

Dr. Titus Bitek Watmon

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Personal Profile

I am an astute, knowledgeable and experienced skilled engineer with both practical and managerial skills, gained through years of experience of supervising staff including apprentices in industrial work environments. I (Dr. Watmon) have encountered and solved many engineering problems with both machines and people along with the proven ability to deliver results on time and within budget. I consider myself as an outgoing, down-to-earth person who enjoys being involved with whatever is going on in the workplace.

My areas of specialisation in teaching graduate programmes covers, Production and Operations Management, Quantitative Methods and Analysis for Business, Supply Chain Modelling and Algorithms, CAD/CAM Engineering, Industrial Modelling & Algorithms and Manufacturing Materials and Processes. Meanwhile, for the undergraduate programmes, I normally teach, Manufacturing Engineering & Technology (Production Engineering), Manufacturing Strategy, Metrology & Instrumentation for Engineers, CAD/CAM Engineering, Computer Simulations and Engineering Ethics & Professional Conduct.

I have extensively published Articles for conference proceedings, journal articles and a book chapter for American Institute of Physics. He has attended and presented papers at several international conferences and remains active as a member of two editorial boards across the globe within his areas of speciality. One such journal is the International Journal of Managing Information Technology (ISSN: 0975-5586 on-line and 0975-5926 Print) (<http://www.airccse.org/journal/ijmit.html>)

I received employer award and recognitions for contributions to Kyambogo University as one of the best performing head of department in the year 2015. I provide consultancy services to NCHE for reviewing proposal for engineering programmes and has reviewed upto eighty (100 plus) academic programmes from different Institutions within the country.

1.0 Work History

- 1.1 June 2021 to date **Associate Professor** in Mechanical Engineering: Busitema University, Faculty of Engineering, department of Agricultural Mechanisation and Irrigation Engineering
- 1.2 Sept., 2004 to 2008: **Lecturer:** In the department of Mechanical & Production Engineering section of Mechanical Engineering
- 1.3 Jan 2017 – 2020: **Senior Lecturer and Head of Department:** Department of Mechanical & Production Engineering, **Kyambogo University, P.O. Box 1, Kyambogo, Uganda**
 - **Lecturing** the following courses for **Undergraduate Programmes**; Manufacturing Engineering & Technology, Manufacturing Strategy, Metrology for Engineers,

CADCAM, Engineering Mathematics, Computer Simulations and Engineering Ethics.

- Supervision of Industrial Training
- **Lecturing to Master Programmes:** School of Management & Entrepreneurship; (Kyambogo University) Courses: Operations Management, Quantitative Methods and Analysis for Business, Supply Chain Modelling and Algorithms.

1.4 Other Responsibilities:

August 2013 to date: **Head of Department.**

1.4.1 Roles:

- Manage the affairs of the department (staffs and students alike)
- Ensure students are taught and examined
- Handle students' complaints
- Organise or Call meetings and Chair such Departmental meetings
- Manage the assets of the University within the department etc

1.5 Staff Exchange Program to Texas A&M University USA 2016

Went on staff exchange program to Texas Agricultural & Mechanical University for a full semester from 28th August to 15th December 2016.

Worked at the school of Petroleum Engineering and covered two courses

- a) Petroleum Production
- b) Petroleum Drilling

1.6 Jan 2012 –July 2013 Examinations Co-ordinator in the Department.

Roles:

- Receiving Examination Papers and where possible passing it on for moderation.
- Submitting examinations papers to the Exam secretariat
- Supervising Examination Invigilators and arranging payment of Invigilators.
- Releasing examinations Scripts to Examiners
- Receiving Marked Scripts from Examiners
- Co-ordinating between the department and the External Examiners
- Co-ordination moderation of draft exam questions and projects

1.7 Nov. 2004- 2008 Co-ordinator of Undergraduate Students' Projects

Roles:

- Appointing and or allocating students to Lecturers (Supervisors) for individual Project Dissertations.
- Coordinating students Project Presentations/ Examinations
- Soliciting industrial research project Topics

