievements. Such direction of research is possible due to the deep knowledge of the results of the current work of research centers in the country and abroad, and the current needs of manufacturing companies.

Taking all this into account, I consider that scientific achievements (theoretical and utilitarian), didactic and organizational of Dr Janusz Mleczko are significant and meet the formal and traditional requirements for candidates applying out about the degree of PhD.

I hereby request to start a procedure for giving the degree of doctor habilitate in the field of Technical Sciences, discipline Production Engineering.

I justified my decision considerable achievements as the academic teacher, developer of new solutions, organizer of research and academic employee of the personal qualities required from an academic teacher.

prof. dr. hab. inż. Bożena Skolud

Gliwice, 18.03.2014