1.7.1 Achievements:-

- 2004 – 2005 Design, compiled and wrote the first Undergraduate Dissertation Project Guidelines in the department of Mechanical Engineering, Kyambogo University. (Approved and adopted in the department).
- 2005 Designed and Introduced new Course: ME 4110: Manufacturing Strategy (approved by Senate & NCHE).
- 2004 Designed computer programme for fresh undergraduate (an Introductory Course) and coached students in need during free time.
- 2008 Created collaboration network with University of East London Department of Manufacturing Systems Engineering (Secured Laboratory Equipment worth £10,000 for the Department of Mechanical & Production Engineering –Kyambogo University).

The equipment are currently being used for training students in Metrology and Production Engineering

- 2004 – 2005 Solicited and secured over 30 Industrial Projects for final years students from Industries in Uganda (Coca-cola, Pepsi, BAT Kampala, Lugazi, Kakira Sugar Works, Uganda BAATI, Roofing etc)

1.8 Jan. 2000 to Dec 2001

Project Engineer: Europressings Ltd., Wentloog Corporate Park, CARDIFF, CF3 2ER, South Wales

Duty: Design Real-time Press tool Condition Monitoring systems using Acoustic Emissions.

1.8.1 **Achievements:-**

- Identified the causes of part mislocations and made recommendations for reducing their occurrence during stamping / pressing operations.
- Produced Pareto Analysis of the ‘Causes and Effects’ of scrap and established priorities for improvement.
- Suggested and implemented the idea of storing steel coils on wooden pallets,
- Carried out an audit of Europressings’ tool maintenance system and made recommendations for improvements to SPC, SQC and Multi-Variant Chart.
- Setup a Condition Monitoring system using Acoustic Emissions systems for detecting the tool working condition.
- Carried out an audit on waste generation and management at the company and made recommendations that saved approximately £25k for the company in a year.
- Involved with new product introduction from specification to assembly (DFMA). Co-ordinating between Development Engineering Team/ Manufacture/Assembly and Operation

2.0 **Education and Training**

2.1 Feb 2008 to 2012 August: **University of East London** (<http://www.uel.ac.uk>)

PhD in Mechanical & Manufacturing Engineering.

Topic: Performance Characteristics of a Surface Modified Cutting Tool

US Patent: Component of the Research have been used to acquire a United States Patent (No: US 8,435,624 B2) Registered on May 7th 2013.

Final Results: Successfully defended the Viva Voce Examinations and awarded Doctor of Philosophy degree on 25th March 2014.

2.1.1 Sept. 2007 to June 2008: **University of East London, Post Graduate Certificate in**

Research. Courses: (1) Research Preparation & Planning

(2) Understanding Research Processes & Contexts

3.0 Sept., 1998 **Brunel University** (<http://www.brunel.ac.uk>) –Uxbridge Campus

to Sept.,1999 **Master of Science:** in Advanced Manufacturing Engineering Systems

MSc Dissertation: Yield Improvement at Tube Products. This was student work-placement project. I managed to improve the company through yields by 0.9% in six weeks which represented a saving of £7K per month. It is documented in my Dissertations

3.1 May 1999 to Oct 99; Internship Training/ Placement: Quality Engineer (BRUNEL UNIVERSITY MSc Project Placement): Tube Products, Popes Lane, Oldbury, West Midlands, Birmingham, B69 4LL, England:

Duty: Quality improvement and set-up Continuous process improvement.

The company had a through yield of 88.7% per month. After working for the company for one and half months (six weeks), I managed to improve the company through yield to 90.6%. This represents a saving of 124 tonnes of raw material per month.

3.1.1 Achievements:

- I introduced Planned Preventive Maintenance and this measure reduced downtime.
- Improved changeover time by 3% through training of the line operators.
- Setup continuous improvement strategy (*Kazien*).
- Managed to improved quality by 1.9% in just six weeks.

4.0 Sept., 1994 **University of East London** (<http://www.uel.ac.uk>) to Jul., 1998 **BEng (Hons) Manufacturing Systems Engineering**

Scholarship: In 1995/96 finished the best project in CNC programming and won Hitachi Sheiki Scholarship. Hitachi Sheiki is a Japanese firm based in the UK and is a major producer and supplier of CNC machines.

4.1 Final Year Project/Dissertation

Title: The application of Fuzzy Logic in the control of couple Tanks.

This was a simulation of a twin tank level system, designed to illustrate the basic principles of level control of a two-tank process. Results were achieved by regulating the flow from Sump into Tank 2, through limited connection between the two tanks, causing the effect of a time delay of 0.25 milliseconds from Tank one to Tank two.

Final Results: Graduated with a 2:1 in BEng (Hons) Manufacturing Systems Engineering

5.0 Key abilities:

I have a good working knowledge of basic programming language C++, very good at Expert Systems especially CLIPS programme; MRP II; competent at using Microsoft Office 2013 package

5.1 Technical Computer Packages:

Have good working knowledge of AutoCAD release 13 and ProEngineer release 20, SolidWorks 2012, ANSYS Simulations Package V.13.0Engineering Simulations software and AdventEdge™ V.5.9011 Software for Simulation and modelling (used this one for my PhD modelling and analysis)

6.0 Work Related Training and Work Experience

- a) 2001 October Managing Engineering Projects delivered by the *Institution of Electrical Engineers*
- b) 2002 Rapid Prototyping and Manufacturing delivered by *MEC Cardiff*.
- c) 2001 March Communication and project handling skills delivered by *Learning Insights (Insights (Sponsored by Europressings Ltd Cardiff -Graduate Training Scheme).*
- d) 2002 July Auditing Business Opportunities –Environmental Management Systems ISO 14000 and 14001 delivered by *WS Atkins Plc. Insights (Sponsored by Europressings Ltd Cardiff-Graduate Training Scheme).*

- e) 2001 Business Management Skills delivered by *Learning Insights (Sponsored by Europressings Ltd Cardiff -Graduate Training Scheme)*.
- f) 2002 Improving personal Skills and Teamwork delivered by *Learning Insights (Sponsored by Europressings Ltd Cardiff -Graduate Training Scheme)*.
- g) Tool and Die protection through use of Sensors and Switches
- h) May 30th May–3rd June 2016, Teaching and Learning in higher Educational Institution. Organised by *USAID/EMOS*.

7.0 Postgraduate Projects Supervision

	Candidate	Project Titles	Award / Year
01	Apora James	Characterization of resistance spot welding electrodes with annular recess design	MSc 2018
02	Omara Walter Louis	Determination of cooling effects on tensile strength of rebars using spray quenching	MSc 2018
03	Agweta Cosmas	Supply chain risk management strategies and company's corporate image. -Case of century bottling company, Namanve-Kampala	MSc 2016
04	Nanduru Jackline	Medical supplies management of and performance of projects in Uganda, A case study of presidential malaria initiative project in Tororo district	MSc 2016
05	Adio Mirriam	Corporate governance and Service delivery in public Institutions of Uganda: Case study of Uganda National Roads Authority	MBA 2016
06	Agole Peter	Improving students' Skills Practice in safety management in education workshop/laboratories (<i>Master Vocational Pedagogy</i>)	MVP 2016
07	Kyobe Godfrey	The effect of loan recovery practices and loan portfolio performance of commercial banks in Uganda. -A case study of Centenary Bank	MBA 2015
08	Zaidi Shaineh	Internal Stakeholder Management and Procurement Effectiveness in Statutory Authorities. -A Case Study of National Forestry Authority.	MSc 2015
09	Kamukama Phionnah	Stakeholder involvement, contract management and service delivery in Uganda Parastatal bodies. -A case study of Uganda National Bureau of Standards	MSc 2015

7.1 Postgraduate Viva Voce Examiner

	Candidate	Project Titles	Award/ Year
01	Kugonza Masturah	Logistics Management System and Service Quality in Uganda Police Force	2015
02	Kawooya Bashir	Packaging Innovation and Sales Turnover in Soft Drinks \industries. A Case of Harris International (U) Ltd	2015

8.0 Publications:

8.1 Peer Reviewed Journal Publications

- 1) Watmon, T. B., and Xiao, D., Modelling Orthogonal Metal Machining Using Finite Element Analysis, *Technological Innovation in Engineering Research*, Vol.3 (2022), pp 126 -137 : ISBN: 978-93-5547-692-0, DOI: n10.9734/bpi/tier/v3/18146D
- 2) Watmon, T. B., Wandera, C., and Apora J, Characteristics of resistance spot welding using annular recess electrodes, (2020) Elsevier, *Journal of Advanced Joining Processes*, www.elsevier.com (science Direct)
- 3) Watmon, T. B., Xiao, D., *Coated Tool Inserts with Crater-Like Surface Topography Last Longer*, Journal of International Scientific Research and Innovative Technology, Vol.3 (2) (2016) ISSN: 2313-3759 www.ijssrit.com/archive
- 4) Watmon, T. B., Xiao, D., and P. O. Okello, *Finite Element Analysis of Orthogonal Metal Machining*, Journal of International Scientific Research and Innovative Technology, Vol.3 (2) (2016) ISSN: 2313-3759 www.ijssrit.com/archive
- 5) Watmon, T. B., Xiao, D., and T. Kagimu, *Performance of coated Tool Having Undulating Surface Structures*, Journal of International Scientific Research and Innovative Technology, Vol.3 (2) (2016) ISSN: 2313-3759 www.ijssrit.com/archive
- 6) Watmon, T. B., Okello-Obeli, P., Otim., J.F., *Gouging-Abrasive Wear Conditions in Turning Operations*, Journal of Scientific and Engineering Research, (2016) ISSN: 2394-2630-3 (5) pages 166-173

8.2 Text Book:

Titus Bitek Watmon (2016): Metal Cutting: Performance Characteristics of a Surface Modified Tool. ISBN: 978-3-659-95713-0 and EAN: 9783659957130

8.2.1 Book Chapter:

- a) Watmon, T. B., Coated Tools With Crater-Like Surface Structures Have Enhanced Performance. In Sio-long Ao et al 2010: *IAENG Transactions on Engineering Technologies, Vol. 5, American Institute of Physics, Melville, New York* (2010), ISBN: 978-0-7354-0839-5, ISSN: 0094-243X <http://www.proceedings.aip.org/proceedings>

8.3 Conference Publications

- 1) Watmon, T. B., Xiao, D., and Weerasinghe, V., Enhanced tool wear characteristics of carbide tool inserts having a novel surface structure *Proceedings of Advances in Computing and Technology, 5th Annual AC&T Conference 2010*, London, pp 33-37 ISBN:978-0-9564747-0-4
- 2) Watmon, T. B., and Ijeh, C, A., Coating Cutting Tools with hard Substance lowers friction co-efficient and improves tool life – A review, *Proceedings of the International Multi-conference of Engineers and Computer Scientist, 2010*, Vol. III, Hong Kong IMECS 2010 ISBN: 978-988-18210-5-8 or ISSN: 2078-0966, <http://www.iaeng.org/publication/IMECS2010.com>
- 3) Watmon, T. B., and Ssengonzi, J. B., Review of finite element analysis of single point cutting process, *Proceedings of World Academy of Science, Engineering and Technology, WASET 2010, Paris France*, pp28-30, ISSN: 2070-3724 <http://www.waset.com>

- 4) Watmon, T. B., and Ssengonzi, J. B., Application of finite element in metal cutting analysis, *Proceedings of World Academy of Science, Engineering and Technology, WASET 2010, Paris France*, pp31-34, ISSN: 2070-3724 <http://www.waset.com>
- 5) Watmon, T. B., and Xiao D., Study of Orthogonal Metal Cutting using FEA, *Proceedings of Advances in Computing & Technology, 6th Annual AC&T Conference 2011, London (publication date 26th Jan, 2011)*
- 6) Ijeh, A. C., Preston, D. S., Imafidon, C.O., Watmon T, B., The Context of Geofencing Engineering, *Proceedings of the International Conference on e-Commerce, e-Administration, e-Society, e-Education, and e-Technology*, Volume 1, (2010) Grand Lisboa, Macau, China, ISSN 2074-5710, <http://www.e-CASE.org/2010>
- 7) Ijeh, A.C, Preston, D.S., Imafidon, C.O, Watmon, T.B., Uwaechie, A.O., Nwabude, A, R, Kujabi, E., Geofencing Components and Existing Models, *Proceedings of the international multi-conference of engineers and computer scientists, Hong Kong, Vol. II* (2010), ISBN: 978-988-18210-4-1 or ISSN: 2078-0966, <http://www.iaeng.org/publication/IMECS2010>
- 8) Ijeh, A.C., Preston, D. S., Imafidon, C. O., Watmon, T. B., Uwaechie, A. O., Martin C., Lancaster, P., Widdess, A., Soremekun, M., Geofencing Security Engineering *Proceedings of the international multi-conference of engineers and computer scientists, Hong Kong, Vol II* (2010), ISBN: 978-988-18210-4-1 or ISSN: 2078-0966, <http://www.iaeng.org/publication/IMECS2010>
- 9) Ijeh, A. C., Preston, D.S., Imafidon, C. O., Watmon, T. B., Uwaechie, A. O., Ojeme, S., Benjamin, R. L, Geofencing Engineering Design and Methodology *Proceedings of the international multi-conference of engineers and computer scientists, Hong Kong, Vol. III* (2010), ISBN: 978-988-18210-5-8 or ISSN: 2078-0966 <http://www.iaeng.org/publication/IMECS2010>

9.0 Consultancy

- 9.1 **Trainer for PSFU Grants** under Skill Development Fund (SDF) Uganda at Steel & Tube Industries Limited. Signed an agreement and conducted training to over 200 participants on six different modules over a six-month period. The objective of the training was to enhance skills of workers in the production of high quality steels products to meet international standards.
- 9.2 **2012- to date: National Council of Higher Education (NCHE):** Programme Proposal Review for Universities and other Tertiary Institutions of Higher Learning specifically for Engineering programmes. Dr. Watmon has so far reviewed eighty (80) Engineering Programmes and made recommendations to NCHE management to observe in accrediting those programmes which met the minimum requirements
- 9.3 **2016 to date: Inter-University Council of East Africa (IUCEA):** Serving as an expert on Engineering Programmes Benchmarking especially for Mechanical Engineering Programmes and also as a Reviewer of Programmes.
- 9.4 **2017 National Council for Science and Technology (NCST).** Project Proposal Grant Reviewer and Viva Voce Panel member for Grants Allocation.
- 9.5 **2018 (March to September) Grant Trainer for Private Sector Foundation Uganda:** Bided and won grant to provide training for Skills Development at Steel & Tube Industries Limited.

10.0 Professional Membership:

10.1 Full Member Engineer: Institution of Engineers & Technology (MIET) United Kingdom

10.2 Associate Member Institution of Mechanical Engineers (AMIMechE) United Kingdom

10.3 IAENG*Member* (No: 104807) International Association of Engineers

10.4 Member of the Editorial Board: International Journal of Managing Information Technology (ISSN: 0975-5586 on-line and 0975-5926 Print)
(<http://www.airccse.org/journal/ijmit.html>)

11.0 Research Grants

- 1) I was awarded £7,000.00 (Seven thousand pound sterling) only towards my PhD Research by Imperial Innovations Limited, a subsidiary of Imperials College, University of London. Please see attached materials on “High Productivity Cutting Tool Tips”.
- 2) I Won a grant of UGx.40,000,000.00 (forty million shillings) only from KyU Competitive Research Grants in 2020 to do more investigation in Resistance Spot Welding. But due to COVID -19 and my subsequent mandatory retirement (Age at 60 years) I did not receive the money and I was told to wait until I am put back on the Payroll on Contract. The contract has over delayed and I feel I need to move on for new challenges.

12.0 REFREES

Available on request